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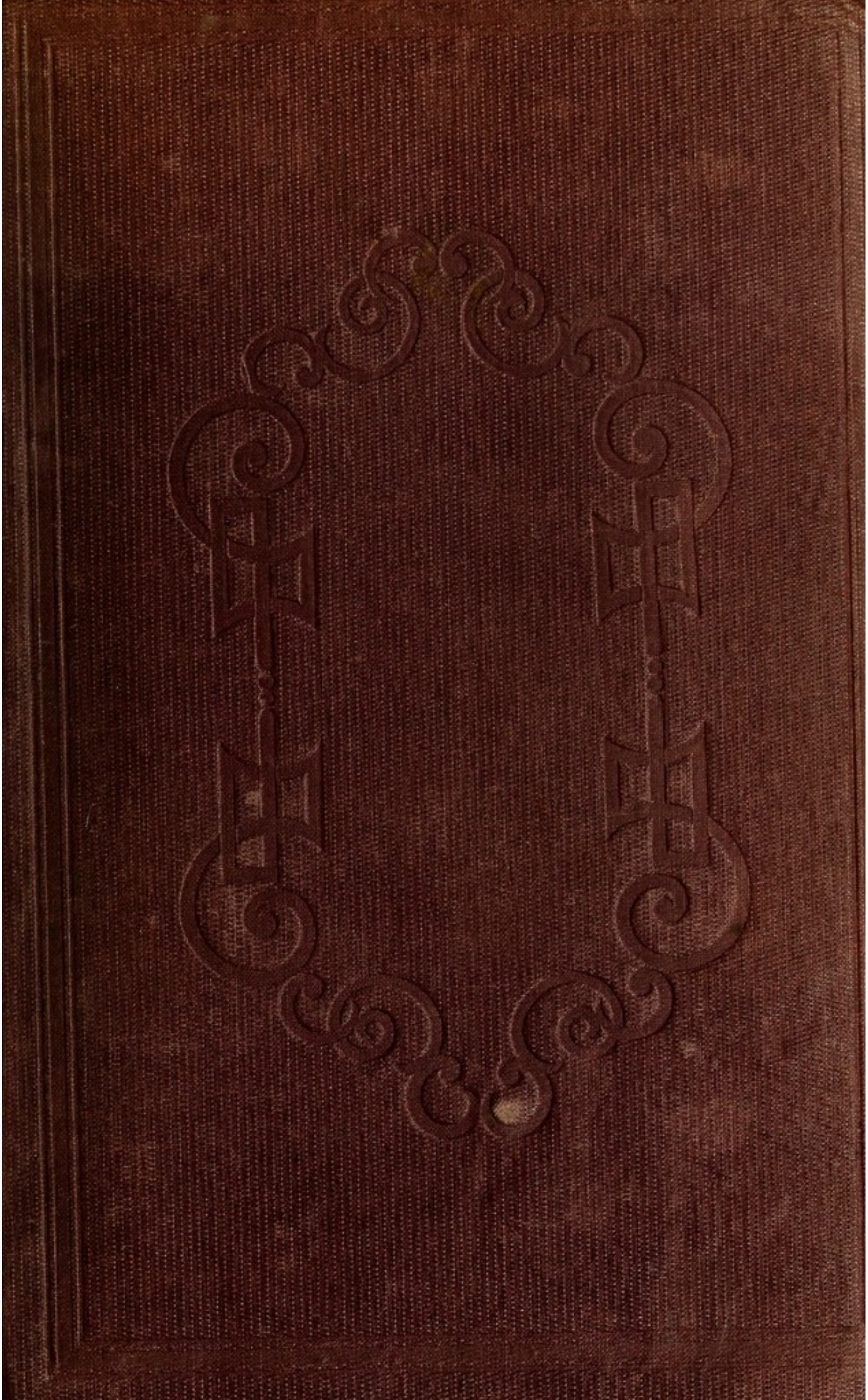

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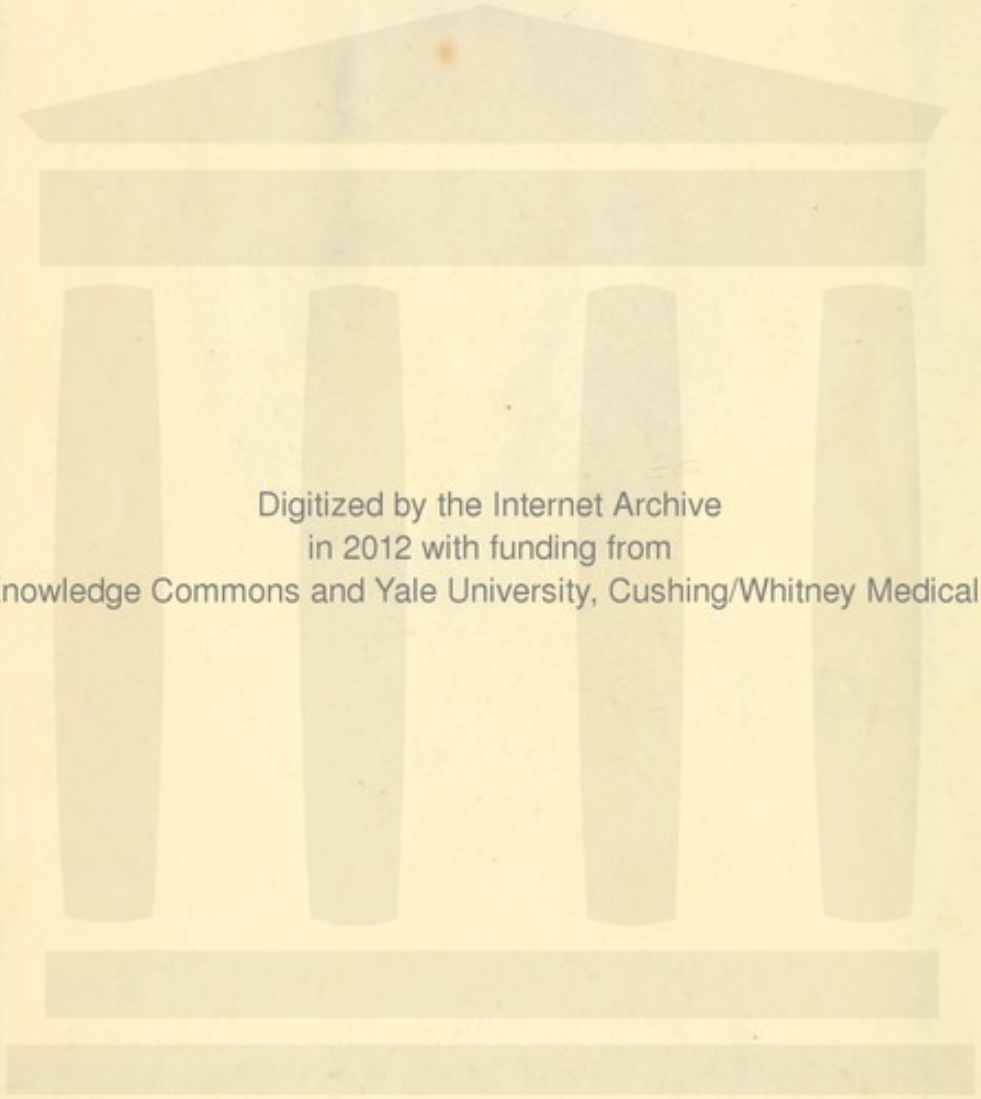

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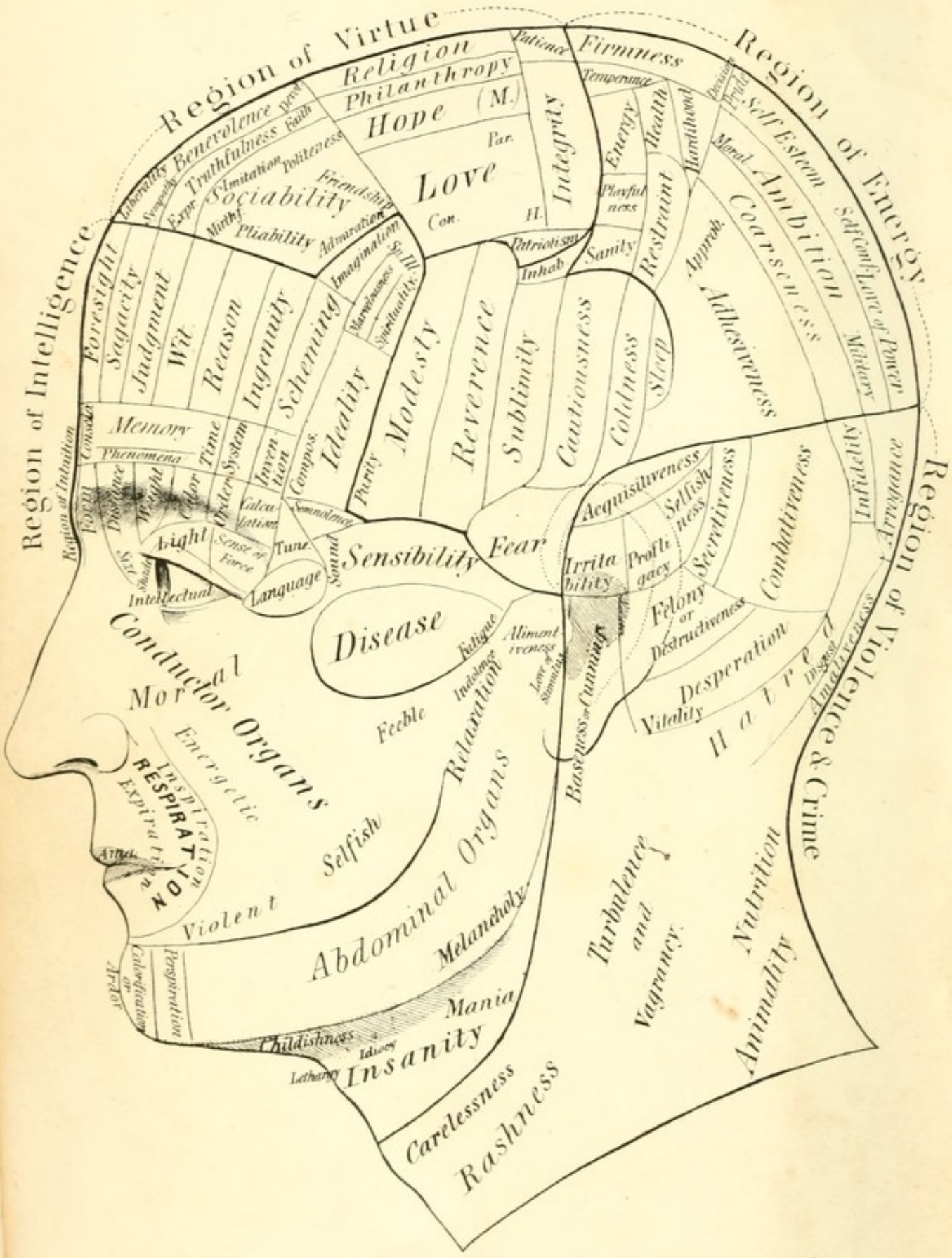
BUCHANAN'S SYSTEM OF ANTHROPOLOGY.



OUTLINES OF PHRENOLOGY, (as published in 1842.)

OUTLINES OF LECTURES

ON THE

NEUROLOGICAL SYSTEM

OF

ANTHROPOLOGY.

AS DISCOVERED, DEMONSTRATED AND TAUGHT IN 1841 AND 1842.

BY JOSEPH R. BUCHANAN, M.D.

IN FOUR PARTS.

PART I. PHRENOLOGY.
PART II. CEREBRAL PHYSIOLOGY.
PART III. PATHOGNOMY.
PART IV. SARCOGNOMY.

CINCINNATI:
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BUCHANAN'S

SYSTEM OF ANTHROPOLOGY.

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INTRODUCTION.

The work which I now lay before the public is correctly styled "OUTLINES OF LECTURES." It is an attempt to present in a concise manner the fundamental ideas of the System of Anthropology which I have taught in my lectures since 1842, and thus give to the reader a periscopic view of the science, preparatory to publishing works of ampler dimensions upon its different departments, in which the subjects might be more satisfactorily illustrated.

The concise plan necessarily adopted, diminishes the fitness of the present work for popular circulation, as it can be properly appreciated only by those who are interested in the study of man and who would avail themselves of the present work as a text-book to be carefully studied. The reader who hastily skims over pages, expecting only to retain a few leading ideas or principles from a long chapter, will find the present work not adapted to such hasty reading.

By delaying until 1854, the work which should have been published in 1842, I expect the advantage of a large and more appreciative circle of readers, embracing many who ten years since would have turned aside with contemptuous incredulity from every wonderful fact in reference to the brain or the spiritual nature of man, but on the other hand, many of those ideas which I might have been the first to introduce to their notice, have been received through other mediums, and often inaccurately imparted.

The fact of the impressibility of the brain, upon which rests the demonstration of a true and thorough Anthropology, has been made quite familiar in Europe and America by Mesmeric operations, in which, my own discovery being entirely out of view, the public have been familiarized with the fact that cerebral organs may be excited by Mesmeric procedures. The legitimate reputation due to my priority of discovery, was thus nearly lost by the notoriety of an analogous fact, and the erroneous impression was substituted that all operations upon the organs of the brain were of that Phreno-Mesmeric character which rendered them exclusively dependent upon the operator's will and independent of cerebral localities. With this impression, the interest in experiments upon the brain be-

sociation, example, and a misconceived self interest, will blind the leading classes of society to the most palpable truths. The facts of animal magnetism, and especially clairvoyance, after being demonstrated before scientific medical committees in Paris, and before tens of thousands if not millions of intelligent observers throughout the civilized the world, are still contemptuously ignored or rejected by the leading medical authors and reviewers, without any conscientious inquiry into the reality of such facts. They are simply dismissed with a sneer, without honest argument or inquiry, with a vehement scorn of human intelligence and human veracity, which might be appropriate in a convict steeped in vice, but which is inexcusable in the members of a scientific profession, and still more in those who aspire to be the leaders of human thought. That demoralizing and soul-hardening philosophy which treats the human race as a vast assemblage of knaves and fools from whom no word of truth should be expected, and whose testimony is utterly inadmissible in science, has so long ruled the high places of the medical profession, that it is vain to expect its abolition in the present generation; and under such a system it is vain to expect in the authoritative quarters of the profession the recognition of any wonderful facts when their supporting testimony is rejected, and the parties who reject conclusive testimony either totally refuse to make any investigation themselves, or enter upon it with a dogmatic and stubborn party spirit, determined to sustain their own foregone conclusions. I have had some experience of the character of scientific committees of eminent medical men, which justifies my remarks. The first, composed of three professors of the most flourishing and eminent medical college in the western half of the United States, (located at Louisville,) was composed of persons who had some knowledge of my personal character and associations, and who knew that they were honestly invited to the fair investigation of the most wonderful and important facts ever brought within their reach. Yet so far from seeking or embracing readily an opportunity so attractive to any candid seeker of knowledge, where nothing in the least objectionable offered any discouragement, their association in a committee for this purpose was involuntary, and was only procured by an appeal on my part to the authorities of the University before whom I made such demonstrations as to induce them to appoint this committee of the Faculty. As no coercive power was exercised by the Board, the investigation was dropped, as it was impossible to procure the action of the committee, but one member of which, the venerable Prof. CALDWELL, was disposed to engage in the investigation, frankly informing me that I need not expect the co-operation of his colleagues. He, with the moral courage by which he was ever distinguished, subsequently prosecuted the investigation himself, and arrived at a knowledge of the essential truth of the science.

The second committee appointed at my own instance by the Boston Academy of Sciences, and comprising their most eminent members, preferring that the investigation should prove abortive, prescribed such precautionary regulations as necessarily made the inquiry tedious, and then, in consequence of this delay, suspended the investigation just as decisive facts were about to be developed.

The third committee, comprising several physicians of eminence in Boston, took up the investigation abandoned by the Academy, and in a few sittings witnessed a complete demonstration of all that I proposed to prove. I demonstrated upon one of their number, Dr. L., the fact that the pulse could be controlled and modified according to my written prediction, by exciting with the hand the various organs of the brain—that the various organs could thus be excited so as to modify the emotions of the subject in a manner unanticipated by himself, and that an individual more impressible than Dr. L. could feel the influence of the different organs of the brain without knowing what part of the head was touched, the influence being transmitted through a metallic conductor to the hand of the subject from the head of one of the company. The demonstration of such facts by experiments which were considered unobjectionable and which were recorded as facts in the minutes of the committee which I subsequently obtained for publication, did not prompt th committee to draw any inference or express any opinion. The fai ure of experiments would have produced a ready decision of th fallacy of my propositions, but perfect success procured only perfec silence, so far as the expression of any opinion was concerned, nor had I sufficient reason to believe that any number of conclusive experiments would have procured a distinct and public avowal of the truth of the science demonstrated.

With committees composed not exclusively of medical men, I have never failed to demonstrate the truth of Neurology, and to procure a satisfactory recognition of the truth of the science, if not a cordial appreciation of its value, interest and prospective utility. The report of the first committee of investigation appointed at New York in 1842, of which Dr. Forry was an active member, announced after a brief investigation, "that they have had sufficient evidence to satisfy them that Dr. Buchanan's views have a rational experimental foundation, and that the subject opens a field of investigation second to no other in immediate interest, and in promise of important future results to science and humanity." Such are the conclusions, I believe, of all candid, unprejudiced enquirers, before whom I have laid the evidence upon which the science rests. The present brief volume may not be so conclusive with all its readers, as it was not designed to embody the evidences of the science, but rather to guide the honest enquirer, and instruct those who are prepared to learn.

In the more extensive publications which I contemplate, the truth

of Anthropology will be rendered more evident by a fuller presentation of the subject, a full knowledge of which is almost identified with the perception of its truth.

I feel reluctant, however, to make any definite promises as to my future publications, since experience has shown me that the duties of a medical professor in a flourishing school, with the editorship of one or two periodicals, are not compatible with extensive scientific and literary labor. I must therefore refer those who may feel a lively interest in the progress and illustration of Anthropology to Buchanan's Journal of Man, a monthly periodical, which will receive my assiduous attention, and form the principal medium of my communication with the public. At the publication office of the Journal, in the city of New York, I shall ever welcome the candid scientific inquirer, conscious that with such, truth needs but to be faithfully presented.

To physicians, medical students, and the thorough students of Anthropology, I would mention that I am now engaged in the preparation of a system of Physiology, the second volume of which will develope the principles of Neurology in connexion with Anatomy, Physiology and Pathology, more thoroughly and minutely than they can be presented in a popular treatise.

Cincinnati, 1854.

LETTER TO PROFESSOR GATCHELL.

To Horatio P. Gatchell, M. D., *Professor of General and Special Anatomy and late Professor of Physiology in the Western College of Homeopathic Medicine, Cleveland, O.*

Dear Sir: Bringing forth at this late period, a work upon Anthropology, thirteen years after those remarkable discoveries which laid the foundation, and ten years after the public had been led to expect from my pen a systematic sketch of the science, I feel tempted to exchange a few thoughts with you, as an early friend, cognizant of my first movements toward the reformation of Phrenology, familiar with the developements to which those labors finally lead, and one of the earliest to adopt and carry out the new philosophy.

I remember the promptness with which you repeated my experiments upon the brain, when you first heard the facts announced, and the remarkable fact that, when operating upon the coronal region of the brain—as you subsequently informed me—you carried the impression so far as to annihilate the pulse in the radial artery—carrying the experiment to a greater length than I had dared to attempt Your thorough comprehension of the subject, and the intuitive facility with which you grasped its principles and details, gave me from the first the highest respect for your judgment and criticism.

Since that period, when we were animated by the first glow of enthusiasm belonging to a new discovery, we have been engaged in other pursuits, which might give the opportunity for factitious enthusiasm to subside to a normal condition, and which would prompt and facilitate the dispassionate criticism of a science so rapidly developed by the comparison of its details with the anatomical and pathological facts belonging to the science of medicine. Our close attention for several years to physiology, anatomy, pathology, and materia medica, necessary in the performance of our duties as medical professors has given us the opportunity of criticising from every point of view, a system of Anthropology so beautiful and harmonious in its perfect simplicity, as to prompt the frequent inquiry whether it was not a theoretical construction of the human mind, rather than a faithful portrait of the complex and mysterious constructions of nature, in which we generally find something that appears arbitrary, from being beyond the reach of philosophical explanation.

As for myself, I can freely declare that, after ten years' delay, hoping that I might find something hasty, crude, or unphilosophical in the system—anxious to eliminate every error before committing myself to formal publications—I have been unable to detect any very material deviation from the truth in the doctrines which I taught in 1842, at which time you were thoroughly familiar with their details. On the contrary, I find in every work upon pathology, which in any manner elucidates the nervous system, beautiful and forcible confirmations of that which I have learned from nervauric experiments. In the study of mankind by cranioscopy and physiognomy,* every head that I meet appears to afford additional, minute, and striking demonstration of the details of Anthropology. While the science is thus confirmed by daily observation and critical research—by pathology, by human and comparative anatomy, by craniology, and by the incessant language of the passions and faculties, acting in obedience to mathematical law, I have been still more gratified in finding that, whenever I have adopted the science of Anthropology as a solid basis for reasoning, and boldly projected therefrom a systematic ratiocination, to elucidate any of the numerous problems in pathology and therapeutics,—in political, social, or educational philosophy—in pneumatology and craniology, I have never failed to find a gratifying result,—the inferences from the science, not only proving to be just and true, but so harmonizing with other truths, and interlocking with adjacent facts, as to constitute thereby one of the highest demonstrations of the premises from which the inferences were drawn.

I believe you fully sympathize with and enjoy that luxurious intellectual pleasure which arises from the conscious possession of fundamental central truths, which point by millions of radii to the realities of the universe, and which enable us to stand upon the mountain summits of philosophy, and discover with mathematical precision the existence and position of a universe of truths. You have doubtless, like myself, in your physiological and pathological investigations, often observed how obscure and unsatisfactory were the phenomena recorded by scientific men, for the want of the illuminating power of Anthropology to designate the relations of their various facts, and to indicate where to look for such additional truths as might give to their observations completeness and harmony. Nowhere, perhaps, does Anthropology more satisfactorily remove that unsatisfied feeling—that sense of darkness, vagueness, and incompleteness of science, than in the department of pathology and pharmacology. The effects produced by medicines upon the human

* I would here remark, in reference to physiognomy, that a more extensive and critical observation would be desirable, to enable me to speak positively of the universal accuracy of its indications.

constitution can never be satisfactorily appreciated, however great the industry and research employed, until the sympathetic relations of the constitution itself are understood, and the parallel action of mind and matter satisfactorily traced.

As I am now about to publish in a systematic form the Anthropological system, I should be pleased to receive from you a deliberate expression of your matured views, and of your present conceptions of the science in its relations to collateral branches of knowledge, and its bearings on the progress of science and humanity. Moreover, in bringing my work before the great world, I shall be pleased to associate your name with its publication, as the first philosophical mind with which I enjoyed the pleasure of an intimate intercourse—an intellect, to which, in profundity and perspicuity, I have yet found no superior in personal intercourse—the co-operation and approbation of which furnish one of the liveliest pleasures incident to my peculiar investigations.

In reference to the future progress of the science, I have been perhaps more hopeful than yourself, and more disposed to rely upon the natural receptivity of the human mind for truth, as a promise of the rapid diffusion of the highest truths, when clearly and distinctly stated. Moreover, all truth is so harmonious, that he who has possession of one portion, is thereby prepared to receive an addition, and, like one who has taken hold of an endless chain, he is tempted to go on, drawing in the remaining links. Thus it is in the science of Anthropology; all parts are so related and connected with the whole, that he who recognizes any of its simple and easily demonstrated facts, is strongly attracted, if he has any reasoning capacity, to embrace in succession all parts of the entire system.

A word in reference to nomenclature. Seventeen years since, I endeavored to familiarize the public mind with the term ANTHROPOLOGY. It has now become sufficiently familiar. Ten years since, I endeavored to familiarize the public mind with that grand and comprehensive scientific term, NEUROLOGY. But I presume you will agree with me that, in using that term, we have not been very successful in impressing the public mind with an adequate conception of its dignity and scope. Hence, you perceive that in my present work I have made less use of the comprehensive term, considering ANTHROPOLOGY, though more limited in signification, sufficient for my present purposes, and decidedly more practical. There is but one inconvenience in the use of this term—that in its popular currency, it has sometimes been freely applied to fragments of Anthropological science, such as discussions of questions in morals, and physiological, phrenological, or even sexual subjects, anthropological in their character, but not constituting a science of Anthropology.

My little volume comes before the world as the first SYSTEM of ANTHROPOLOGY which has ever been published, and it legitimately

dates, not from 1854, but from 1842, the period at which you recollect the first Neurological map was published, and the doctrines, philosophy and details of the science publicly taught by you as well as myself, as they have since been propagated and now are offered to the world.

That I should have so long withheld this publication, has been due partly to caution, and the desire to see what changes time and criticism might suggest, but has mainly been owing to the fact that at the time these discoveries were first announced, they appeared too incredible, and too antagonistic to the existing mood of the public mind, to admit of their having a candid reception. The editor of one of the leading medical journals of the United States, the publication of which commenced soon after the announcement of my discoveries, was informed by an old and prominent member of the profession, that if he dared to introduce into his journal the science of Neurology, (which he was known to have recognized as having a substantial foundation,) it would be the *death knell of his journal.* In vain did I challenge the criticism of medical colleges and learned societies; inert as they were from prejudice and habit, and often defective in moral courage, the most perfect demonstrations that could defy scientific criticism, would have been but lifeless and still-born affairs, incapable of leading to any important result. To diffuse the scienee by personal propagandism among the masses, did not suit me; but to establish it by the highest species of scientific demonstration, before scientific committees, appeared to be either nugatory and useless, or difficult if not impracticable, from the absence of the desire to co-operate with an honest explorer of nature, in submitting her arcana to a rigid investigation.*

Among the more eminent literati and savans of the profession, you know I found but one, the venerable Caldwell, the father of Phrenology in America, from whom I could receive the candid and patient attention, or the philosophic interest, necessary to comprehend and appreciate such a science, with the moral courage necessary to recognize and honor it publicly. I have much reason to regret that the death of this venerable patriarch, prevented him from communicating to the National Medical Association, an account of the new science, in connection with his report upon Phrenology and its collateral subjects. After being appointed to perform that important office, by the association, he manifested not only the candor of the philosopher but the ardor of youth, in the pursuit of scientific inquiry, by making a journey to Cincinnati, and spending some days with me in the investigation of my then unpublished discoveries, with a view to their proper presentation to the National Association.

* In these remarks, I refer only to medical institutions. The report upon the Science of Neurology from the members of the Faculty of the University of Indiana was as truthful, frank and liberal, as I could desire.

In alluding to the distinguished intelligence which smiled upon my first labors in the developement of human philosophy, I should not omit to mention a younger but no less liberal and manly scientific friend, the late Dr. SAMUEL FORRY, of New York. To his candid and generous appreciation of truth, I was greatly indebted in my first visit to New York, for the public presentation of the science. Accustomed to patient and candid scientific and literary research, he recognized with intuitive readiness the truth, and the value of the facts which I laid before him, and I cannot but regret that his early death deprived our country of the benefit of the labors of such a mind, devoted to truth and to the welfare of humanity.

To CALDWELL, FORRY, and YOURSELF, I owe a grateful recognition of your early and generous appreciation, not merely of myself, but of truths impersonal in their nature and imperishable in their destiny.

I have met with many since, whose generous appreciation I highly esteem; but I deem it just and appropriate to make this personal and grateful reference to the three gifted individuals who hailed with pleasure and with kindly co-operation the advent of a systematic NEUROLOGY.

In conclusion, permit me to hope that you may not be cut down prematurely like Forry, but may live like Caldwell to witness many a revolution in science and philosophy, and to stamp your own thoughts upon the passing age by the use of your much neglected pen.

Cordially, yours,

JOS. R. BUCHANAN.

CINCINNATI, July, 1854.

REPLY OF PROFESSOR GATCHELL.

DEAR SIR: With your letter announcing the approaching publication of your long-proposed work on Anthropology, and alluding to our early efforts toward its diffusion, a host of memories crowd upon me—our early-formed acquaintance on the threshold of manhood—the keen delight of intimate communing with a mind which, overflowing with philanthropy, bent all its philosophical powers towards the science of man, which, capaciously receptive of truth, yet acknowledged no master, and which, while admiring the achievements of Gall, yet boldly and discriminatingly criticised the imperfections of his system—the intelligent friendship consequent upon that acquaintance, which has continued undimmed now for nearly twenty years—the interest with which I have watched your labors, the admiration which I have felt for your courage in holding on your way undiscouraged, conscious of being freighted with the weightiest truths, and calmly awaiting the time when their worth should be acknowledged—all these, and ten thousand other thoughts of the past, mingle with anticipations of the final triumph of a genuine science of man—a triumph imperfect it may be in our day, and yet as certain to arrive as that the human mind predominantly loves truth.

When I formed your acquaintance, I had long, indeed from boyhood, been familiar with the current metaphysical authors, and had delighted in their vigorous display of thought, with the fine powers of analysis and generalization, exhibited by the abler minds of this class. But I ever felt unsatisfied from their want of scientific basis, and had learned to regard with pity that blankness of intellect which retained, as text books in our colleges, the meagre and but little more than verbal discussions of Locke, the superficial platitudes of Dugald Stewart, and the narrow crudities of Reid, with his so-called common sense solution of all the profound mysteries of the human mind, as if common sense means anything more than that mode and degree of perception which are common among men, and as if it were not in virtue of a very uncommon sense that men become discoverers and elaborators of profound truths. Nor did it require any great acumen to perceive or courage to predict that the exceedingly French metaphysics of Cousin, then culminating, were destined to a speedy setting.

The great German metaphysicians, from the limited knowledge which I was able to obtain of their works through historical notices or

translations, while they impressed me with the greatness of the speculative intellect, left me as unsatisfied of their having any permanent, scientific value, as did their feebler French or English competitors.

I had also made myself acquainted with Phrenology, as developed by Gall, together with the additions by Spurzheim and applications by Combe. And I hailed in Phrenology the first movement towards placing the philosophy of man upon a scientific basis. But, in common with every thoughtful mind, I felt in the current system a want of profound penetration and of philosophic breadth. I found rather the raw material of a philosophy of man than the finished fabric. The genius of Gall, great as it was, proved inadequate to the double task of discovering and perfecting. His labors are magnificent in their consequences, but they furnish the seeds of things, not the ripened harvest.

In the science of the nervous system as developed by yourself, I found a relief from that sense of want which I experienced in the study of the more elementary results of Gall. I found there a genuine science of man, ramifying into his entire relations and destiny, affording ample scope for the range of the most gifted mind in its capacity for speculative philosophy, as well as a firm experimental resting-place for the cultivator of the more exact scientific methods. I then regarded, and after the lapse of some dozen years, do still regard it as the most profound and interesting of sciences, to any one who combines reflective capacity with sympathy for his race, as far exceeding other sciences in dignity as man does other creatures.

That its developement should have taken place towards the close of the first half of the nineteenth century, ready to enter full fledged upon its second, is worthy the character of that century and the relations of its former and latter portions. It is peculiarly fitting that its developement should have been synchronous with the increasing sense of the real and destined fraternity of man, with the various social movements designed to realize that fraternity, and with the artistic and mechanical advancements adapted to sustaining those movements—a scientific unitary view of man synchronous with and auxiliary to a conceived harmony of interests and co-operation of action—a view which by presenting upon the surface his profounder capacities—capacities which ever give impulse to loftiest aspirations, attests the magnificence of man's nature, and indicates the high promise of his future, even in the midst of his present crudities and basenesses.

Possibly, I have underrated the receptiveness of the human mind as to grand, strange and startling truths, though the past is eloquent enough in illustration upon this point, now familiar to every school boy; while, familiar as they are, every present generation blindly repeats the ancestral error, though condescendingly deploring the ancestral folly. Not that I am insensible to the daily increasing re-

ceptiveness of the human mind—I am not blind; not that I have any doubt as to truth's final triumph and complete dominion—I believe in God.

In the mighty and incessant struggle between the two fundamental elements of the universe, rude, inert, intractable matter, and subtle, energizing, informing mind, mind must in the event assert a perfect, as it is ever asserting a partial supremacy; and in that perfect supremacy must disappear all the evils incident to the existing struggle. That this is the tendency, is evident from the history of our globe as traced by the geologist, from its earliest chaos up to man—a history from which it appears that the method of the divine mind, in its dealings with matter, is ever towards the developement of higher forms illuminated with superior minds, in long series from the lowest inhabitant of the waters up through the whole bestial creation, with their perishable minds, to the divine image in man, with a mind capable of meeting and enduring the shock of death. Nor is the lesson which we derive from the geological record without confirmation in the variety and progress of the human race, as learned from imperfect annals, dim traditions and anatomical structure.

As in the different animal races, so in the varieties of the human race, do we discover different capacities for truth and goodness, which indeed are but modes of influx of the divine and which are to the mind measures of dignity and conditions of its life, consequently determining causes of its durability—its continued existence. We see this clearly enough in comparing the character and destiny of the human with those of the bestial mind, which latter from lack of capacity for vitalizing truth and goodness, is unable to sustain it's individuality after losing the support of organization in the act of material dissolution. That all human minds are above this contingency, is not incontestibly shown by either nature or revelation. Nor is it beyond the range of possibility or even of probability, that deteriorating minds which survive this act may, in the process of deterioration dependent upon diminished reception, at length lose their consciousness, and with it their individuality. If this apparently logical consequence of the dependence of mind for individual existence upon the reception of truth and goodness is the real one, we have, in the intense self-hood of the human mind as compared, not with the lowest but with the most advanced bestial—and in the conseqeunt strong desire for life and action, a powerful inducement to the hearty and generous reception of the vital conditions, as the constant basis for and direct measure of the duration of individual existence.

In the absence of an intelligent perception of this relation, a certain instinct of the mind is ever impelling it towards a constantly increasing receptiveness of the elements of mental life. This is so

apparent at the present time, that the dullest does not fail to perceive the accelerated and accelerating movement of the human mind towards the divine center of radiation. Appreciable progress has been made since I co-operated with you, some twelve years ago, in the effort to indoctrinate the public mind with a knowledge of its own relations. That the present time, therefore, with all its mental immaturities, and with all the obscuring mists of old opinions, coming up out of I know not how low an estate of undefinably ancient barbarism, is far more favorable for the propagation of a genuine science of man, is sufficiently apparent.

For though our age is still mechanical and commercial rather than artistic and philosophical, it has reached a higher point than any preceding age. Commerce is, in pursuit of its own ends, becoming subservient to the fraternity of the race and to consequent interest in its science. While the multiplied and multiplying facts of physical science in their indefinitely varied relations, and constant and constantly increasing occasion for the assumption of forces, which in their nature are imperceptible to the senses, and cognizable only by the higher intellect, are giving a due predominence to that higher and philosophical intellect.

I anticipate, therefore, for your forthcoming work, a warm reception from a large circle of generous minds; and regarding, as I do, a genuine anthropology as affording the only substantial basis for society, education, and government, (the latter I trust ere long to be resolved chiefly into an educational machine,) regarding it farther as essential to a regulated and scientific movement of the race, I hail its publication with profound pleasure and exultant hope. Nor should I neglect to state a conviction of its importance to a just estimate of the details of that great chapter of society known under the name of morality, as well as to the separating of fungous superstition from divine religion. In fine, I regard the science which has resulted from your labors in anthropology upon the phrenological basis, as constituting the noblest scientific developement of this prolific age; and I take pleasure in thus recording my mature and well-considered judgment in its favor; a record, more a source of gratification to myself than of importance to others.

As to terms, like definitions, they are sometimes difficult things. But the two that you have selected are certainly well chosen—ANTHROPOLOGY, a comprehensive term, including all that concerns the science of man, is hence fundamental to society, education, and government—and NEUROLOGY, as expressive of the relations of Mind and Life to, and indeed their engrossment in, the brain and nervous system. In its anatomical, therefore, which is its fundamental scientific relation, and in its zoological bearing, NEUROLOGY is the preferable term, as ANTHROPOLOGY is in the social, moral and intellectual relations.

As to the value of Neurology in perfecting our physiological sciences, and rendering our therapeutics more philosophical, you are familiar with my views, and aware that the present letter would scarcely afford the necessary space for their statement. Nor will time and opportunity permit me even to sketch the numerous nervauric aud psychometric experiments with which I have substantiated the truth of your discoveries, and their superiority to the Gallian system—or to refer to the more perfect correspondence of your discoveries with the anatomy of the brain. I have little to add to your own exposition of your views, but the decided approbation of one whose opportuntties as an anatomist and anthropologist have given him every facility for the detection of error.

Of the three names that you mention, associated with an early knowledge of your labors, mine is the only one that remains except to memory. Forry went in the full vigor of his manhood and Caldwell at a patriarchal age, which he bore with patriarchal dignity. With me, too, it is past high noon, the shadows begin to be projected eastward. The time is not remote when I too shall launch upon that river, which though its fountain is in the house of death, yet flows through realms of day. But in the future, as in the past, it will ever be to me a grateful memory, that I co-operated with you in your early labors, and a pleasing consciousness that Iam honored with your discriminating friendship—a friendship, however, which has expressed somewhat too strongly in your letter to me, the philosophical value of an old coadjutor and friend.

Ever among my most cherished recollections will it be that I have witnessed and aided the early struggles of the noblest science of them all, one that has man, with his grand capacity, grander promise and infinite relations, for its subject. And I shall be pardoned, if in this connection I express my admiration of the patient tranquility and magnanimous cheerfulness with which you have regarded the stolid indifference and sometimes bigoted intolerance that so sublime a science has been compelled to encounter. Equally venial, too, is it that I indulge a national pride in recognizing in you a countryman as well as friend, and another added instance in which America has vindicated her capacity for the highest efforts of genius as well as for pioneer daring, mechanical ingenuity, and commercial enterprise.

REVIEW OF THE

GALLIAN SYSTEM OF PHRENOLOGY.

The system of Phrenology founded by Dr. Gall, contains important truth, but is so incomplete as a phrenological system, that I have thought it expedient to make a review of its doctrines, indicating the errors and imperfections which have been discovered in them by means of craniologcal observation and nervauric experiment upon the the living brain.

The system of Gall, as taught by himself, recognizes in the brain twenty-seven organs; as modified by Spurzheim it recognizes thirty-five or thirty-seven, which differ in their nomenclature from those of Gall. In consequence of the labors and success of of Spurzheim as a propagator of the science, his own works have superceded those of Gall in popular estimation; and the system of Phrenology taught in England and America has been substantially that of Spurzheim.

A considerable part of Gall's great work is occupied by illustrations and arguments to which it is now unnecessary to allude. It would be more respectful to the reader of the present day to take it for granted that he is aware that the brain is the organ of the mind, and that all the different portions of the brain do not exercise exactly the same functions.

Without regard then to the preliminary matter, I will at once proceed to the organs of the Gallian system. In comparing the views of Gall and his disciple, we observe that the former adhered more closely to nature, simply observing the dispositions of men and animals in connection with their cranial developments and narrating without modification whatever he observed. He observed, for instance, propensities to theft, to murder, to kindness, or to religion, and designated in the most direct language what he had observed. He observed these and other propensities to be connected with prominence of certain regions of the cranium, produced by the greater development of adjacent portions of the brain. He accordingly indicates the locations at which the prominence occurs—without giving a precise form to the organs, or determining absolutely the functions of the whole brain. But

in the mapping of the head by Spurzheim, we discover that the whole surface of the cranium is divided by certain geometrical lines, which convey to the observer the impression that all the convolutions of the brain have been critically surveyed, and the boundaries of the organs accurately determined.

This difference, which is well calculated to commend the system of Spurzheim to popular favor, over the less pretending system of Gall, would of itself suggest to the philosophical enquirer the probably greater truthfulness and fidelity to nature of the latter.

The nomenclature of Gall refers simply to certain acts and characteristics observable among men; while that of Spurzheim with more pretension, philosophizes upon these acts, and undertakes to explain the essential nature of the faculties or propensities, from which the particular actions proceed. Where Gall speaks of attachment and friendship, Spurzheim speaks of "Adhesiveness." Where Gall speaks of the inclination to murder, or Carnivous Instinct, Spurzheim speaks of "Destructiveness." The Instinct of Generation with Gall, is with Spurzheim "Amativeness." Gall's love of Offspring becomes in Spurzheim's nomenclature "Philoprogenitiveness," and his organ of Religion or Theosophy bcomes, with Spurzheim, Reverence.

If then there are errors in Gall, they are errors of observation and induction; in Spurzheim there may be also errors of speculative philosophy. The assertion by Spurzheim, sanctioned by the Edinburgh Phrenologists, of a higher degree of philosophic accuracy than his master, would not be confirmed by the comparison of their craniological developments. The head of Spurzheim presents, indeed, a fuller development of the perceptive faculties, but is not equal to that of Gall in the organs which produce philosophical profundity and originality. The pre-eminence of Gall, as the true philosopher and founder of the science, has been somewhat obscured by the adroitness with which his pupil Spurzheim has placed himself before the public as its great teacher and improver. The development of the head of Gall, plainly indicates, according to phrenology, that he should rank among the world's great master minds. It is rare indeed to find an organization so favorable to profound and original philosophy. The head of Gall also indicates a large development of friendship, cautiousness, concentrativeness and combativeness, qualifying him to be a bold and judicious leader in real progress, and a champion of truth, while that of Spurzheim indicates less force of character, with a greater amount of popular address.

I have been tempted to make these remarks because we observe in the writings of Gall, a certain bold, naked presentation of facts; and in those of Spurzheim a certain modification of the prominent peculiarities of the science which might favor its currency. The present wide diffusion of phrenological science, is partly due to this fortunate combination of original talent in

Gall, the founder, and of popular address in Spurzheim, the propagator.

The following catalogue presents the nomenclature of the Organs adopted by Gall and Spurzheim :

Gall.	Spurzheim.
1. Instinct of Generation or Reproduction, Instinct of Propagation, &c.	2. Amativeness.
2. Love of Offspring,	3. Philoprogenitiveness.
3. Attachment, Friendship,	4. Adhesiveness.
4. Instinct of Self Defence, Disposition to Quarrel, Courage.	6. Combativeness.
5. Carnivorous Instinct, Disposition to Murder.	1. Destructiveness.
6. Cunning, Trick, Tact,	7. Secretiveness.
7. Sense of Property, Instinct of Providing, Covetousness, Propensity to Steal.	8. Acquisitiveness.
8. Pride, Hauteur, Loftiness, Elevation,	12. Selfesteem.
9. Vanity, Ambition, Love of Glory.	11. Approbativeness.
10. Cautiousness, Foresight, Circumspection.	10. Cautiousness.
11. Memory of Things, Memory of Facts, Sense of Things, Educability, Perfectibility,	30. Individuality. 22. Eventuality.
12. Sense of Locality, Sense of the Relations of Space.	27. Locality.
13. Faculty of Distinguishing and Recollecting Persons.	23. Configuration.
14. Verbal Memory—Faculty of attending to and distinguishing Words. 15. Faculty of Spoken Language, Talent of Philology, &c.	33. Language.
16. Faculty of Distinguishing the Relations of Colors, Talent for Painting.	26. Coloring.
17. Faculty of perceiving the Relations of Tones, Talent for Music.	32. Tune.
18. Faculty of the Relations of Numbers.	29. Calculation.
19. Faculty of Constructiveness.	19. Constructiveness.
20. Comparative Sagacity—Aptitude for Drawing Comparisons.	34. Comparison.
21. Metaphysical Depth of Thought, Aptitude for drawing Conclusions.	35. Causality.
22. Wit.	20. Mirthfulness.
23. Talent for Poetry.	19 Ideality.
24. Goodness, Benevolence, Gentleness, Compassion, Moral Sense, Conscience.	13. Benevolence. 16. Conscientiousness.
25. Faculty of Imitation, Mimicry.	21. Imitation.
26. Religious Sentiment—Sense of the existence of a God—Propensity to Religious Worship.	14. Reverence.
27. Firmness, Constancy, Perseverance, Obstinacy.	15. Firmness.
	5. Inhabitiveness.
	17. Hope.
	18. Marvellousness.
	24. Size.
	25. Weight, Resistance.
	28. Order.
(Alimentiveness and Desire to Live are recognised by Spurzheim as probable.)	31. Time.

To one accustomed to study the elements of human nature in actual life, the foregoing list presents a remarkably meagre appearance. Various acts will occur to the mind, which could not be satisfactorily accounted for by the system of organs here presented. Various emotions, passions, and traits of character might be enumerated, for which we should seek in vain an adequate origin in the table of organs. The scheme is marked and marred by a lack of completeness and symmetry. To the philosopher accustomed to the precision of physical science, it suggests the idea of an incomplete system arrested in the midst of its progress. While utterly inadequate to satisfy the practical man, who looks for a full estimate of the facts of human nature—it has not on the other hand the merits of being such a philosophical analysis of human nature as would satisfy the man of metaphysical mind. To such persons, it would seem deficient in analysis, and overladen with arbitrary incongruous details. But Phrenology claims to be a practical, not a metaphysical system. Let us then test its practical character. If we should ask, how is the act of suicide accounted for in the Gallian system, we are referred to Cautiousness and Destructiveness; but "Destructiveness," which implies a propensity to destroy or kill, does not indicate that state of mind which gives rise to suicide. And as Cautiousness is a very different inclination from suicidal passion—the latter is referred to the morbid condition of the former. But if it be a morbid condition of another organ, our list of organs is too large. Cautiousness, which is considered the organ of Fear, might be dispensed with, and Fear referred to a morbid condition, or unpleasant affection of Hope; Destructiveness might be referred to an excited condition of Combativeness; and thus the whole system might be simplified.

If we ask what is the source of Hatred or Aversion, we find in the above table no distinct explanation. The terms Combativeness and Destructiveness do not convey the idea of a fixed aversion, or a settled purpose of revenge. Doubtless, in the practical application of the science, the various passions and impulses would be referred to the organs with which they have the greatest analogy; Hatred would be referred to Combativeness or Destructiveness;—but, surely, Hatred differs from Combativeness and Destructiveness as much as either of those impulses from the other.

However easy and convenient it may be, in practical applications, to extend a principle over more ground than it legitimately occupies, such a course is inconsistent with the character of a philosophic system; and, regarded as such, it is obvious that the Organology in question does not depict all the aspects of human nature. In the organ of Marvellousness, for example, it recognizes a credulous love of the wonderful and supernatural; but the opposite inclination—to disbelieve and deny—has not its

special organ. Now it is obvious that the human mind is not formed in such a half-way and one-sided manner, but is capable of deviating from symmetry in every direction, presenting in different individuals the opposite excesses. If one person is marked by excessive credulity, another is equally remarkable for excessive mental stubbornness and disinclination to receive a truth which is beyond his own experience.

Spurzheim distinguishes an organ of "Inhabitiveness"—producing a propensity to become attached to particular places—but he overlooks the opposite propensity, one at least equally active in the human race, which gives us a restless love of locomotion, and unwillingness to be confined to any spot. He speaks of an organ of "Secretiveness," which undoubtedly influences those who take delight in concealment; but he presents no organ which may account for the opposite trait of character—the strong desire to communicate and sympathize with our fellow beings. The mere absence of Secretiveness could not produce the opposite propensity to express and communicate our thoughts and feelings—a propensity so strong with many as to be very difficult of control. If Secretiveness or Reserve requires its special organ, Frankness or Expression is no less entitled to a separate cerebral location.

Cautiousness, which is an important element of our nature, is recognized by Spurzheim, and assigned its appropriate organ; but Rashness and Carelessness, which are equally conspicuous and common as traits of character, have not been thought worthy of a cerebral location. Pride, or Self-Esteem, has its appropriate position on the head; but the inclination to be humble and servile has been overlooked, as if it were not also a prominent trait of human nature. Mirthfulness has been recognized; but Sadness, Grief and Melancholy, which have equal claims to a place in the system, have been rejected. The capacity for Imitation has been recognized by assigning it an appropriate organ; but the equally remarkable (though not antagonistic) capacity for Originality, which enables us to dispense with example, has not been recognized. The love of society is recognized under the title of Adhesiveness; but the love of solitude and retirement, of which history furnishes us so many striking examples, has no phrenological expression or recognition.

In these and many other instances, the system of Gall and Spurzheim seems to proceed upon the supposition that positive traits of character, which are not represented by any particular organs, may be produced negatively—merely by the absence of the other organs; that, for example, our disposition to skepticism may be produced merely by the deficiency of Marvellousness; that Restlessness and aversion to any fixed location may arise from the lack of "Inhabitiveness;" that Sadness and Grief may arise from the absence of Mirthfulness, &c. Such suppositions

are contrary to the essential principles of the science; no positive effect can be produced by a negative cause—(i. e. by no cause at all)—by the mere absence of organs. A positive effect or trait of character must arise from a positive organic development. The absence of organs may enable other organs to act with greater freedom, but cannot beget any new inclination or power. It would be strikingly absurd to omit the organ of Benevolence, and to affirm that benevolent conduct resulted merely from the smallness of Destructiveness and Combativeness! Equally absurd would it be to omit Destructiveness, and to affirm that murder arose from the absence of the kindly propensities, or from other selfish feelings acting upon Firmness and Self-Esteem, Acquisitiveness, and unrestrained by Benevolence.

It is manifest then that the phrenological system cannot be considered as complete until every decided or distinct tendency of human nature—every impulse or power inherent in our natural constitution is referred to a definite cerebral source. So long as we are satisfied to account for acts and passions, by attributing them to the absence of certain organs, we are dealing in philosophical errors; so long as we thus explain one-half of the faculties we investigate, by reference to organs, and leave the other half to negative explanations; so long we shall have but a half way knowledge of the subject of our study. No tendency to any one manifestation or excess can exist without a corresponding capacity for the opposite manifestation or excess; and for each of these opposite tendencies a cerebral organ must exist, if the mind acts through the brain as its organ.

We may therefore say that the first essential fault of the phrenological system is, that it is one-sided and unbalanced—in not recognizing distinctly the opposite or antagonistic traits of character; and, consequently, is as unphilosophical as would be an attempt to account for all the movements of the human body without recognizing all its antagonistic muscles.

In the second place, the phrenological system, in consequence of its incompleteness, is inconsistent with itself. A large number of the propensities and traits of character, which belong to man, not being provided with a distinct location, are explained by the supposed various modes of action of the organs, and by various complex combinations of their functions. If any particular faculty has been omitted in the phrenological catalogue, the phrenologist who considers that catalogue complete, regards the faculty in question as arising either from a particular mode of action of some one organ, or from the combined action of several. Thus, out of the phrenological catalogue of the primitive faculties, by these convenient suppositions, any number of composite faculties and traits of character may be manufactured to meet any emergency.

To illustrate this fundamental error of Phrenologists, I would

refer to the organ of Conscientiousness. Spurzheim recognizes the existence of such an organ; and in this he is sustained both by philosophy and by observation. Gall, not having made such observations, and being unwilling to admit upon speculative grounds a special organ for this trait of moral character, supposed that Conscience was but a higher manifestation of the organ of Benevolence,—thus setting the pernicious example of explaining the different and distinct elements of human nature by a recourse to different degrees and modes of action of the primitive organs. The error which Gall in this instance sanctions, was the very error of the old Metaphysics, against which the whole Phrenological system was a protest. If a few primitive faculties and organs are made susceptible of many essentially different *modes of action* as well as many different combinations of action, for the production of widely different results, the whole Craniological system is superfluous. We should, at once, to be consistent, go back to the doctrines of the Metaphysicians; and affirm that the mind of man possesses but a few "simple primitive powers,"—that (to take one of the boldest of these doctrines,) it has but the powers of Perception, Association and Volition; and that by means of these three powers, in all their variations of action and combination, all the complex faculties and traits of character observable among men are produced. It is no very difficult matter for the ingenious Metaphysician to show how this *might be*—to show how, by means of Perception, which apprehends the qualities of various external objects, and the power of Association, (which connects these qualities with each other, and with the various acts of Volition to which they give rise,) the whole of our complex thoughts, passions, emotions and habits are produced.

But such a system is barren of all practical results. It gives us no index to the actual varieties of human character in the world; and leaves us, with all our study, profoundly ignorant of human nature. From the barrenness of such a system, Phrenology has made its Exodus, by adopting the proposition that each of the characteristic tendencies, passions and faculties of man, is associated with a definite portion of his brain. *If this proposition be true at all, it is true to the utmost*; either we must go back to the old Metaphysical ground, and deny that our passions and faculties are connected with particular portions of the brain, or with matter in any shape; or we must adopt the Phrenological doctrine *fully and unequivocally* and carry it out to its legitimate results. This is what the Gallian system has failed to do. It has commenced the application of its great principle to the Analysis of Man, (by means of the investigation of his brain,) but from the intrinsic difficulties of the undertaking, it has stopped short of its legitimate goal. The passions and faculties which Phrenology *has* located, with a respectable degree of correctness, present by no means a complete catalogue of the elements of human char-

acter. When we look at the twenty-seven organs recognized by Gall, or at the thirty-five recognized by Spurzheim, we may easily recall to mind as many more elements of character which have an equal claim to be considered elemental and to receive an organic location, that are excluded from the list.

It is necessary, then, that our Craniological science should be a full philosophical Phrenology; and not a mere embryo, half-developed system. We should open our eyes to the clear perception that there is no half-way ground between the Craniological and the Metaphysical position;—that we must either deny to every faculty of man any specific cerebral location; or, if we admit the claim of one, must admit the claim of all. We must lay down, as the very foundation of the science, the broad principle,—That every separate faculty of the mind, every peculiar emotion, every passion that is distinct in kind, must be referred to a distinct portion of the brain; in short, that no fibre of the brain can be competent to the manifestation of a plurality of functions.

This principle is already, in an indecisive manner, recognized by the Phrenological system. What we need is to carry out the admitted principle, logically and practically; and thus render Phrenology consistent with itself.

I do not contend for any specific sub-division of organs; or for any one particular nomenclature. We may adopt terms which will cover large regions of the brain and a variety of mental manifestations; or we may adopt terms of a more specific individual character, which will apply to smaller regions of the brain, and to more special forms of mental action. Our object should be to give fullness and precision to the science, to include in its philosophy all the thoughts and feelings of man, and to give its organology true locations. This task I have undertaken in the Lectures on the Phrenological functions of the Brain, to which I would refer the reader.

With these remarks upon the general deficiences of the Gallian system, let us proceed to consider its special organs.

The first three organs of the system of Gall, are those which are now commonly called Amativeness, Philoprogenitiveness and Adhesiveness. These organs are all placed in the occiput, in the group of animal and selfish propensities!

To any one who has been accustomed to take correct views of human nature; and whose modes of thought have not been modified by the craniological technicalities, it must appear strange that the purest and tenderest affections of our nature have no representatives in the phrenological system, except three animal organs, located in that portion of the brain which is generally regarded as opposed to everything elevated, moral or intellectual. The Gallian doctrine, in this particular aspect, is not only inadequate and imperfect,—it is really degrading. For love it substi-

tutes the venereal instinct; for friendship, the gregarious propensity—the "Adhesiveness" of sheep and cattle; and for parental affection it offers the organ of Philoprogenitiveness, located in a portion of the brain remote from everything noble and excellent. In fact, it may be said that the Gallian system almost ignores some of the brightest and most elevated elements of human nature, and substitutes animal instincts or propensities for true affections. Love, in its better *human* acceptation, is excluded from the science. Its observations were at first as much upon animals as upon men; and the humble ideas, derived from the animal character, have been transferred to the human. The protuberance at that part of the head above the cerebellum furnished a strange problem to Gall, until, while lecturing, at a happy moment, as he said, it occurred to him that this protuberance was equally remarkable in women and in monkeys, and that both were characterized by their fondness for children! The description of Philoprogenitiveness, as manifested in women, gives it indeed a more elevated character than the mere animal instinct; but the elevated character which is then ascribed to the organ, is so flatly contradicted by its position in the brain, and by the natural language proper to that locality (see Lectures on Pathognomy,) that it is obvious that neither the faculty nor its organ has been properly understood.

The Love of Offspring is thus placed in immediate connection with fierce and hostile passions,—as if there were any natural affinity between the tender cares and sympathies of a mother and the angry passions of a warrior!—as if portions of the brain immediately adjacent and continuous could exercise functions so radically distinct and opposite as those of maternal love and the passion for quarrelling and fighting! It has sometimes been suggested, in defence of these incongruities, that parents will fight more promptly for the defence of their children than for anything else, and that maternal love is especially courageous. But this does not indicate that the passions thus related are themselves congenial and located in contiguous fibres. Religion has been one of the most prominent causes of war throughout the history of the world; yet no one would, on that account contend that religion was necessarily allied to the warlike spirit; or that the organ of Religion should be located between Combativeness and Destructiveness. True religion is antagonistic to all hostile passions; and so is parental love. They are both gentle, subduing, heavenly emotions, the very reverse of everything that is harsh or violent. These elevated emotions cannot possibly be located in convolutions, where they are in continuous connection with organs of a totally opposite character: for if such were the case, the whole brain would be constantly liable to great irregularity in the circulation of the blood, since the ordinary action of one portion of a convolution would habitually paralyse and

suspend the action of the immediately adjacent fibres, which are supplied from the same blood vessels, and which, from a physical necessity, must become active at the same time, under ordinary circumstances. It is impossible that elements of character diametrically opposite, each calculated when excited to resist the other, should be so located in the brain, as to render it necessary that they should be excited in conjunction. It is therefore contrary to reason, contrary to physiology, and to our experiments on the brain, to assert that the highest affections of man can be located in the occiput, in contact with his worst and most degrading passions. Not only is this contrary to reas on,and to the principles of physiology, but I can also say, from the result of my last sixteen years' observations, that it is as contrary to the actual facts of Craniology. It was the observation of skulls and the striking discrepancies which I often found between the developement of the head and the character of the individual, which first informed me of the important errors of the Gallian system. That which I learned by Craniological observation, I have since confirmed by the more direct appeal to nature in nervauric experiments upon the brain. I consider it clearly established that the pure affections are connected with the anterior instead of the posterior regions of the brain.

To these conclusions I have arrived by three methods of investigation, either of which I have considered sufficient for their demonstration. First, by observations upon persons whose characters I knew, or could ascertain, I have become convinced that the affections do not depend upon the occiput, but may exist in great intensity where the occipital organs are deficient; and that they *can be* determined by a reference to the superior portions of the brain, where they are located in connection with congenial functions. Secondly, by experiments upon the living brain, I have ascertained the location of the affections upon the superior region, and the non-existence of any genuine love in the occipital region. Thirdly,—There are certain principles or laws of expression, by which the position of any organ is indicated. The natural language, or pathognomic movements, of the organs, are all made in accordance with their position. Now it is utterly impossible to reconcile the gestures and movements of the affections with the supposition that their organs are located in the occiput. The gestures of the lower occipital organs point backward and downward; their influence upon the muscular system is exciting and contractile. Their influence upon the pulse tends to produce frequency and hardness. Their influence upon the whole system tends to give it a rigid, active and restless character. The affections, on the contrary, exercise a soothing influence; diminish the animal excitement: tranquilize and relax the muscular system; and soften the pulse. It is impossible that the affections should be located in the occipital organs, which produce the very

opposite condition. The natural language or gestures of the occipital organs are incompatible with the acts of nursing and caressing which arise from the affections,—incompatible with the gentle tones and movements of true love. All movements connected with *disinterested* affection have an upward and sustaining tendency. The great labor of maternity, the carrying of the child in the arms, is a direct exercise of the supporting powers. Gestures which point downward and backward, are all indications of violence which is incompatible with love. Love subdues, moderates, and ultimately in excess, enfeebles the muscular system. When unduly predominant it exhausts the strength, diminishes the appetite, and subdues the temper. In short, if we observe individuals under the influence of this emotion, we find that their animal nature is restrained ; that their moral sentiments are elevated, and even their intellect receives an additional brilliancy and softness. The pathognomy of love, as expressed in the face, is utterly incompatible with an occipital location. It elevates the features in accordance with the direction of the coronal organs, and shows, in every instance, a tendency incompatible with that of the occiput. It is true that a certain attractive tendency which belongs to the occipital organs of Adhesiveness, and which is manifested in a nearly horizontal line, favors the idea that true affection belongs to the occiput. But Adhesiveness or Attraction is not disinterested love: all occipital attraction partakes largely of selfishness.

The subject of Pathognomy, or the science of the Natural Language of the organs, has been so little attended to by Phrenologists, that they have not become aware of the contradictions which it gives to some of their *locations*. In fact, Pathognomy, or the Natural Language, has been regarded rather as a matter of incidental observation than as a science. (For the further illustration of the Pathognomy of the affections, I refer to the Lectures on Pathognomy in the latter part of this volume.)

Let us now consider the special organs.

1. *Amativeness.* The sexual impulse. Was referred by Gall and his followers to the whole cerebellum. My own experiments indicate that it is located upon the median line and does not occupy the whole of the cerebellum. Pathological observations in European hospitals confirm my experiments, by showing that in cases of apoplexy, or inflammation with erotic phenomena, the seat of the inflammation, congestion, or irritation was generally the central superior portion of the cerebellum, on the median line.

2. *Philoprogenitiveness*,—When located upon the lower portion of the occiput on the median line, occupies a region of the brain more fully developed in carnivorous than herbivorous animals, and manifesting extraordinary activity and growth in the skulls of criminals. I have never obtained the skull of an indi-

vidual, notorious for acts of violence and cruelty, in which this portion did not present traces of extraordinary activity and growth. Men who have been cruel to females, and those who have been concerned in the murder of children, have manifested by their skulls the most unequivocal ascendency of this portion of the brain over the anterior and superior organs, not only in its large developement, but in the marks of its intense activity. I do not deny that there may be, in a portion of the region, marked as Philoprogenitiveness, animal propensities which would be gratified by the society of animals and even of children. These are propensities which delight in the exertion of authority over subordinate objects, and which better qualify the individual to control them. Those who have a large developement of this region, have a great amount of animal life themselves, and are much better pleased to have animal life around them, than those in whom it is defective. On this account there may be some general accordance between this region and that sort of Philoprogenitive feeling. But true parental affection is an emotion of a very different character.

That the lower part of the occiput on the median line may in Mesmeric experiments yield a Philoprogenitive manifestation is doubtless true. But in a great portion of the Mesmeric operations, the result is produced solely by the general sympathetic control of the operator over his subject, and he can produce any result that he pleases *with or without contact* with *any portion* of the head. Hence such experiments are entirely useless as a means of Phrenological investigation and scientific discovery. Indeed a great number of those who have made Mesmeric experiments, are so well aware of this sympathetic control, that they doubt the possibility of any nervauric experiments in which it does not exist and hence disregard all Phrenological experiments on the brain.

It is also true that even judicious scientific experiments on the brain may apparently lend countenance, under some circumstances to the old Philoprogenitive theory. When the amiable organs have a very decided ascendancy in the brain, all of the basilar and occipital organs are elevated in the character of their manifestations by the predominant influence. In like manner the predominance of the intellectual organs tends to change our active and violent passions into mere sentiments. In a delicate and amiable female no occipital organ would give the same strong and coarse manifestation as in a muscular, coarse and violent male. In many individuals of weak passions, with great predominance of the amiable and gentle faculties, it is difficult to obtain any distinct and pure manifestation of the occipital organs. Hence we sometimes find the combative region, under such circumstances, producing merely a disposition to contend in argument, and the arrogant and authoritative region operating in the way of parental authority, and a disposition to associate with such

objects of control as children or animals. Yet even in the same individuals a more intense excitement of the occipital organs will generally produce the more violent manifestations. I wish it to be understood, also, that as each organ undergoes modifications of its leading tendency in the lateral fibres of the convolutions, there may be in the arrogant region, as in other portions of the brain these special modifications, which may approximate the Philoprogenitive character.

It has commonly been supposed that the organ of Philoprogenitiveness was one of the most certain and best ascertained in the Phrenological system; but to this proposition I cannot assent; I have too often seen a large developement of the organ without any strong attachment to children; and a small developement accompanied by great fondness for children, and by remarkable tact in winning their affections. When we contrast the character of Doctor Spurzheim, in whom the organ called Philoprogenitiveness was small, with that of Margaret Gottfried, a woman in whom this organ was decidedly large, we are surprised that Phrenologists should have over-looked the flat contradiction which their characters gave to the doctrine. Spurzheim, in whom the true organs of the affections were well developed and active, (as I know by the inspection of his cranium,) was remarkable for his kind and pleasing manners with children. Margaret Gottfried, notwithstanding her so-called organ of Philoprogenitiveness, attained her infamous celebrity by poisoning not only adults, but her own children, and by wanton attempts to poison those of her neighbours. The fact upon which Phrenologists have mainly relied, and which has passed unquestioned to the present time, is this, that the organ called Philoprogenitiveness is larger in the female than in the male head. This assertion has passed current and undisputed, simply because Phrenologists have not been sufficiently diligent in ascertaining the truth by strict and careful measurement. I have carefully measured a large number of heads, and I aver, with confidence, that I have never detected this supposed extraordinary developement of the occiput in the female. In point of absolute developement, the measurement of the organ in both male and female skulls is much the same. It is easy for those who merely examine the head by the touch, with their minds strongly prepossessed as to the form which they should find, to discover the very form which they are looking for —but when we resort to the rigorous test of measurement by accurate instruments, we find how easily imagination may mislead. The common opinion of the superior developement of the occipital bone in woman, which was announced by Gall, and which has been passively received by his followers, proves to be a material error.

The true difference of the male and female head is that the former is broader and fuller in the basilar organs; and that the

latter, in consequence of its greater narrowness, thus appears in comparison more decidedly prominent on the median line. In other words, the so-called organ of Philoprogenitiveness appears larger in women because the neighboring organs of Combativeness and Destructiveness are relatively somewhat less developed. This I have ascertained by many careful measurements; for in a matter of such importance merely manual examination is altogether too inaccurate and inadequate a method. The differences in the positive measurement of the male and female heads is so small in reality, that I should doubt the accuracy of even the best practical phrenologists in any case, in which their prepossessions could possibly influence their judgment; nor would I trust even to the craniological admeasurement, unless taken by persons of known accuracy and fidelity. The slightest negligence in the observer may produce important errors in his statement. I have seen tables of measurements of heads, professedly drawn up by scientific persons, in which were contained the most palpable errors.

3. *Adhesiveness.* That a gregarious propensity, a species of blind attachment, exists in the occiput, near the location assigned to "Adhesiveness," I do not deny. But I am not willing to confound this physical impulse with the exalted sentiment of Friendship,—a disinterested emotion, which seeks the good of others, and which in its character is nearly akin to Benevolence. It is strange that phrenologists should have the thought of so widely separating these organs. A developement in the region of "Adhesiveness" may impel us to seek society, and may give us a disposition to seek the friendship or attachment of others; but it cannot originate any disinterested affection. It may lead us to cling to others, not for the sake of benefiting them, but for the sake of the direct pleasure and benefit we receive from them. That selfish spirit which demands everything from its object, and which is jealous of the slightest attention to others may indeed belong to the occiput; but that affection which serves its object, from disinterested motives, has a higher location; the tender regard and deference of a lover come from the coronal regions; the pertinacity of the social bore or designing intriguer comes from the occiput. The occipital organ of Adhesiveness is, in its character, somewhat akin to Acquisitiveness; while the coronal organ of Friendship is similarly related to Benevolence. If we thus discriminate properly between "Adhesiveness" and Friendship, we may still retain the former among the occipital organs.

Even if we could overlook the fact that the Gallian Phrenology has merely given us animal impulses in the place of true affections, we cannot find in it a full recognition of the different classes of affections. Man has not only an affection for special objects of attachment—he has also an affection for his whole race, which often leads to the noblest deeds and to the devotion of a

life. In the domestic circle, not only have parents an affection for their children, but children have also an affection for their parents. Each of these affections has equal claims to phrenological recognition as an element of human nature. Why should parental affection be recognized and filial affection overlooked?

Another important element of human nature is the Love of Country, the impulse to deeds of patriotic devotion. This Love of Country or Patriotism is distinct from general Benevolence, and also distinct from special parental attachment. It has been entirely overlooked by Phrenology. Spurzheim had indeed suggested an analogous organ—that of Inhabitiveness. In this he stands alone, as the organ of Inhabitiveness was not recognized by Gall or by the English Phrenologists. The suggestion of an organ of Inhabitiveness originated like many other phrenological suggestions, from the habits of animals. The propensity to dwell in particular places and to become attached to a single spot was ascribed to an organ on the median line between Self-Esteem and Philoprogenitiveness. It is easy to refute the craniological doctrine of Spurzheim, for we may find a great number of persons who, with this region depressed or deficient, have nevertheless a strong attachment to places. In the Choctaw Indians, inhabiting the Southern portions of the United States, this is remarkably deficient; yet as a race they are by no means deficient in local attachments. Although mistaken in the craniological location of the organ, Spurzheim was undoubtedly right in asserting that such an organ existed. Nor could phrenologists have denied entirely the existence of such an organ, had their minds been impressed with the fundamental principle of the science,—That every distinct trait of character must have a distinct cerebral organ. The true location of the Love of Home and the Love of Country will be found upon the parietal bone immediately anterior to Sanity, between Cautiousness and Love; at which point we find the true inhabitive love of home, and the patriotic love of country, lying in close proximity. In describing character by cranioscopy these locations will not mislead us.

Let us now take up the selfish department of the head, from which originate acts prejudicial to the welfare of society. In this region we find the four organs, Combativeness, Destructiveness, Secretiveness, and Acquisitiveness; to which four organs, according to the Gallian phrenological scheme, all our crimes and social evils are to be exclusively referred.

As to the existence of these four organs in the location assigned to them, I cannot deny that such organs exist somewhere,—for no propensity or passion can be named, which has not its peculiar cerebral organ;—but as to the question whether these organs are appropriately located, I might speak with some degree of certainty, from years of craniological and pathognomic observation, even if I had not resorted to the tests of actual experiment

upon the brain. The positions of Combativeness and Secretiveness are nearly correct. That of Destructiveness is higher upon the side of the head than it should be, and that of Acquisitiveness is located by Spurzheim altogether too high, being entirely above and anterior to its proper location. The location of the organ of Destructiveness above the ear, does not coincide with the facts of cranioscopy. That organ lies upon the petrous portion of the temporal bone, and its development is indicated behind the cavity of the ear, by the breadth at the mastoid process, and greater depth of the occiput. The development indicated above the ear, produces a petulant, excitable character, but does not produce any violent or formidable passion.

The true location of Acquisitiveness is farther back and lower upon the head than phrenologists have ever yet placed it. It is remote from the moral organs, and connected with the violent and selfish propensities.

In my craniological observations, I made great efforts, during the first year or two, to sustain the doctrines of the European system upon this point, by every ingenious explanation that I could suggest. But the numerous and glaring contradictions to the system which I found in nature, compelled me to seek another location for Acquisitiveness, more in accordance with the facts.

When we look at the phrenological system as a philosophy of human nature, and observe that, in the department of the brain from which the misfortunes and crimes of mankind proceed, it recognizes but four organs, we are tempted to ask whether this professes to be a system of mental philosophy, or merely contributions to assist in forming a system. These four propensities, recognized by Gall as the propensities to fighting, killing, covetousness, and cunning, are certainly not all the propensities and passions which militate against the happiness of society, or require control. A great number of evil propensities and traits of character might be named, which do not coincide with the four propensities of phrenology, but which are equally prominent as elements of human nature, and equally entitled to their appropriate cerebral locations. For example, Disgust is as decided a feeling as any of the four which are sanctioned, and more distinct from each of the four than they are from each other. The propensity to be disgusted, is one that plays an important part in marring the harmony of social and domestic life; and it exists in different individuals in different degrees, by no means proportioned to the development of any other propensities. Whenever this propensity is conspicuous, the feeling is so unequivocally displayed as to render the manners intolerably offensive and disgusting to associates.

The disgustive propensity is not so active or violent as the combative; but it is equally pernicious in its effects upon the individual and upon society. There are those in whom Combativeness, Destructiveness, Secretiveness, and Acquisitiveness, are

strongly marked, who are nevertheless entirely free from disgust—who are not repelled by personal deformities, who are not easily disgusted by mean or absurd conduct in their associates, and who look upon every object in nature, however offensive it may be to others, with an eye of complacency. The omission of Disgust, as one of the elements of human nature, is a striking defect: any other organ in the phrenological system might have been omitted with as much propriety as this.

Another important trait of character is that of Carelessness, or Rashness. It will not do to say that this arises from the absence of Cautiousness; for we might as well say that Destructiveness arises from the absence of Benevolence. Rashness, Impulsiveness, or Recklessness, is a distinct trait of character. One may have very little Cautiousness, and be quite incapable of displaying prudence, and yet be without any propensity to rash or hasty action.

Another element of character overlooked by Phrenology, is that of Anger. This passion is not identical with Combativeness and Destructiveness. There are those who murder without any feeling of anger, and who indulge in pugilistic contests without any really hostile feeling. Anger is surely as distinct from Combativeness and Destructiveness as these are from each other. Each of the three propensities may exist alone or in connection. Generally they coexist, though occasionally we may observe striking examples of their distinctness. We see persons of effeminate dispositions capable of violent bursts of anger, who are harmless as to action, and careful to avoid collision—who would be horror-struck at the sight of blood. On the other hand, we see men of desperate habits, who are ready to fight with the fist, the knife, or the pistol, from the pure love of fighting, without any real anger—who will shake hands with a friend, fight him the next moment, assist him if he has been injured, and consider the whole an agreeable interlude.

Another distinct trait of character, which has an important influence, and which is overlooked by the Phrenological system, is that of Melancholy—a state of feeling which displays its maximum effect in the act of suicide. Suicidal melancholy is not accounted for in the Gallian system of organs.

Melancholy is ascribed by Spurzheim to the organ of Cautiousness. But it is very clear that cautiousness is essentially distinct from melancholy; for one may be intensely melancholy and at the same time desperately rash. Even if we regard the organ of Cautiousness as essentially the organ of Fear, it would still be distinct from melancholy. Spurzheim believes that melancholy does not coincide with the function of any Phrenological organ, and ascribes to it the excessive and morbid activity of the organ of Cautiousness.

If we should resort to such explanations as this, the Phrenolog-

ical system might be very easily simplified: it would be very easy to say that Destructiveness was but an excessive, or more violent action of Combativeness, and that Philoprogenitiveness was but the special exercise of Benevolence towards dependent objects; that Vanity was but a slight modification of Selfesteem; and Firmness, but a calmer action of Combativeness in conjunction with the moral sentiments. In short, we might reduce our Phrenological catalogue of organs to a very small number, if we adopt the principle that any portion of the brain can manifest functions that are essentially distinct. Spurzheim rejected this principle when he insisted that Conscientiousness was distinct from Benevolence, and Phrenologists generally have sanctioned the distinction. In like manner I would insist that Melancholy is distinct from Cautiousness, and the distinction is certainly as obvious in this case as in the other. All Phrenologists have concurred in the distinction of Combativeness and Destructiveness, (which is less obvious than many of the distinctions I would propose,) and if we ever gain any accurate knowledge of human nature, it is essential that we should make such distinctions between faculties and propensities that are manifestly distinct, and not assign to any organ a variety of distinct elementary tendencies. We must bear in mind at all times, the principle, that every distinct trait of character, or faculty, demands a distinct location. In proportion as this principle is carried out, our knowledge of man becomes accurate and specific; in proportion as it is slighted, we relapse into vague generalities.

I am aware that the subdivision of propensities and faculties may be carried to excess, and that there is no fixed or accurate limit to subdivision. But in this matter we should be somewhat guided by the structure of language, which is necessarily in harmony with the laws of the human constitution. It may be difficult to find terms which shall indicate exactly the functions of any portion of the brain, independent of all reference to the functions of other parts—in fact it may be said that no such terms exist, for all of the organs are so connected with each other—so dependent and mutually modifying, that the proper manifestation of any organ implies the existence and co-operation of others, and each would be incapable of fulfilling its destiny alone.

The subdivision of our organs is therefore not a matter of absolute and exact science, but a matter of convenience and approximative truth. It should be our aim, as nearly as possible, to speak of faculties, emotions and propensities, connected with circumscribed portions of the brain, and to seek those terms which best correspond to the functions of special convolutions.

The reader who expects to find in Phrenology a science of a few separate, distinct and well defined elements, has a very inaccurate conception of the constitution of man. All the elements of character contrast with and modify each other. No one of them

is totally distinct: each presupposes, for its manifestation, the existence of a human being, with numerous faculties, wants and inclinations. Destructiveness, for example, presupposes a muscular system with all necessary physiological powers—perceptive faculties to recognise the object to be attacked, and some degree of firmness, to sustain and continue its own action.

Absolute distinctions of function cannot be displayed by the organs of a single unitary mind, which constitute portions of the same structure, and are continually modifying each other in co-operative acts. Yet there is sufficient distinctness in the function and sphere of operation of each convolution, to enable us to divide the brain into different organs, to designate them by appropriate names, and study their diversified action. For practical purposes it would be unnecessary to distinguish organs, the names of which were nearly synonymous, and the functions of which would be exercised by nearly the same portions of the brain — But whenever we can find expressive terms, essentially distinct in their meaning, we shall find that the functions they represent are equally distinct and separate as to location in the brain. The impulses of Combativeness and Destructiveness, though distinct, are nearly related in their nature, and the convolutions which manifest these functions are closely connected in the brain. That portion of the brain which manifests anger is also situated near that which manifests destructive violence. But the tendency to suicidal melancholy is widely different from true cautiousness; and the locations of their respective organs are several inches apart.

The propensity to *Censoriousness* or *Slander* is not among those recognized by Gall and Spurzheim. It is true that practical phrenologists in explaining the varieties of human nature, have been compelled to refer every class of actions to that portion of the brain from which they would be most apt to proceed; and, accordingly, the four original organs of Gall have been made responsible for every variety of mischief. Having been made the scape-goats of the phrenological family they have been made to bear the blame of all the crimes and bad practices of which man has been or ever can be guilty. In fact these organs have been so overloaded by the great variety of actions for which they have been made responsible, that they have scarcely retained a distinct character of their own. Like over-darned stockings, the original thread of which they were composed is sadly obscured by the patch-work which has been added. Such are the unphilosophical expedients which are rendered necessary by the failure to recognize fully the true original elements of human nature.

If we can ascertain the exact tendency of any portion of the brain, let us adhere to a just conception of its function; and when tendencies of an essentially distinct character are to be accounted for, let us seek their source in other portions of the brain. If,

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lectual phenomena. The organ of Hatred or its different modes of action, would account for all evil propensities; and the organ of Love in its va of action would account as fully for all our good qu one who had been trained to think according to such it would be very easy to show that "Combativeness" w tive manifestation of the organ of Aversion,—that " tiveness" was its most violent manifestation,—that "S ness" was its most mild and intellectual form of manifesta and that "Firmness" was a stronger though calmer mode tion, excited by the contemplation of difficulties;—that " Esteem" was but the consciousness of our own merits opera in connection with the disposition of Hatred to depreciate oth In short, it would not be difficult with these four organs to expl all the phenomena of human nature satisfactorily to those w had been accustomed to the system. The far-fetched construc tions and distorted views which would be necessary in such a system, would not very greatly surpass some of the distortions and misconceptions to which we have become accustomed in the system of Gall and Spurzheim.

In the philosophical treatise of the latter author we are told that Contempt is "a disagreeable affection of Self-Esteem"!—that Grief is "a state of dissatisfaction of every fundamental faculty"—Jealousy is "a compound affection of selfishness and various fundamental powers"!—and that Hatred is "a compound affection, it results from *opposition to our selfish views* whilst benevolence and justice are inactive"!

The following attempt of Spurzheim to explain various traits of human nature according to his conceptions of the Gallian system, are fair illustrations of its utter inadequacy:—

"Genius, the highest degree of activity of the individual faculties."

"Ardour, great activity of every fundamental power."

"Desire, a result of every faculty in action."

"Imagination, the spontaneous and great activity of every faculty,"—"Activity of Ideality."

"Impetuosity, great and quick activity of the fundamental faculties."

"Instinct, the effect of spontaneous activity of every fundamental faculty."

"Passion, the highest degree of activity of every faculty."

"Temptation, the effect of every active faculty that excites to action."

"Uneasiness, the effect of great activity of every faculty."

According to this curious specimen of philosophizing, Genius is nothing but great Uneasiness! for uneasiness is "the effect of great activity of every faculty," and genius "the highest degree of activity of the individual faculties." Genius and Passion are

also precisely the same, both being produced by "the highest degree of activity" of our faculties. "The spontaneous activity of every faculty" constitutes Instinct; "the spontaneous and great activity of every faculty" constitutes Imagination; Imagination, therefore, is but a vigorous or active Instinct; Instinct thus appears to be a moderate action of Imagination; and Imagination itself to be the activity of Ideality. Ideality, Imagination and Impatience appear, in this system, to be about one and the same thing; for "the activity of Ideality" constitutes Imagination; Imagination itself is defined as "the spontaneous and great activity of every faculty;" and Impatience is likewise defined as "the great activity of every fundamental faculty." Ardor has also the same stereotyped definition—"great activity of every fundamental power." Thus it would seem that Ardor, Passion, Uneasiness, Impatience, Genius, Imagination, Ideality, Instinct, Temptation and Want, or Desire,* are all substantially the same thing.

The monotony and meagreness of the Gallian system are strikingly displayed in this attempt at the explanation of philosophical expressions. The palpable absurdity and insufficiency of such explanations are too great to require much comment. Notwithstanding the reputation of Spurzheim, as an Anatomist and man of learning, we are compelled to admit that, as a philosophical writer, he displays a great deficiency of critical acumen.

But it would be impossible to escape absurdity in attempting to explain all the varied elements of human nature, with so meagre a system as the Gallian Phrenology. This system is peculiarly calculated to introduce philosophical confusion and habits of inaccurate thought. It sets out with the doctrine that the different elements of human nature are each derived from a different portion of the brain; but after tracing a few of our passions and faculties to their appropriate locations, it repudiates its own principles—refuses to locate any more, and explains the rest of our faculties and passions by the process of derivation, which it so strongly condemns in the metaphysician. The metaphysical philosophers would easily derive all our evil acts from an original principle of Self-Love. The phrenological system, while loudly repudiating such a course, is guilty of the same fault in a different degree, by deriving all our evil conduct, not from one organ of Self-Love, but from four organs of particular vicious tendencies. The fact is, the true essential principle of Phrenology has not yet been fully and clearly conceived; the old methods of thought have retained too firm a hold upon the minds of men to be entirely cast aside; and phrenologists have never yet ventured to admit boldly, and carry out fully, the fundamental principle

*"Desire, a result of every faculty in action," and "Want—in the sense of Desire—the effect of every active faculty."

that every distinct elementary tendency of character belongs to a distinct portion of the brain.

Among our elementary tendencies of character may be mentioned the passion for gambling—as distinct and as universal an element of human nature as the passion for fighting, or "Combativeness." The only organ of the old phrenological system, which could plausibly be supposed to have originated such a passion, is that of "Acquisitiveness;" but the passion for gambling is distinct from the love of money. Men are frequently devoted to gambling, who care but little for money, and would make but little exertion to obtain it in any other manner; while those who are the most intensely devoted to the acquisition of wealth are frequently averse to gambling, or any species of risk. The passion for gambling is certainly as distinct from the love of money, as the passion for killing from the propensity to fight. It is an element of character which has an immense influence over the destiny of the world, being displayed not only in games of chance, but in hazardous speculations and commercial enterprises. The commercial world is constantly excited by the fluctuations, bankruptcies and convulsions to which it gives rise.

To an impartial reasoner the necessity for distinguishing the Gambling from the Acquisitive Propensity would be sufficiently obvious; but to one whose habits of thinking have been formed in accordance with the old system, it might be difficult to recognize an organ for Gambling, in addition to an organ of Acquisitiveness. To such individuals the objection will readily occur, that if we require a distinct organ for all the different habits and passions of society, there will be no end to our subdivisions, and we shall lose all philosophy in a mass of incongruous details. It is true that we may easily run into errors in our subdivision of organs, if our divisions are made by mere supposition, and not by accurate experiment upon the distinct regions of the brain. But when we have found, by actual experiment, the functions of the various portions of each convolution, no matter how minute our subdivisions, they agree with the laws of nature and produce no confusion.

It may be difficult to recollect a great number of analogous organs, produced by the subdivisions of the convolutions; but it will be an easy matter to group our subdivisions under certain general heads, and give to the different regions of the brain such dimensions and such names as may be most convenient for philosophical purposes. For the purposes of an accurate science, it would be difficult to carry our divisions too far. For the convenience of the student, however, or for popular instruction, our subdivisions should be grouped in an appropriate manner. But even for this purpose a much greater number of organs is required than has been given by Gall and Spurzheim. Our system of organs will be lacking in convenience and general utility, if it

does not present all the remarkable passions, emotions and tendencies of man.

Another propensity which has played an important part in the history of mankind is that of Intemperance or Intoxication. In all nations we find a desire for some species of stimulus, which is gratified by alcoholic drinks, tobacco, opium, coffee and tea, and by various spices and condiments. This propensity which, when within its legitimate limits, may conduce to health by indicating the proper selection of food and drink, has caused throughout the world an immense amount of devastation and moral injury; to counteract which has required the most strenuous efforts of government, temperance societies and churches, with schools and other means of elevating man above his sensual appetites. Intemperance is not an accidental circumstance, but springs from an appetite, which, when inordinately indulged, becomes as uncontrollable as the rage of the murderer. A system which omits the organic source of Intemperance, omits a very large chapter of the science of man. Having located the organ of the Love of Stimulus anterior to the ear, I have found it practicable not only to ascertain its general function, but by means of cranioscopy, to determine its strength for practical purposes. It is easy to distinguish the naturally intemperate man, (who inherits a predisposition to drinking from his ancestry,) from the naturally temperate man, who dislikes the taste of ardent spirits, and who inherits the peculiar conformation produced by a long course of temperance in his ancestors.

Another quality overlooked by phrenology is that of Restlessness,—the aversion to confinement or quietness, and fondness for locomotion. This propensity when conspicuous in the character, on account of great development of the basis of the brain and spinal cord, is antagonistic to the higher faculties which produce calmness and power of application. It gives the desire for an active, enterprising life, and a distaste for the calm pursuits of the student. It gives both to the mind and body an energetic but hasty and unquiet action.

Another quality unexplained by phrenology is that of Bashfulness, a feeling very distinct from timidity, as it may exist in individuals remarkable for their courage.

The emotion of Horror has no expression in the Gallian system; yet an ingenious Phrenologist might, perhaps, derive it from several organs by ascribing to them a sufficient variety of modes of action. It is easy to account for anything, when we lose sight of specific functions, and give to each organ a sufficient number of modes of action to enable it to originate functions or actions essentially distinct from each other.

It is rather remarkable that so great a number of conspicuous elements of human character should have been overlooked by craniology. For example, the propensity to be loquacious or noisy, has not been properly accounted for. The organ of L

guage is not the organ of Loquacity. The most profound linguist may be perfectly taciturn, while the most loquacious gossips are frequently scantily supplied with words, and remarkable for the barrenness of their phraseology. We find in society men equally endowed with intellect, language and ideas, of whom some are habitually grave and taciturn, while others are continually occupied in talking whenever they can find a human being to listen to them; if they have no information to communicate, nor any subject of importance to discuss, they will manufacture conversation from the most insipid and common place materials, and talk for hours of their appetite, or of their health, satisfied if they can only have the pleasure of exercising their lungs and larynx, and hearing the sound of their own voice. This propensity, when we have nothing to say or nobody to talk to, is gratified by singing, shouting, or making any unmeaning noise. It is entirely distinct from Intellect, and from the faculty of Language.

Another propensity, which is commonly considered universal, but which craniology has ignored, is that of Indolence. We often meet with individuals in whom this propensity is so strong, that with all the efforts of their will—admonished by their judgment, and impelled by ambition—they are unable to overcome their constitutional inertia. On the other hand, we find those who are always occupied in the pursuit of some useful object, and who dislike exceedingly to be out of employment.

I might go on to a great length in specifying the remarkable omissions of phrenology in the analysis even of the animal nature of man; but, as I do not propose to give a full philosophical development of the subject, or to do more than to indicate the deficiencies of the old system; I would merely subjoin the following catalogue of a few elementary vicious tendencies of human nature, with which all men are acquainted, which exert an important influence on society, and which are expressed in suitable terms in all languages. This catalogue of inferior propensities, which have not been philosophically explained by the old system of phrenology shows, when contrasted with the Gallian system, the very rudimental condition in which the science was left by the labors of its founder, and has hitherto been allowed to remain by his successors:

1. Selfishness.
2. Moroseness.
3. Jealousy.
4. Stubbornness.
5. Lying.
6. Gambling.
7. Profligacy.
8. Irritability.
9. Anger.
10. Revenge.
11. Hatred.
12. Disgust.
13. Melancholy.
14. Suicide.
15. Turbulence.
16. Insanity.
17. Arrogance.
18. Love of Power.
19. Ambition.
20. Coarseness.
21. Skepticism.
22. Censoriousness.
23. Grief.
24. Anxiety.
25. Indecision.
26. Horror.
27. Bashfulness.
28. Sensitiveness.
29. Restlessness.
30. Loquacity.
31. Drunkennees.
32. Rashness.
33. Wastefulness.
34. Desperation.
35. Servility.
36 Indolence.
37. Envy.

Each of the foregoing propensities I find, by experiment, has a definite location in the brain; and the number of organs which we thus recognize is not too great for examination by cranioscopy.

In the moral department there is also a large number of elements of character overlooked by the Gallian system. To discuss this subject fully would require a volume, and, therefore, is not my purpose at present:

1. Sympathy.
2. Faith.
3. Sincerity.
4. Expression, or Communicativeness.
5. Pliability.
6. Politeness.
7. Admiration.
8. Spirituality.
9. Modesty.
10. Love.
11. Patience.
12. Tranquility.
13. Gratitude.
14. Temperance.
15. Hardihood.
16. Health.
17. Restraint.
18. Sanity.
19. Reverence (as distinguished from Religion.)
20. Philanthropy.
21. Playfulness.
22. Energy.
23. Industry.
24. Moral Ambition.
25. Patriotism.

Having thus briefly indicated the immense deficiencies of the system of Gall and Spurzheim, let us look further at the organology of the system, to observe its degree of approximation to the truth.

The only organs which it offers (below the moral and intellectual range) in addition to the three affections and four selfish passions, already mentioned, are Cautiousness, Approbativeness, Self-Esteem, and Inhabitiveness, or Concentrativeness.

The region assigned by Gall and Spurzheim to Cautiousness, corresponds remarkably well with its actual locality—the true location of Cautiousness being in the centre of the region to which it was assigned, while the anterior and posterior parts of the Gallian organ of Cautiousness, manifest functions quite distinct from Caution in their character, yet sufficiently near to be included in a group with it. Immediately posterior to the central part of the Gallian organ, lie the organs of Restraint and Coldness, the general tendency of which is decidedly cautious. In the most superior part of the organ we find Sanity, which is the perfection of true caution, or prudence; and in its most anterior portion we find Tranquility, Love of Home and Country, Sublimity, and a portion of Reverence—a group of organs which powerfully reinforce the cautious inclinations. Thus far, the Gallian doctrine of Cautiousness, though imperfect, is not absolutely untrue; but in referring to this organ, the passion of Fear, which Mr. Combe makes its essential function, an important error is committed. Fear is distinct from Prudence or Caution. The latter is calm and self-possessed, the former timid and impulsive. The latter co-operates with Courage, the former destroys it. The prudent man is widely distinguished from the coward, and timid-

ty or fright, in many instances, destroys all prudence. The or-
gan of this more violent passion of Fear is located farther down
upon the side-head, in front of the upper margin of the ear—a
egion which, in the old phrenological busts, has been assigned
ometimes to Secretiveness, and in other instances to Acquisitive-
ness and Destructiveness.

In recognizing an organ of Approbativeness, or Love of Ap-
probation, the old system was substantially correct, although its
precise mode of description was not entirely accurate, and it
overlooked the influence of the lower portion of the occiput upon
egotism, vanity and ambition.

In recognizing the organ of Self-Esteem, the Gallian phrenol-
ogy described correctly functions which it concentrated in too
small a space, not having observed the fact that the ambitious
and authoritative organs descend low upon the occiput, to blend
with the harsh and destructive impulses of the basilar organs.
The nice distinction between the dignified pride of the higher, and
the offensive arrogance of the lower occipital organs, was un-
known to Gall, in consequence of his erroneous location of pa-
rental affection.

While the errors of the Gallian system in reference to these
organs, are such as seldom mislead its student far from the truth,
its errors of omission in entirely overlooking their antagonists, are
much more fatal to its practical accuracy. He who judges of
Cautiousness by the developement of the cautious region alone,
is continually liable to error, by overlooking the rash and careless
region, which is developed through the base of the brain, and
manifested on the neck. Finding a small organ of Cautiousness,
he may suppose the individual rash and heedless, when in fact,
having a thin slender neck, and a large organ of Fear, he
would be considered by his friends, a remarkable example of cau-
tiousness and timidity. On the other hand, to the broad head,
with an enormous protrusion in the region of Cautiousness, he
would ascribe excessive caution, running into indecision and
cowardice, when in fact from the deep basis of the skull, and the
broad neck, there would be an amount of impulse, capable of
leading to frequent acts of rashness, or of desperate daring.

In pronouncing upon those who have large Self-Esteem, as
excessively proud and egotistical, he might fall into a signal error
from his unconsciousness of the fact, that this large organ of Self-
Esteem was overruled by the breadth at the temples, indicating
Reverence, Humility and Modesty. Equally decisive would be
his mistake, in reference to those heads which are narrow across
the region of the temples, and are, therefore, governed by the
egotistical and arrogant organs of the occiput. Finding no re-
markable occipital development, he would suppose them to indi-
cate modest and unobtrusive characters, when in reality, the indi-
viduals were notorious for self-esteem, arrogance, and vanity. I

have in my mind at this moment, several conspicuous gent among the cultivators of science, whose egotism, vanit arrogance, can be accounted for only by their deficiency modest and submissive organs of the temples. Even whe organ of Self Esteem or Pride is of moderate developemer not overruled by its antagonists, it would be a great mist suppose that the individual was so unconscious of his own as to give up his position and yield undue deference to his petitors. On the contrary, if sustained by the lower half egotistic region, he may, although destitute of true digni forward and rude in asserting his own claims and merits face of his superiors.

In reference to Concentrativeness and Inhabitiveness, Spurzheim and Combe, are equally at fault. These tra character belongs not to the occiput, but to the Inhabitiv Patriotic region, anterior to Cautiousness, and to the regi Industry and Energy, which lies exterior to Firmness. The is the source of resolute concentrated application, and th mer is the source of that quiet and sedentary adhesion t pursuits, which belongs to a tranquil temperament. Even i theories of Spurzheim and Combe, had correctly located the centrative and inhabitive elements of character, they coul have led to a correct cranioscopy, for want of a knowledge o tagonism. The sedentary inhabitive application, and pe self-control, which lie along the centre of the parietal bone, responding to its angular protuberance, are antagonized b restless, passionate, rash, and insane impulses, which are r nized through the side of the neck, lying beneath the lower The resolute application, which lies adjacent to Firmness Hardihood, is antagonized by the basillar organs of Indol and Intoxication, which lie adjacent to Alimentiveness.

The errors and inaccuracies into which practical phrenolo so frequently fall from a want of knowledge of these antagoni may be easily detected by those who scrutinize the common plications of the science; yet the signal accuracy of the phre ogist, when his conclusions are not affected by some unkn antagonisms, is generally sufficient to atone for his errors.

In the moral region of the brain, equally fatal mistakes n occur, in consequence of the fact that the moral organs recog sed, have no specific antagonism in the four vicious propensit The head exhibiting large Conscientiousness, and small Acqu tiveness and Secretiveness, would be interpreted to indicat strictly moral and honorable character, when in reality in con quence of an equivalent developement of Baseness, the mo character would be exceedingly doubtful, and the temptation fraud, would, under favorable circumstances, become too stro Equally erroneous would be the conclusion of the craniologist, w in observing small Conscientiousness, and well developed anim

ould consider knavery, or looseness of principle, a neces-
sequence. In such a case, if the region of Baseness were
, the probability of his stooping to an act of deliberate
meanness, would be but slight, for the organic motive
deficient. He would be passably honorable, because
of a very mean or knavish impulse.
me error from the ignorance of antagonism, would run
he whole survey of the moral character. The true
of Firmness could not be appreciated for want of a
e of its antagonistic region of Fear. The estimate of
could not be correct, until that organ was compared with
nist — Profligacy. Hope could not be justly apprecia-
ut reference to its antagonist—Desperation. Benevo-
Liberality, could not be justly appreciated, without
n with Selfishness and Acquisitiveness. Mirthfulness
ion, would require to be compared with the stubborn
se tendencies of Combativeness. Ideality would re-
mparison with the region of Coarseness, and Marvel-
th the region of Infidelity or Skepticism.
nothing of the numerous omissions in the moral region,
e heretofore been alluded to, this signal omission of
antagonists of the moral organs, must vitiate the prac-
acy of Gallian Cranioscopy.
ntellectual region of the brain, the errors have been
ause the organs are more accessible to accurate obser-
et it was a serious error to designate the lateral part
er region of the forehead, as the organ of Wit and
ss. Wit and Mirthfulness, really lie on a vertical line
pupil of the eye; but the organ in question belongs to
ng and imaginative group, and manifests a high in-
ower.
side the errors of location, in Tune, Constructiveness,
&c., the most important error of the Gallian system, in
the intellect, consisted in its overlooking the cerebral
he external senses, and the more wonderful organs
fest intuitive powers, or the capacity of grasping truth
t of observation or induction. The intuitive region
, the source of clairvoyance, thought, reading, prevoy-
nysterious sympathies, is too important a portion of
be overlooked; and ignorance of its powers, might
ery erroneous appreciation of the intellectual capa-

city for planning, the subtle and inspiring faculty of
the literary power of the organ of Composition, the
acities of the organ of Somnolence, from which arise
e phenomena, and the equally wonderful power of
nowledge of nature through the functions of the organ
y, constitute together, an amount of positive knowl-

edge essential to the just application of phrenology to the investigation of character.

In reducing the phrenological system to practical utility, it is equally necessary to understand the numerous organs which exert their influence upon the body as well as upon the mind; and which occupy an intermediate position between the physiological and phrenological. The organs of the external senses, Sight, Hearing, Touch, Taste, Smell, and General Sensibility — the organs of Digestion, Nutrition, Locomotion, Life, Death, Sleep, Excitability, Passion, Insanity, Disease, &c., &c., as well as the various cerebral organs which govern the action of the different organs of the body, constitute an immense mass of knowledge, all of which has a direct bearing, both upon the mental and physical constitution of man, and all of which is essential to the proper understanding of his constitution.

These brief remarks are but hints to indicate the defects of the Gallian system, which can be fully illustrated only by an ample exposition of the constitution of man, which I must reserve for a future and more elaborate work.

OUTLINES

OF

LECTURES ON THE NEUROLOGICAL SYSTEM

OF

ANTHROPOLOGY.

LECT. I. INTRODUCTORY.

My life has been devoted to the study of man, his destiny and happiness. Uncontrolled in education, I learned to brook no ntal restraint, and thrown upon my own resources in boyhood. iculties but strengthened the passion for philosophical knowl- e. Yet, even more formidable difficulties were found in the ited condition of human science.

Anthropology had no systematic developement, and its elemen- y sciences were in confusion. Mental philosophy was too ited in its scope, and had too little of the practical character. studying medicine it seemed that I had wandered through a derness without compass or cardinal points. Phrenology mised much and I examined it cautiously. It struck me as an atisfactory system of mental philosophy, but one worthy of estigation as a natural science, and intensely interesting. I npared the heads of my acquaintance with phrenological draw- s, and found many striking coincidences — thus was I satisfied ts substantial truth.

My interest increased with extent of my observations until bandoned practical medicine for the exclusive study of enology in the great volume of Nature. It was my object to ect the defects of the system of Gall and Spurzheim. Hence,

by critical reasoning, by the study of character and of living heads — of skulls, and of the brain, I tested its accuracy.

Several of its defects and errors became conspicuous in my earliest observations. There appeared to be something defective in the doctrines of Mirthfulness, Acquisitiveness, Adhesiveness, Constructiveness, Tune, Ideality, Combativeness, Destructiveness, and Cautiousness. The functions ascribed to those localities were evidently, to some extent, misunderstood.

The external senses were omitted from the catalogue of cerebral organs, and the physiological powers of the brain, as the prime mover and most important portion of the whole constitution, were almost entirely neglected.

Following the old route of Cranioscopy, I sought to supply these defects. I found the supposed Mirthfulness to be a power of planning and reasoning character—and the true Mirthfulness to be located more internally. Acquisitiveness appeared to be located further back. The so called organ of Adhesiveness appeared to be entirely incapable of manifesting true friendship, and its absence was frequently accompanied by strong capacities for friendship of a disinterested character. Constructiveness appeared to be located too low and too far back. Tune did not appear to correspond to musical talent. Many of the higher functions ascribed to Ideality were conspicuous in heads which had that organ small, but a strong developement just above it. Combativeness had evidently less influence upon physical courage than was supposed, for it was sometimes large in cowards, and small in brave men. Cautiousness was evidently not the organ of Fear, for the bravest men had it in predominant developement, and in the timid it was sometimes moderate or small. Destructiveness was frequently a characteristic of narrow heads, and the broad developement above the ears was frequently accompanied by a mild gentleness of disposition. The height of the head above the ears did not prove a correct criterion of moral character, nor did the breadth indicate correctly the amount of the selfish and violent passions.

I observed that the violent and selfish elements of character, were connected with the occipital depth and elongation—that the affections were connected with the coronal region—that the sense of Vision was located in the brow, and the sense of Feeling in the temples, near the cheek bone—that the upper occipital region was the seat of energetic powers, and the lower of violent or criminal impulses, and that the whole cerebrum was an apparatus of mingling convolutions, in which the functions gradually changing from point to point, presented throughout a beautiful blending and connexion.

Observing daily the comparative developement of brain and body with their reciprocal influence, I traced the outlines of the true physiology and the laws of sympathetic connection, or cor-

respondence between the body and the encephalon, by which, in a given constitution, I would determine from the head the developement of the whole body, the peculiar distributions of the circulation, with the consequent morbid tendencies, the relative perfection of the different senses, and the character of the temperament.

Seeking continually for the fundamental laws of Anthropology, criticising and rejecting all that appeared objectionable or inconsistent, I acquired possession of numerous, sound and comprehensive principles, which, while they were touchstones for truth, were also the best instruments for deeper research. Each fact or principle suggesting other facts or principles, and thus leading to farther observations and criticism, a system of philosophy was formed, and mathematical laws were discovered to be the basis of Anthropology. These principles being traced in connection with cerebral anatomy, muscular movement and natural language or expression—in short, being based on anatomy and pathognomy, were styled the PATHOGNOMIC SYSTEM.

Regarding this pathognomic system (the essential features of which have proved to be true) as an approximation to the true Anthropology, the author was preparing to publish in several volumes, the exposition of this system, when his course was changed and his highest hopes more than realized, by a brilliant and astounding discovery.

Having for some time perceived that the difficulties of Craniology opposed an insurmountable barrier to a minute knowledge of the brain, perceiving, too, that phrenological progress must be extremely slow, and that no new system, relying upon Cranioscopy for its evidence, could gain a firm establishment in much less than a century, the necessity of better methods of investigation for the progress and for the demonstration of Anthropology, suggested as a possibility the excitement of the brain by external means to develope its functions.

The doctrines of Animal Magnetism had never attracted my serious attention. Knowing little of its phenomena, I shared the vulgar prejudice against it: but the power of galvanism could not be doubted. The difficulty of applying galvanism to a cerebral convolution compelled me to seek another agency. Believing that the nervous fluid, or nervaura, was closely analogous to galvanism, and was continually radiated by the human constitution, I applied this influence by touch to the head of a highly impressible and cultivated lady, (in the Spring of 1841,) with the successful result of exciting every point that I touched, and developing functions sometimes discordant and sometimes harmonious with my previous doctrines.

Satisfied now that I had discovered the key to Anthropology, I explored the brain, made phrenological discoveries, controlled the body through the brain, and applied this physiological power to

the relief of the diseased. As new examples and higher forms of impressibility were presented, the discoveries were enlarged and corrected until in the winter of 1842-'43, the drawing of the organs was prepared and published.

The investigation of the science and testing of its truth by learned associations and medical teachers was invited and indeed sought. In most instances the effort was fruitless. The very respectable and very *inert* class of men to whom I appealed, manifested generally a timorous conservatism, and a fear of being placed in any position which might cause their scientific orthodoxy to be for a moment suspected. Finding thus that the love of truth for its own sake was a much less prominent element in the character of public men and conspicuous members of the professions than I had supposed, I became indifferent to their opinions, and left them undisturbed in their favorite position, in the rear of an enlightened public sentiment.

As honorable exceptions to these remarks, I might refer to a few prominent medical and literary gentlemen, whose moral worth and unclouded sagacity have rendered them the manly friends of truth. The various judicious reports of committees at New York, Albany and Boston, and in the West and South, have given sufficient evidence that wherever the science is fairly presented, impartial and judicious men appreciate it justly.

This science comprehends a minute system of Phrenology, the connexion, correspondence and sympathies between the mind and body; the science of cerebral physiology, or the exposition of the seat of each physiological power in the brain; the science of the external relations of man, or the influence of food, medicine, and moral causes,—and psychology or the doctrine of man's spiritual existence, powers and relations. It solves with beautiful simplicity the problems of Anthropology—animal magnetism, insanity and pathology. The various doctrines of metaphysics, the doctrines of dietetics, and the various contradictory systems of medicine no longer bewilder the mind when viewed in the light of this new philosophy. By thoroughly understanding man, we are enabled to understand with greater facility all things which are connected with him, and by understanding the individual man, we are enabled to appreciate truly the principles of society, education and government.

LECT. II.—THE PROPER MODE OF STUDYING MAN.

Life is not equally diffused through all the tissues to which it belongs. It has a special residence in the nervous substance,

from which it extends its influence and jurisdiction throughout the subordinate apparatus of bones, ligaments, tendons, muscles, membranes, circulating vessels, viscera and fluids. Animal life commences in its lowest forms with the existence of nervous matter, increases as the amount of nervous matter is increased—becomes varied and complicated with the increase and complication of the nervous system—is rendered capable of intelligence, passions and affections, as this nervous system presents a greater aggregation or brain, and throughout all classes and species of the animal kingdom, corresponds in its progress or grade with the developement of nervous matter. Hence the nervous developement gives the true character or rank of the animal, and constitutes the proper basis for the classification of the animal kingdom.

Nervous matter is the fountain of conscious life, and of all the phenomena of life—of mentality, health, disease, the senses, the muscular powers, the circulation, secretions, growth and decay of all parts of the body. The subordinate tissues of the body may therefore be regarded as the chemical materials, to be developed, moulded or changed by the plastic vital power of the nervous substance.

To study man in his subordinate tissues, neglecting the nervous substance, must be considered an unphilosophical proceeding—it is a study of effects instead of causes—of machinery instead of its moving power—it is a gross mechanical and superficial mode of viewing man. The vital powers must be studied in their true seat, not in their remote dependencies—they must be studied in the controlling nervous matter to which they belong. Neurology or the science of nervous matter, implies the whole science of life.

In studying the nervous matter, we should examine the controlling, in preference to the subordinate parts. The brain is the controlling portion, being the source of that influence which by transmission along a motor nerve, produces muscular action, and of various influences which modify or control every vital act. We must then go to the brain as the primitive seat of power, if we would study causes rather than effects. This brain is not only the controlling power of the body, but the seat of all our conscious existence. It is now scarcely doubted by any one that it is the organ of the mind.

If the brain be compressed by a fracture of the skull and depression of the bone, we are totally unconscious or comatose while a sufficient pressure is continued. If this pressure be produced by an effusion of blood (as by the rupture of a blood vessel) or by a morbid determination, the same unconsciousness or arrest of mental action ensues. If the brain be exposed by injury of the skull, we may at pleasure arrest all thought by a slight pressure. If we observe the brain when thus exposed, we shall

find that when the mental excitement is most vivid, it becomes expanded in volume; and when mental excitement diminishes, it subsides to its previous limits. It is well known that under mental excitement there is an increased arterial determination to the brain, and that the increased arterial flow to the brain produced by passion or by the influence of fever, exalts the mental powers. In short, it is well known that the mental powers are dependent upon the conditions of the brain as to circulation, and are modified by its changes from health to disease, or from a firm to a soft structure, and *vice versa*. Throughout life—from infancy to manhood and old age, the changing states of its white and gray substances correspond to the changes of the mental powers in their progressive development and decay.

Man's real existence is in his brain—every passion, emotion, sensation, perception, thought, impulse, or volition, is arrested when we interrupt its action by pressure. We have muscular motion, (by the limbs) sensation and perception, (by the external senses) apparently exterior to, and independent of the brain; but if we divide or compress the motor nerves which transmit the cerebral energies to the muscles, they are paralyzed—if we compress or cut any sensitive nerves, the impressions made on the corresponding parts of the body are no longer felt—the sensations do not exist, because the brain in its normal state does not create them when the impressions do not reach it. It is obvious then that sight, hearing, smell, taste, touch, hunger, thirst, feeling, the sense of pain and other forms of sensation and perception, are, physically speaking, but cerebral action, excited by external influences operating through the nerves, which are the channels of access to the brain. The brain is alone competent to create any of these sensations or perceptions without external assistance—hence various optic and auricular illusions are produced by its disordered action, and pains sometimes felt in the body which have no existence but in the brain, as when we apparently feel pain in a limb that has been amputated. All parts of the body which may be deprived of nervous communication with the brain are as entirely beyond the circle of our consciousness, as if they constituted a part of the body of another individual.

Since then, our real existence is in the brain, since it contains all our intellectual and affective faculties with the organs controlling all the physiological powers, there can be no other satisfactory mode of establishing a true Anthropology than the study of the brain; for if we can reveal its functions, we learn all the powers of the mind and of the body—we learn their mutual relations, sympathies, connections, antagonisms, and all their laws of action.

LECT. III. THE PRINCIPAL METHODS OF STUDYING THE BRAIN.

In what manner shall we proceed to study the brain? All must admit the necessity of a thorough study of its anatomy; yet, unless we learn something of its functions, this anatomy is profitless and uninteresting; hence cerebral anatomy languished until, in the hands of Gall and Spurzheim, it assumed a more philosophical character and became connected with a doctrine of the cerebral functions.

For the study of these functions three principal methods have been adopted by eminent *savans:* 1st. The method of Cranioscopy, practised by Gall and his followers. 2d. The study of Pathological Anatomy. 3d. The mutilation of the brains of living animals. But neither Cranioscopy, Pathology, nor Vivisection has given satisfactory demonstrations, nor does the whole scope of the alleged results of either embrace more than half of the cerebral functions.

The results of Vivisection have been the most unsatisfactory. But it has shown that slicing away the anterior and upper parts of the brain of an animal produces a state of partial stupor—a loss of its intelligence and mental characteristics, without producing any great detriment to its muscular and physiological functions; while injuries inflicted upon the basilar parts of the brain produce evident derangements of muscular action, and are more dangerous to life. Vivisection is generally condemned and abandoned as equally cruel and fruitless.

Pathological Anatomy, too, has been extremely unprofitable. "The results of Pathological Anatomy (says Muller) can, however, never have more than a limited application to the physiology of the brain. We are unacquainted with the laws according to which the different parts of the organ participate in the functions of each other, and we can only, in a general way, regard as certain that organic diseases in one part of the brain may induce changes in the function of other parts; but from these facts and the results of Pathological Anatomy, we cannot always draw certain conclusions." Mr. Solly, after commenting on the general failure of Vivisection, remarks, "from pathology we might naturally expect surer evidence; but even here the physiologist who carefully examines its records is doomed to disappointment. As will be proved hereafter, no certain light has yet shone on physiology from this source." Cerebral pathology will not continue to be so barren a study when we have a true cerebral physiology to guide us.

The method of Dr. Gall—studying the growth and developement of the different parts of the brain, as indicated by the cranium—is the most simple, rational and successful of all the methods adopted up to the present time. In his hands it has

elicited a valuable and practical, though rude system of phrenology. Craniology, or skull-study cannot perfect, nor can it positively demonstrate the science.

The observations of the craniologist are continually liable to error. The irregular thickness of the skull constitutes a great difficulty in the way of exact observations. By great expertness and accuracy of observation, he may overcome this difficulty in some degree, but whenever the brain is subject to any remarkable influence, increasing or diminishing the activity and size of particular organs, the external form fails to indicate the internal condition, because it can change but slightly, and with slowness after the skull is fully developed and ossified. Were the skull composed of more pliable materials, cranioscopy would be more accurate in its facts, but while it preserves a uniform exterior, the interior often undergoes remarkable changes. Convolutions that are frequently called into action become better supplied with arterial blood, expand and grow, while the adjacent portion of the inner plate of the skull becomes absorbed, and presents a remarkable indentation. Convolutions that are seldom in action shrink in size, and the adjacent bone grows in upon them. Thus the skull becomes thinner at the site of every active organ, and thicker over every convolution that is inactive. The translucency or opacity of the different parts of the skull, when a light is placed in its interior, generally indicates the active and inactive organs. Hence many skulls of fine exterior reveal upon interior examination a degenerate character. Criminal heads generally present remarkable opacity, and thickness in the region of the moral organs, with distinct digital impressions from the convolutions of the lower organs.

Thus all craniological observations are liable to inacuracy even as regards developement, and much more in regard to functional power. The activity, power and predominance of an organ may be essentially changed, without making any perceptible impression upon the interior of the skull, for an indefinite period. Changes in excitement and circulation that revolutionize the character, may leave but a slight impression upon the interior, and none upon the exterior of the cranium. The external configuration of the skull is therefore not a true criterion of character when the influences of education, society, food, drink and disease have greatly changed the natural bias.

Organs which easily expand laterally by encroachment upon their neighbors, which is a common effect of local excitement, must be slow to make any impression upon the superjacent bone of the cranium. Cranioscopy, moreover, is incompetent to indicate the developement of small regions or portions of a convolution; it gives but a rude survey of developement. Being thus incapable of minuteness, accuracy and certainty, it cannot be

considered a proper and sufficient basis for cerebral science. In the hands of Gall and Spurzheim, it had already very nearly attained its limits as regards the subdivision of organs.

To what, then, can we resort, when the failures of Pathology and Vivisection are admitted, and we perceive the limited extent of the uncertain results of Craniology? Shall we not be compelled to resort to the same methods of investigation in the brain, which have been so successful in establishing the physiology of the nerves, viz: direct experiment in exciting and arresting the action of the various masses of nervous fibre. Every sound physiologist must perceive that we are compelled to resort to experiment, or else to rest contented in ignorance of the true cerebral physiology. Muller perceiving this, remarks, "the principle for the advancement of the physiology of the nerves then remains the same, viz: experiment on the living nerves."

We therefore experiment on the living brain in that class of persons who are susceptible of being thus influenced; hence arises the last and most perfect method of cultivating Anthropology, by means of HUMAN IMPRESSIBILITY.

LECT. IV.—IMPRESSIBILITY.

Our system of Anthropology relies, for its demonstration, upon human impressibility. Impressibility in its general sense, or the power of being affected by external agents, is proportional to the developement of life. Inorganic matter is affected only mechanically or chemically—vegetation is powerfully affected by causes which would have no perceptible influence on stones or metals, and animals are affected by remote objects, by sounds, by the voice, and by other influences which do not affect vegetables. Animals of a higher grade are affected by many moral influences which produce no effect on the inferior classes, and man, having the fullest developement of all, is continually receiving a variety of influences from nature and society, to which animals are wholly insensible. As man is superior to animals in impressibility, so is the man of genius, or the man of superior moral sentiments more easily affected by everything that addresses the intellect or the sentiments, than the ignorant and selfish classes of society. Superior impressibility is then the result of a superior developement of the organs which feel the various impressions.

For the purpose of analytical experiments upon the human functions, we require the developement of an organ which shall feel the influences we use. We look to the various forms of

Sensibility. The organ of physical sensibility is situated in the temples, immediately over the cheek bone. It feels the influences of the various objects which affect the sense of feeling in all its modifications. Heat and cold, moisture and dryness, sound, light, and all the imponderable fluids produce their effects upon this region, and the more it is developed, the more powerfully are we affected by such agencies.

The portion of Sensibility which feels the influences of the human nervaura, is the highest portion of the organ, where it connects with Modesty, Somnolence and Ideality. This we regard as the special organ of Nervauric Impressibility, because it renders the system so sensitive to the nervaura, as to be strongly affected whenever it is applied. This is the organ of Physical Impressibility.

Mental impressibility is dependent upon higher intellectual organs, which feel the influences of mind. The power of recognizing mental action is dependent upon the internal part of the front lobe, located just above the root of the nose. This organ gives physiognomical talent, and a ready tact in appreciating the expression of mind through the eye, countenance and gestures. It is the organ of Mental Sympathy, as displayed in the intercourse of society, and in the experiments of animal magnetism. By means of this organ a general relation is established between the mind of the operator and that of the subject, which may exist without the capacity for local impressions, which would develope particular organs. This organ, however, is devoted to active perception rather than to passive impression. The faculty of being mentally impressed depends chiefly upon the region of Spirituality and Marvellousness.

Mental and nervous impressibility being dependent upon these organs, it follows that a large developement of the front lobe favors Impressibility, and that the occipital organs tend to diminish it. Impressibility lies in a group of organs which sustain it, and may be expected to accompany its developement. Sensibility, Somnolence, Dreaming, Ideality, Modesty, Humility, Disease, Relaxation, &c., are its natural accompaniments; hence it will be found most abundantly in those classes of society which are most remarkable for refinement, sensitiveness, modesty, diffidence, humility, or submissiveness, disease, languor, debility and intellectual excitement. Religious excitement, love, mirthfulness, thoughtfulness, imagination, benevolence, sympathy, sincerity, faith, philanthropy, hope, epicurism, intemperance, ardor, spirituality, effeminacy, imitation, romance and, in short, all amiable, sensitive, intellectual, refining, relaxing influences may be regarded as promotive of impressibility, and their opposites as calculated to destroy it.

It is fortunate that disease promotes impressibility, for it enables the sick to be relieved by manipulation, and it causes medicines

to operate more efficiently upon morbid constitutions. But impressibility does not imply disease, although it may make the system more accessible to slight morbific agencies. We find individuals occasionally, of the highest tone of health and bodily vigor, who are highly impressible. Nor does it imply mental weakness, for it is highly congenial to intellectuality, and is occasionally found among the strongest and most cultivated minds. Nervous Impressibility is that condition in which the nervaura has a powerful influence—in which the action of the brain and all the vital functions of the constitution may be controlled and indefinitely changed by the application of the hands of another individual—in which we are susceptible of being totally revolutionized in character by application of the fingers to the various organs, so as to become, for the time being, miserable or gay, philosophical, felonious, murderous, angry, stupid, insane, idiotic, drowsy, hot, cold, credulous, skeptical, timid, courageous, vain, indolent, sensual, hungry, diffident, haughty, avaricious, &c; and in which the muscular strength, secretions, circulation, pulse, respiration, senses, and morbid or healthy conditions of the frame may be caused or controlled by the nervaura emitted from the hand of the operator acting upon the brain of the subject.

The number of individuals who can be thus affected is different in different places. In southern climates they are more numerous than in northern—in the pleasant weather of summer more than in winter—in lecture rooms, ball rooms and places of fervid religious worship, more than in the street and market place, where the intellectual and moral faculties are less predominant. In the southern states of the Union, thirty or forty per cent. of the population will give at once distinct evidence of impressibility. In the more northern, about ten per cent. will give indications of an influence from the hand.

Impressible subjects may be selected by the developement of the organs of Impressibility, and the general predominance of the frontal and coronal regions of the brain over the occipital. The qualities already mentioned as favoring impressibility may be studied in the character, or observed in the developement, as they occupy the entire anterior half of the head, giving breadth to the temples, with height and projection to the forehead. An enlarged pupil of the eye will be one of the best symptoms, and, in connection with a calm, spiritual, gentle expression of countenance, rarely fails to indicate impressibility.

To test impressibility apply the fingers upon the organ of Somnolence, an inch horizontally behind the brow, with a very gentle contact; your subject, after a few minutes, will manifest a sensitiveness of the eye, and will wink oftener than usual—his winking will be repeated and prolonged, until his eyelids droop or remain closed—he is now somnolent and dreamy; touch the

organ of Sleep, and you will deepen his slumberous condition to actual sleep by an influence which torpifies the intellect —or brush the excitement from the spot touched and the effects are removed.

Let your subject stand erect before you, if you would have the most delicate test, and apply both hands gently over the forehead and moral organs, or upon the temples; then very slowly withdraw them, and continue this process until you perceive that as your hand is withdrawn, the head seems inclined to follow it as if attracted; some will move thus but an inch or two, others will be drawn forward and compelled to follow you wherever you go, or may be drawn down and prostrated upon the floor. You may accomplish the same upon the back of the head or body—the hand, or any other part which is free to move; but the forehead is the best region, because the front lobe is the seat of Impressibility, and the operation cultivates that quality, by drawing excitement into the brain, and especially the front lobe, thus debilitating the muscular system and power of resistance.

Apply the fingers upon the organ of Relaxation, below the cheek bone, and your subject, if standing, will become enfeebled, unsteady in attitude, and incapable of supporting as great weight as before in his extended hand. This will be counteracted by touching the region of Energy.

The most painful experiments may be made by placing the hands upon the temples, and face, so as to cover the regions of Sensibility, Disease, Relaxation and Irritability—the effect of which would be to produce bodily weakness, sickness, pain, distress and general prostration; a condition which, if not relieved, might result in severe disease, but which may be counteracted by dispersing the excitement upward and backward, and by stimulating Health, Energy and Hardihood.

By grasping a metalic rod firmly in the hand while the other end of it rests in the relaxed hand of an impressible person, you may transmit a current of nervaura, which he will recognize gradually entering his arm at the hand, passing slowly up to the shoulder, and then diffusing itself over the body.

One may test his own impressibility by placing the palm of the hand in contact with any portion of the head or body of a vigorous constitution for about twenty minutes, and observing the different impressions imparted by different localities. If the hand be held in contact with an individual suffering from some active form of disease, resting upon the forehead or the pit of the stomach, the morbid symptoms will be very perceptibly transferred to any one of an impressible constitution; but I would not recommend the experiment to any but those who are embarrassed by a constitutional skepticism, which hinders their believing anything which is not impressed upon their own senses.

An easy method of testing our susceptibility is by holding some

active medicinal substance between the hands while sitting at ease (without knowing what the properties of the substance are,) and holding other active substances at different times, to compare the effects which they produce upon the constitution. After such experiment, if the effects should in any case be greater than we desire, the influence should be removed by dispersive passes on the hands and down the arms.

LECTURE V.—IMPRESSIBILITY CONTINUED.

Having ascertained the impressibility of your subject, you may experiment passively or actively. In the passive method he sits at ease and you apply your fingers upon the organs you wish to excite; he feels the effect and reports his sensations in conversation. In the active method he places his fingers upon your own head, or upon the head of any one who may be selected, and feels an influence or Nervaura passing from the point of contact into his system, reproducing in himself the characteristic influence of the organ touched. Touching Mirthfulness, he feels a pleasant but rather debilitating sensation, passing up the arm, which diffuses through his system, producing a bright happy feeling, or perhaps even producing laughter—touching Disease, he feels a debility and pain diffusing through his system, developing latent morbid symptoms, and seriously injuring his health. Laying his hand on the region of Firmness and Health, he receives a strengthening and beneficial influence—an influence which I have myself distinctly perceived, and which I have felt more decidedly hours after the experiment than at the time.

In the passive method, you revolutionize his character, and may make him do acts the most contrary to his natural disposition.—In the active method he is more independent and reports his perceptions for your instruction. He feels the exact character of each organ. He determines its strength by the influence it imparts—he arrives at a correct knowledge of the function of each portion of your brain and the degree of excitement, power, activity and cultivation in each organ. He thus effects a sympathetic diagnosis of the whole character and bodily condition, for he determines the physiological and morbid conditions as easily as the mental; he sympathizes with the states of your circulation, digestion and muscular system when touching the appropriate organs, and may even feel your morbid conditions so as to produce serious injury to his own health. Of this I have had satisfactory evidence recently in my own person after contact with patients. At this moment I am suffering from the effects of my operations for their relief.

The sympathetic diagnosis is an almost infallible test of character—a good subject will discover the most concealed and mysterious traits—he will also manifest an astonishing power of understanding, and describing the disease of the patient with whom he is properly brought into contact, upon touching the appropriate organs. If possessing the highest impressibility, he should observe well the antagonistic organs, that he may be properly balanced and not too much affected by any one influence. He may accomplish this diagnosis of character simply by touching the organ of Consciousness on the forehead, from which he will obtain a general idea of the individual, or even by touching the inside of the hand, or the median line of the body along the chest and as low as the epigastrium.

He has a still more wonderful power—he can place his hand upon a letter and feel from it the nervaura imparted to it by the writer as if he had been in contact with his hand or head, and thus make an accurate sympathetic diagnosis of the character. You will find many persons who are capable of feeling the influence of any strongly marked letter which you may place upon their foreheads, and of discovering the difference between one of pleasant intellectual and moral influence and one of violent or gloomy passions.

There is another striking display of Impressibility in the use of medicines. Without swallowing, tasting or smelling the medicine—simply by holding it in the hand or upon the surface of the body, its whole effects may be realized and accurately described. But even contact is not necessary! A medicine enveloped in folds of paper will exert its medicinal influence upon the constitution, in a decisive manner. The subject, knowing nothing of the contents of the paper, will describe with accuracy its characteristic effects as he feels them. This power is valuable for the exploration of the materia medica. It will correct the errors of old systems, and add much new knowledge by the discovery of valuable medicines. This is the use to which I intend to apply it.

The sympathetic diagnosis of the constitution is of great importance in explaining its condition, and this diagnosis of disease is of great value, especially when the patient, being an infant, comatose, or deranged, cannot explain his own case.

The diagnosis of character is invaluable as a test of its present condition and especially in watching over the progressive development of the young. The investigation upon autographs opens a wide range of knowledge, and may enable us to know much more of history and biography than at present we can attain.

But the greatest result of human impressibility is the dynamic anatomy of man—the developement of every organic function, and establishment of a true anthropology by experiment upon the brain.

To the impressible class there is the great benefit of having

disease and pain removed by manipulation without medicine, and of using medicine in a safer and more manageable style externally.

Impressibility also contributes to the general harmony of society and happiness of domestic life by allowing the various characters to exert a mutual influence, which produces adaptation and similarity of disposition. It is an important source of sympathy.

In the experiments just described, if the operator should be impressible, he will be affected as well as the subject, and if more impressible than the subject, he may feel a stronger influence—the subject not being usually so much affected by an impressible operator. Two impressibles may affect each other, but usually the excitement is most conspicuous in the one most impressible, and slight in the other.

In some cases the operator's temperament does not impart any excitement to the subject, but rather enfeebles the organs which he touches, and diminishes sensibly their manifestation. There are rare cases, too, in which the individual experiences these benumbing influences from almost every one with whom he comes into contact. The effect is just the reverse of what is expected. Touching Mirthfulness makes him morose, and touching the region of relaxation and disease has a bracing effect—touching the intellectual region stupefies—touching the moral region is unpleasant.

The operator should use his hand deliberately, making but a slight contact with the organ to be excited. A slight touch and withdrawal is generally the best method; pressure is very objectionable. All excitements should be removed as soon as practicable, unless they are such as we would wish to remain. In dispersing the excitement from any organ we should be careful not to manipulate toward the region of Disease. It is best at the close of our experiments to remove the various special excitements, and to excite the region of Health as the best permanent influence. By repeated excitement of particular organs, their organic strength may be materially increased and the character modified as in the usual course of education. The time may arrive when a large portion of the human race shall be trained up by these gentle influences, in the best possible physiological and moral conditions. At present, not more than one or two in a hundred can be perfectly and readily controlled in this manner, without previous preparation, but a very considerable number may be rendered impressible be a proper training, and a very large number may be beneficially affected, who cannot be absolutely controlled.

LECTURE VI.—IMPRESSIBILITY—CONTINUED.

The excitement of the brain by the application of the fingers to the head, is owing to the attractive influence which the hand exerts in every portion of its inner surface, and the peculiar exciting power of its Nervaura. The cerebral excitement and circulation being thus attracted to a particular spot, that organ must be increased in power, and if its supply of blood is increased, the supply of other organs must be diminished—hence its absolute predominance.

No mental effort is used, no attention is necessary—the Mesmeric formula are entirely discarded. It must be remembered that all of our experiments are made without any Mesmeric preparation or somnambulism, and that both operator and subject are equally awake, intelligent, conscious, independent and self-possessed.

Every organ influences the whole temperament, and every organ partakes of the influences of the other organs; consequently the hand, or any cerebral organ, or any part of the body may impart the characteristic influence of the whole temperament, as in the sick a morbid influence will be imparted upon contact with any part of the system whatever. Impressible persons should therefore be extremely cautious, not only as to being operated upon, but as to contact with other persons, and as to their society.

Those who are acquainted with the wonderful facts of animal magnetism, and know the powers of mental sympathy would be tempted to imagine our wakeful operations to be also illustrations of the power of an operator's wishes and thoughts over the subject. To test this, I select persons totally unacquainted with the subject, or at least unacquainted with the special organs, and direct them to experiment upon each other—they produce the same results without my agency, or in my absence, which are produced in my own experiments. Those who can feel the influence of any medicine wrapped up in paper, or any mental influence attached to a letter, are not dependent upon me for the exercise of such powers any more than for the exercise of sight, smell or taste. They make such experiments without my presence, for their own satisfaction, and exercise such faculties in my presence when I am not aware of what they are doing. The perception of the mental influences attached to each cerebral organ is equally an independent power, which they can exercise upon any individual at pleasure, and the truth of which they demonstrate by the accuracy of their results.

These powers require to be cultivated by pleasant society or calm intellectual pursuits. Hardships, coarse labor, violent or stern passions, intense selfishness, daily collisions and the incessant pursuit of money, are the great opponents of impressibility

Like every other quality, it may be cultivated by contact or association with the impressible. Small parties of impressible persons present extremely interesting phenomena, this faculty being then heightened by association with others who possess it. A sympathy may thus be established between two impressible persons, which will go to great lengths. Operators become more impressible by contact with impressible patients, and especially by touching the organs of impressibility. The letter of an impressible person applied to the forehead also tends to promote impressibility, if its influence can be felt.

The increase of impressibility from contact with the impressible, I have sensibly experienced in my own person. At first I experienced no perceptible effects, but now, if I continue long experimenting upon any organ or class of organs, I am sure to experience some effect, which may not be perceptible in its access, but which is ultimately obvious upon comparison with the previous condition.

The phenomena of impressibility are all in harmony with experience and physiology. It presents simply exalted sensibility and excitability—a great capacity of being affected by the imponderable fluids—and the influence of one constitution upon another which is demonstrated by the facts of contagion and the mental sympathies of social intercourse.

We may be certain that the effects of our experiments are not the effects of imagination, because they are coincident in different persons and obey regular laws—because, too, they are independent of. and sometimes contrary to, the previous opinions of both operator and subject. If the operator slightly mistakes the location of an organ, he fails notwithstanding his best efforts—the subject being independent of his wishes and opinions, whether expressed or not. Moreover, the power of the impressible constitution to develope the truth is beyond a doubt. He who can feel the influence of an enveloped medicine, and accurately describe it—who can feel and portray the mental influence connected with any letter, and who can describe correctly the power of any of our faculties by touching upon its organ, must be regarded as highly capable of portraying the character of any organic influence with which he is brought into contact, and thus revealing the true cerebral functions, since this is but a simpler exercise of the same power.

LECT. VII.—MENTAL OR IMAGINATIVE IMPRESSIBILITY.

A species of Impressibility has been recently employed by the cultivators of Mesmerism, which I have always studiously avoided in experimental enquiries. The ideal and marvelous state of the mind, which renders one a passive believer of whatever he is told in an energetic manner, makes us liable to be played upon by the assertions and manners of a vigorous operator. In this passively credulous condition, whatever is impressed upon our minds produces as much effect upon us as if we believed it from the force of satisfactory evidence. Thus, powerful effects may be produced, for when we positively believe anything, the belief has a great power in the way of making us realize that which we believe. The belief that we are about to be injured, inflicts a preparatory injury, and causes us to succumb more readily to the infliction, unless our energies have been roused to resist it. The belief that we are about to receive a benefit confers a preparatory pleasure, and enables us to realize the benefit in advance. Hence, those who possess a great deal of Mental Impressibility, or who, in other words, have a predominant developement of Marvelousness, Spirituality, Ideality and Imagination, may be greatly benefitted or injured by mental impressions upon their unresisting faith. Such experiments demonstrate the power of imagination, and the wonderful facility of mental impressions, when the credencive faculties are in ascendancy. But as these propositions were old and familiar truths, there was nothing new in the demonstration, but the facility with which such results would be produced, and the extent to which they could be carried, by means of a preparatory process to develope impressibility.

The processes for producing this condencive condition were the same as those for producing nervous impressibility, and the two species often accompanied each other in their manifestation, (see cut on modes of experimental inquiry.)

The imaginative form of impressibility has proved very valuable in the way of healing disease, and may be made very serviceable indeed in the reformation of the moral character. It furnishes too, the most striking displays for popular exhibition—illustrating the power of the mind of one, over the minds and bodies of others. But for the purpose of scientific investigation of the brain and constitution of man, it is of no value, as it controls all the functions of the constitution without pointing out the location of any.

Imaginative impressibility may exist in a high degree, when the nervous impressibility is not sufficient to permit the local excitement of the organs of the brain, or the performance of delicate experiments upon impressibility. On the other hand, nervous mpressibility may exist in high perfection, with but little of

imaginative impressibility although the individuals may be competent to manifest it after a proper preparatory process.

The importance of Imaginative Impressibility is very great in the education of the young, and in forming the character of a nation. Doctrines which we are taught to believe, exert a steady and powerful influence upon the character. Society and the objects which we habitually observe or contemplate insensibly shape our own character and conduct. The influence of natural scenery is felt and acknowledged by all. The examples of leaders, kings, nobles, teachers, priests, &c., are continually operating upon the popular mind, and modifying the national characteristics. The popular idea of God exerts a powerful influence over national character. The frequent contemplation of his supposed attributes tends to reproduce them in the minds of his zealous worshippers. The character ascribed to any individual by society operates upon him in a like manner, and he is very strongly tempted to become in reality what he has been styled.

Those who are treated as criminals are not apt to reform while under the influence of scorn and hatred, and while the picture of their own baseness is continually held up before them. But when they are made aware of the innate capacities of humanity, and a better career held up before their minds, the influence of such pictures, insensibly reforms their character. When an impressible subject is placed in a passive credencive condition, those impressions may be made on his mind which are best for his moral and physical welfare. The illusions commonly produced by public exhibitors, such as making him fancy a cane a snake—the floor before him a river or lake—a chair a coach—himself a king, a clergyman, or a drunkard—and making the persons around him represent various characters to produce an amusing scene, are demonstrations of a power that should be applied to good purposes. It has already been shown that it may in many cases be applied to the cure of disease, and I have no doubt that our state prisons, and houses of refuge may furnish examples of criminals, and every city examples of drunkards who might be placed under the influence of this treatment, for the cure of crime, intemperance, and other serious evils, in the character and constitution. Indeed, under existing circumstances, I deem it the imperative duty of our state governments and prison superintendents to make a fair and thorough trial of the practicability of thus reforming criminals.

Experiments upon mental impressibility possess this great advantage over other Mesmeric proceedures, that the operator is not required to be in frequent and prolonged contact with his subjects, and need not, therefore, suffer from the injurious influences upon his body and mind, to which depraved and diseased organizations give rise. The operator merely addresses his statements and commands to his prepared subject, and occupies an independent position, free from morbid sympathies, and requiring no exhausting labor.

LECT. VIII.—THE BEST METHODS OF CEREBRAL INVESTIGATION.

When the resources of Pathology, Vivisection and Cranioscopy have been exhausted, we still have the best methods of investigation left—methods which do not depend upon the study of the forms of bones, or of pathological, obscure and abnormal phenomena—but which study directly the *vital functions* of nervous matter, and may, therefore, be collectively designated as the *Neurological mode* of investigation.

These are the SENSITIVE, the INTUITIVE, the CONCENTRATIVE, and the SYMPATHETIC methods.

1. SENSITIVE METHOD—watching the various sensations of the head produced by mental excitement. By observing the fullness, tension, heat, aching, pain, throbbing, weight and various other sensations, with their exact localities, we may learn the exact location of the organs in the head, and the kind or degree of excitement to which they have been subjected. This method which I have been practising for years, has given me much additional certainty in reference to the cerebral organs, and is, I believe, in many respects equal to Cranioscopy, as a means of determining their locations. I would mention a few incidents of my personal experience, to encourage others to engage in investigations by the sensitive method, which may become very valuable when a sufficient number of competent observers have given us their reports. The exercise of the perceptive organs in craniological observations upon a considerable number of heads has given me the characteristic sensations resulting from cerebral fatigue, in the brow, and particularly at the location of the organs of Form and Size. The same sensation, though less intense, has been produced by other exercises of the perceptive organs. The delivery of an argumentative lecture generally leaves me with a marked sensation in the upper portion of the forehead, not such as indicates fatigue, but sufficient to indicate a strong local excitement of the brain. A lecture dealing less in principles and more in the simple narration of facts, by means of the memory, makes less impression upon the upper portion of the forehead, and leaves the impressions upon the middle and lower portion. The exercise of the moral emotions by means of social intercourse or by appeals to the higher sentiments in public lecturing, produces a very marked fullness in the upper region of the head and on occasions of strong excitement, not only a fullness, but a vehement throbbing. The excitement of Combativeness by its manifestation in an opponent, has produced a very distinct tense, bristling sensation, accurately indicating the position of that organ in each hemisphere. The excitement of Irritability and Anxiety has produced a marked sensation at the localities of those organs, which if increased would have amounted to an

ache. By such observations as these I have obtained a positive *knowledge* of the localities of the greater portion of the cerebral organs; and I can at any time, by giving close attention to the sensations of the head, determine from what I feel, what is the condition of the various portions of the brain, and what is the amount or character of mental action which the various organs have undergone. The absence of mental excitement is shown by the entire absence of sensation. Mental excitement, which is, or has lately been, in progress, is manifested by sensations of slight fullness, tension and warmth. When carried to excess, it produces a sensation resembling an ache, but not decidedly painful—corresponding rather with the sensation of fatigue in the limbs. When the impressions to which an organ has been subjected have been of an unpleasant character, the effect is shown by a slight superficial tenderness at its locality, which usually does not attract attention until it has been pressed upon. The study of these sensations is highly instructive—showing the character of the mental impressions to which we have been subjected. A more intense, painful impression may leave a local ache or a chronic fullness and tenderness, and will often cause the hair to turn gray at the site of the organ. The hair is most apt to turn gray on the temples near the ear, because that is the region of anxiety; but painful impressions especially of a fearful, anxious character, may whiten the hair of any portion of the head, and intense alarm, by affecting the whole brain, may cause the whole hair to turn gray in a very short time.

2. The Intuitive Method.—This method consists of determining the mental functions and localities by direct perception. There is an intuitive or clairvoyant power in the human mind, which is competent to the direct perception and determination of truth. The clairvoyant sees distant objects—recognizes events now in progress—penetrates the hidden qualities and traits of character, and even recognizes events which have happened or which may happen. Clairvoyance or Intuition is therefore competent to the revelation of the functions of the human brain as well as other mysteries of science. A clairvoyant of a well disciplined philosophical mind, free from the errors of imagination, is the true telescope and microscope of Phrenological science.

3. Concentrative Excitement.—This is the scientific demonstration of the cerebral functions—the method which I discovered in 1841, of exciting the cerebral organs to compel them to manifest their functions. The application of heat and cold to the various parts of the body and head—of galvanic currents and of medical stimulants and sedatives may concentrate the nervous excitement to any one spot, and diminish the activity of other parts so as to produce a decided predominance of the stimulated organ. By far the best method for such purposes is to use the stimulus of the nervaura by applying the hand. The finger or hand applied to any portion of the head excites the subjacent

organs by an attractive influence, and in highly impressible persons will produce an immediate and striking effect. Thus, anger, joy, avarice, mirth, pride, imagination, memory, fear, or any other faculty may be aroused by touching its locality for a few moments, and by a series of such experiments the functions of every organ in the brain may be demonstrated to the satisfaction of the experimenter and his subject. Since this discovery we no longer need to occupy ourselves in calculating the probable functions of the brain from a vast number of indefinite facts in craniology—a simple and easy experiment places cerebral science upon as positive a foundation as chemistry, anatomy or physiology.

4. Sympathetic Diagnosis.—The best method for accuracy and convenience—is that modification of the concentrative method known as the sympathetic diagnosis; accordingly I rely chiefly upon this method in the investigation of nervous functions. That this method furnishes accurate and scientific information may easily be shown in the following manner. Let an impressible person hold in his hand a packet of enveloped medicine, (unacquainted with its contents), until he feels its influence. He will be able to describe its true physiological influence and tendency. Let him place his hand in contact with the epigastrium, the forehead or even the hand of a patient with an active disease, he will be able to describe sympathetically the morbid phenomena or sufferings of the patient. Let him place his hand for twenty minutes upon any part of the head or body of a healthy individual, and closely scrutinize his own mental and physical condition, after he has been thus in contact with different parts of the head and body. He will perceive a distinct and peculiar impression from each point of contact, corresponding to the mental and physical influence or function of the part touched. Let him thus examine carefully the various portions of the brain, and he will discover the whole system of phrenological functions. Let him touch the different parts of the head with some conducting medium, receiving the impression for example through a pencil or metallic bar, and he will discover that the nervaura is actually transmissible, and produces the same influences as when in absolute contact. Having thus made a complete diagnosis or survey of the brain, and felt in himself all the emotions or faculties of the various organs with an intensity and variety corresponding to their character in the brain examined, he will need no additional evidence of the functions of the brain for himself; but for others he can afford a perfect demonstration of his accuracy, showing that he is not liable to be misled by his imagination.—This will be done by an experiment requiring great accuracy of perception, in which any imaginative influence would necessarily cause a failure. If a letter is placed on his forehead and subjected to his scrutiny by means of sympathetic impressions he will derive therefrom a correct impression of the entire mental and physiological character of the writer, of whom he knows

nothing, and concerning whom the exercise of his imagination would inevitably mislead him from the truth. According to the mathematical doctrine of chances, purely imaginative conjectures must inevitably lead to error. After this positive demonstration of the sympathetic diagnosis of the entire mind—the demonstration of a special analytical diagnosis may be made equally exact. He may touch and describe the different regions of the brain without seeing or knowing the part with which he is in contact. Or if a small strip of paper is placed in contact for a few minutes with any portion of the head, especially of the forehead, of a person of active brain, and then transferred at once to the centre of the forehead of the impressible subject, he will recognize in a few moments an impression not of the whole character as from the autograph, but of the special organ with which the paper had been in contact, and will describe the functions of that organ, as satisfactorily as if he had been in immediate contact with it by touching the head.

What farther or more perfect demonstrations can be required to prove that Neurology thus developed is an exact and positive science? There are many unfortunately organized individuals, who have too little logical acumen, too little mental liberality or pliability, to receive and accredit the best demonstrations of new truths. But certainly all honorable scientific men, who profess to teach or to understand the principles of anthropology, owe it to themselves and to mankind not to overlook a thorough demonstration which gives us access to a world of new truths. It will not be very creditable to any even of the humblest pretensions to science—far less to its aspiring teachers, if in the nineteenth century they repeat the conduct of the Italian professors, who, after Galileo had determined by a public experiment the true and equal rates of movement in falling bodies, continued as before to teach the fancies of Aristotle, unconscious of the probability that in a more enlightened age the self complacent folly of their course might be remembered only because too absurdly ludicrous to be forgotten.

LECT. IX.—THE TRUE SYSTEM OF ANTHROPOLOGY.

Our experimental developement of the functions of the brain, must constitute, when completed, the science of man. That science has not at present any systematic existence. The only word in our language which indicates such a science is seldom disturbed from its repose in the dictionary, because there is no system to

which it can be applied.* Now we are compelled to use this term ANTHROPOLOGY, because the study of the brain is the study of man.

Heretofore, in place of one system of Anthropology, we have had four or five partial sketches of man.

From the earliest periods men have speculated upon the human mind, consulting their own internal consciousness, and the facts of daily observation, for data in their reasoning. As each philosopher differed in character, the consciousness of each was different; and, consequently, the doctrines. But when the correct data have been obtained, metaphysical reasoning upon our faculties traces their relations, and analyzes each compound faculty into simpler elements. The more rigorous the analysis, the fewer simple faculties are recognized. One admits Memory and Reason as distinct faculties; another analyzes them into a simple power of Association. One may recognize twenty elements of character, another may reduce them to ten, and a third may reduce them, by a more rigid analysis, to two. He may prove that we have but the powers of perception and of association; and out of these simple elements he may construct all the compound faculties of will, memory, reason, fancy, and all the emotions and passions. The same process of reasoning carried one step farther, simply results in this: that we have a primitive power of mind, from which all the various faculties arise, and here we are at the end of the analysis. The metaphysical plan, therefore, results in nothing; applied to the determination of our primitive faculties, it is more perfectly nugatory in proportion as it is more perfectly carried out.

Phrenologists, avoiding this destructive analysis, look at human nature as it is, instead of looking for a theoretical substratum. They are in advance of metaphysicians, as chemists are in advance of the alchemists. They recognize certain faculties and passions as essentially distinct, and like the simple bodies of chemistry, not to be confounded, and not composed of the same ultimate elements. They seek to locate these faculties and passions in the brain, and in the general results they are sustained by the common sense and common observation of mankind.

Yet it is impossible, by craniology, to form *an accurate science*, on account of the irregular and uncertain thickness of the skull, and the varying conditions of the brain. Craniology, thus far, has made but an imperfect survey of the organs—has not developed the functions of the concealed base of the brain, and has given its phrenological without its physiological powers. It is, therefore, but a partial view of the human constitution.

Physiology and Anatomy explain our bodily constitution and functions, but without explaining the source or moving power of

* This sentence was written nearly ten years since, and was then strictly true. Since that period the public mind has been much aroused from its torpor on such subjects, and the word is no longer so unfamiliar.

all these functions. While they refer everything to the brain and nerves as the source or seat of every function, they tell us almost nothing of the power of the brain itself, which is the master of all. They deal in facts or effects without causes; and until they rise to a recognition of those causes, they cannot be philosophical or satisfactory.

The natural history of man, and his general social history furnish a vast magazine of materials, but they do not furnish the philosophy or explanation of their facts.

The experimental operations of Animal Magnetism have furnished us a stock of very wonderful facts, without any explanation—shedding a meteoric light over the constitution of man, but leaving us enveloped in night and mystery.

Neither of these is a system of Anthropology; nor do all of them put together make a complete science of man. They are unconnected, partial surveys of the human constitution. History offers us a store of materials; Metaphysics, a mental alchemy; Phrenology, a comparison of the mind with the brain; Physiology, a survey of the body; Animal Magnetism, a collection of wonders.

These fragments of Anthropology, uncombined as they are, resemble the planets of the solar system, void of a sun, wandering in lawless orbits, and often in collision with each other. The brain is the sun—the centre of the true Anthropo'ogy. Physiology is its downward influence, or manifestation in the body; Phrenology its upward influence, or manifestation in the mind; Animal Magnetism is the display of a few of its most remarkable faculties, and all history is but an extensive display of its capacities.

Neurology, taking the brain as the centre, and tracing therefrom the subordinate sciences of its effects, unites them into one harmonious system—a full and perfect Anthropology—tracing the relations of man upward to his Creator and the spiritual world—downward to inorganic matter, and all that affects his physical life—inward to his own constitution and conscious life, and around to his fellow beings—it enables us to comprehend his true position, and the laws of his life and growth.

Not only does Neurology complete, connect, and unitize the fragments of anthropological science; it supplies a great hiatus in the circle of sciences relating to man. The broad foundation of Anthropology has been carefully laid by anatomists and physiologists, in describing the structure and operations of the body. In the regular progress of science, they should have next developed cerebral physiology. But this superstructure has not been reared upon the anatomical foundation. The abortive attempts of vivisectors and pathologists have left the physiological edifice in an unfinished and unsightly condition. No one has appeared to complete this undertaking.

The wise architects who build from above downwards, have erected a misty and extensive superstructure above this unfinished work, but have not yet reached down to its solid walls, or established any connection between themselves and the anatomists. Metaphysicians and psychologists have given us a vast deal of philosophy, science, and speculation concerning the mind, but have contemplated the mind entirely apart from the body. Whether the edifice erected from below will unite with their airy structure above, and recognize it as a part of one great whole, remains to be seen.

In this state of progress Gall perceived the immense void, and attempted to establish a connection, by building upward. He built up the unfinished department of CEREBRAL ANATOMY, and upon that solid foundation erected a system of mental philosophy, which thrust aside the misty systems of his predecessors. They scoffed at his creation as a rude unfinished work, without system or architectural ornament, and without the necessary elevation for man's spiritual dignity. Nevertheless, his work was well done, although unfinished and rude, and the greater portion of his construction will permanently endure.

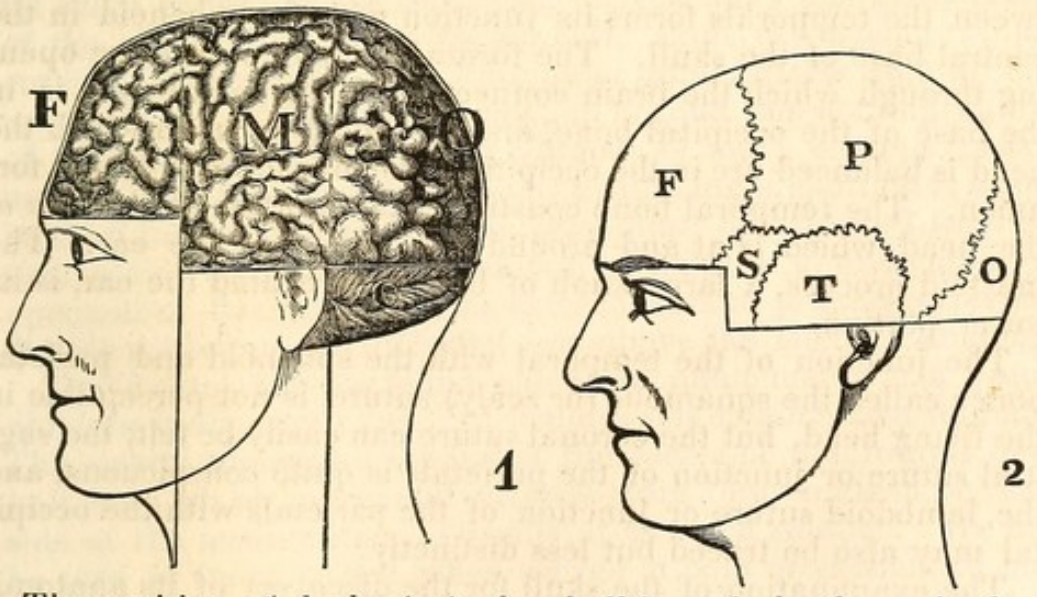
But Gall did not finish the anthropological edifice. He demonstrated the connexion of the mind with the several portions of the brain, but he did not demonstrate the relations of the brain to the body as its physiological governor, nor did he demonstrate the relations of the mind and brain to the higher realms of Pneumatology. He demonstrated CEREBRAL PHRENOLOGY alone; omitting CEREBRAL PHYSIOLOGY and CEREBRAL PSYCHOLOGY. Thus he occupied an intermediate position between Physiologists and Psychologists without coming into actual contact with either—there being an intermediate undeveloped science on either hand, separating him from the Psychologists above and the Physiologists below.

It now remains for us to fill these vacancies—to trace the functions of the brain in connexion with the body, and thus establish CEREBRAL PHYSIOLOGY, which completes the structure of anatomico-physiological science. To this we must superadd a true CEREBRAL PHRENOLOGY, by correcting and completing the discoveries of Gall. And upon this we must erect a system of Psychology with a scientific cerebral basis, which shall give us the laws and natural history of man's spiritual nature.

Thus it is necessary to create two new departments of science. CEREBRAL PHYSIOLOGY, towards which we have but a few facts furnished by vivisection, by pathology and by inference from the discoveries of Gall, and CEREBRAL PSYCHOLOGY, for which we have a very liberal supply of materials furnished by historians, metaphysicians, psychologists and magnetists. Thus will the unconnected labors of the Physiologists, Gall and the Psychologists be brought into connexion and unity, while the laws of harmony in the great unitary structure resulting, will enable us to correct the errors of its several parts.

LECT. X.—CRANIOLOGY.

The developement of the skull corresponds *in general* to the developement of the brain, and where the brain is uniformly active in all its parts, the outline of the cranium will indicate the true outline of the character, but in proportion as special organs have been over-active or torpid, the character will depart from the outline of the cranium. This is most often observed in criminals, in the uneducated and vicious, in the very old and diseased. In the young and healthy, in those of active well-trained minds, who have not been placed under any influences which might distort the natural character, we observe the most perfect accordance of the skull and character. Wherever the organs become inactive through lack of exercise, they shrink in size, the bone thickens by growing inward, and the skull becomes opaque. When organs are very much exercised they increase in size and the adjacent bone recedes by absorption, until the inner surface is indented with a digital impression and the skull is made at that spot translucent. Hence a light placed within the cavity of the skull reveals the relative activity of the organs and the probable course of the individual in life. Upon this method I have mainly relied in the examination of skulls. Many heads which present a fine contour externally, exhibit by this method, the predominence of the basilar organs in the character of the individual. One of the finest crania that I have ever obtained is the skull of a murderer, and remarkably thick in the moral region.



The position of the brain in the skull is entirely above the face and neck. The front lobe lying upon the vault of the eye-sockets or super-orbitar plate of the frontal bone, is a little lower internally over the nose than externally on the outside of the forehead. The brow will in the main indicate the line of its basis —upon which level it continues on the outside of the forehead as

far as the back of the sockets, a little more than an inch. Then behind the sockets there is an abrupt descent in the temples to the margin of the cheek bone which constitutes the lower boundary of the middle lobe. A line running back horizontally from the upper margin of the cheek bone to the occipital spine or knob on the back of the head will give the general course of the base of the cerebrum. If, from the occipital knob above mentioned, we extend a circular line to the lower margin of the ear, we shall indicate very nearly the lower boundary of the cerebellum, which occupies the space behind the cavity of the ear. The organs which we locate below these boundaries belong to the inferior surface of the brain and occupy much less space in reality than their expanded localities upon the face and neck would indicate.

The skull consists of the frontal, parietal, occipital, temporal and sphenoid bones, indicated by the letters F. P. O. T. S. The ethmoid bone underneath the frontal in the cavity of the nose, need not be regarded in the study of Craniology as it is invisible in the living head. The coronal suture is the junction of the frontal and parietal bones, running from the centre of the upper surface of the head (the fontanelle or soft place of the infants' head) toward the sphenoid bone in the temples. The right and left parietal bones unite on the median line by the sagittal suture, which runs from the coronal suture back to the top of the occipital bone, on the back of the head, half way between the vertex and the base. From this point the occipital bone descending and occupying all the space between the parietals becomes much wider to the base—then running forward and upward between the temporals forms its junction with the sphenoid in the central base of the skull. The foramen magnum or large opening through which the brain connects with the spinal cord, is in the base of the occipital bone, and the condyles upon which the head is balanced are in the occipital bone on each side of the foramen. The temporal bone constitutes that portion of the side of the head, which is at and around the cavity of the ear. The mastoid process, a large knob of bone just behind the ear, is its lower portion.

The junction of the temporal with the sphenoid and parietal bones called the squamous (or scaly) suture, is not perceptible in the living head, but the coronal suture can easily be felt; the sagittal suture or junction of the parietals is quite conspicuous, and the lambdoid suture or junction of the parietals with the occipital may also be traced but less distinctly.

The examination of the skull for the discovery of its anatomical divisions or organic developements should be made with gentleness by laying the hand upon the scalp, and then by a slight vermicular motion causing the scalp to move upon the bone.—Developement is not to be ascertained by the ends of the fingers, nor by friction upon the head, but by a full contact and by feeling the bone through the integuments.

All very marked, abrupt protuberances or "bumps," must be omitted from our calculation when we would estimate the developement of the brain. These bumps belong to the osseous structure alone. The forms which are produced by the developement of the brain are curvelinear and never abrupt, hence, developement of the brain must be inferred from the general contour and not from bumps or small irregular projections.

Craniologists who attach great importance to small, sharp angular projections of the bones make ridiculous blunders in cranioscopy.

There is a marked ridge of bone which constitutes the brow or superciliary arch corresponding nearly to the eyebrow. The temporal arch runs from the external margin of the brow upward, then backward over the temples, parallel to the median line of the head. The course of the sagittal and lambdoid sutures is frequently marked by great irregularity. The mastoid process and occipital knob, as well as the preceding ridges must be allowed for in an examination.

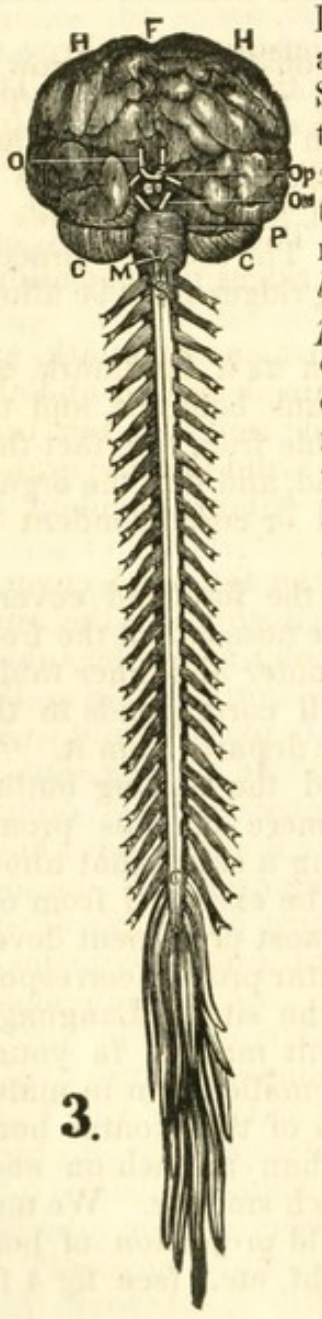
The temporal arch is worthy of attention as a landmark, assisting us to judge of the intellectual organs before it, and the moral organs above it. It is also memorable from the fact that it runs parallel to the median line of the head, and that the organs on these two lines are singularly parallel or correspondent in their functions.

The superciliary arches at the base of the forehead cover a cavity in the bone adjacent to the root of the nose called the frontal sinus, caused by the separation of the outer and inner tables of the skull. The inner table of the skull corresponds to the curving outline of the brain—the outer table departs from it. All or nearly all of this bold projection beyond the curving outline of the forehead, should be excluded as mere osseous prominence. We may also perceive by examining a skull that about half an inch of the bone in the brow must be excluded from our estimate of cerebral developement. The most prominent developement of this ridge is at the external orbitar process corresponding to the organ of Order and just above the site of Language.

The frontal sinus is found chiefly in adult males. In young children it does not exist. In females it is smaller than in males. This cavity sometimes separates the plates of the frontal bone half an inch or more, and extends more than an inch on each side of the median line. Usually, it is much smaller. We may be sure of its existence when we see a bold projection of bone along the organs of Form, Distance, Weight, etc., (see fig 4 for the appearance of the frontal sinus).

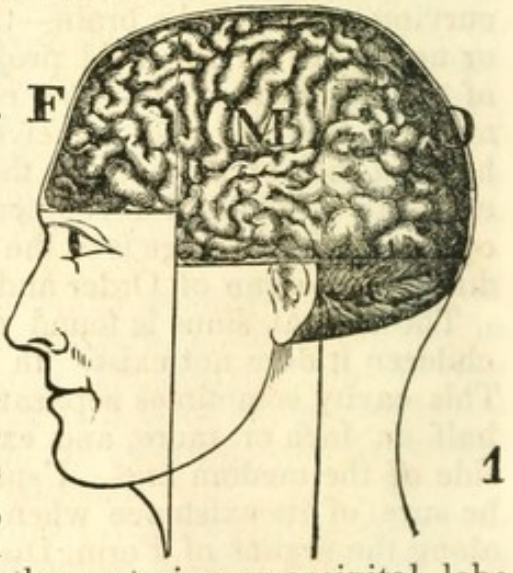
LECT. XI.—ANATOMY OF THE BRAIN.

The entire cavity of the cranium is filled by the brain or encephalon, consisting of a mass of convolutions or cerebrum; the cerebellum pons and medulla oblongata (summit of the spinal cord) from which spring the fibres which constitute in their full expansion the hemispheres of the cerebrum.



3.

In fig. 3 we have a front view of the brain and spinal cord in their natural position.—SC the spinal cord terminates below the letter C, in a brush of nerves called the *cauda equina* or horsetail, and gives off in its course thirty-one pairs of spinal nerves. The summit of the spinal cord M, is the *medulla oblongata* and the transverse fibres P, are the *pons varolii* which connects the hemispheres of the cerebellum C. The two hemispheres of the cerebrum H. H. are separated on the median line by the fissure F. The upper portion of what is presented to the eye is the front lobe. In the lower and lateral portions of the engraving the middle lobe is visible. The origin of the olfactory nerve is seen at O; of the optic nerve at Op; of the eye-mover or *oculomotor* at Om. The cerebellum C, lies beneath the tentorium, a membrane stretched horizontally across the basilar region on the level of the occipital knob, and just over the cavity of the ear. The cerebrum rests (posteriorly) upon the tentorium, [this portion being called the posterior or occipital lobe



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O] upon the temporal and sphenoid bones [this portion being called the middle lobe M] and upon the orbitar plates of the frontal bone, [this portion being called the front lobe F.] The brain appears externally of a pale reddish brown hue, presenting to the eye a soft and

very vascular substance, in which it is difficult to recognize a fibrous texture. This brownish or cineritious [ashy] substance covers the exterior while the interior of each convolution consists of white fibres which may be traced into connexion with those of the medulla oblongata. The two substances of which the brain is composed are essential to the performance of its nervous functions. These substances, commonly called white and gray or medullary and cortical, are found developed and co-operating wherever the brain and spinal nerves exist. The gray substance lies at the surface of the brain, where we suppose the psychological functions to be principally performed, and is supplied with a much greater quantity of blood than the white substance in the interior. When carefully examined by the anatomist it presents an intricate and delicate mesh of blood vessels with a fine globular and granular nervous substance and delicate filaments connecting with the white fibres of the medullary substance. These white fibres have the appearance of cylinders or tubes containing a soft or semi-fluid substance and present enlargements at intervals which are supposed to arise from the mode of manipulation by the anatomist. It is supposed that the mental functions are performed in the soft granular and globular substance at the surface of the brain and that the white fibres conduct or transmit this nervous influence to the body. The mental functions are more influenced by diseases at the surface of the brain and the muscular system by affections of the medullary substance.

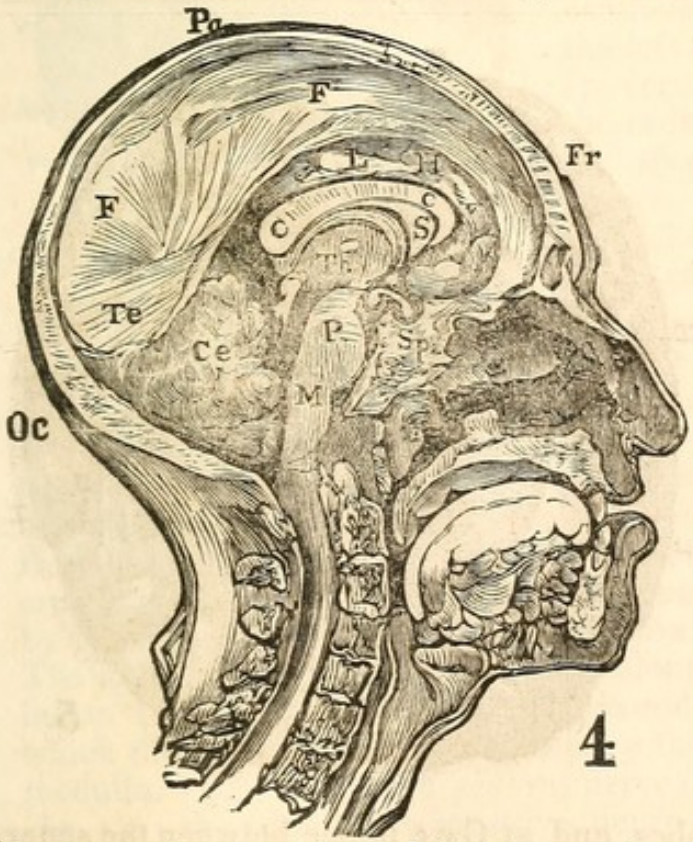

FIG. 4.—In this figure we observe the relative position of the various organs upon the median line as displayed by a vertical section of the head. Below we observe in the neck the vertebræ of the spinal column divided, and the spinal cord lying in their canal; in front of which we see the throat, the tongue, the lower jaw at the chin, the bony roof of the mouth and the interior of the nose. Above these we have the outline of the cranium and its subdivisions. Oc, the occipital bone; Fr the frontal bone; Pa, the parietal bone and Sp the sphenoid; Ce;

the cerebellum divided on the median line; Me, the medulla oblongata; P, the pons varolii; Th, the optic thalamus; S, the septum lucidum, a thin nervous structure on the median line which prevents our seeing the striated bodies beyond. Cc, the corpus callosum which connects the hemispheres, beneath which are smaller commissures or transverse nervous fibres. (One is seen upon the thalamus, one before and one behind it.) Between the thalamus and cerebellum is seen a pair of rounded bodies belonging to the quadrigemina. Extending from the cranium toward the corpus callosum we observe the membrane called the *falx* major, FF, which separates the hemispheres, and which posteriorly connects with the tentorium Te. Between the falx and the corpus callosum we observe a portion of the convoluted surface of the left hemisphere LH. The whole brain is a double structure; its right and left halves, which are nearly symmetrical are separated for the greater part of their internal surface by a membrane called the falx, (see fig 4,) which extends from the frontal to the occipital bone and tentorium along the vault of the cranium on the median line.

The right and left hemispheres of the cerebrum are for a space of three or four inches connected by a transverse band of white fibres, which we observe crossing the median line, when we pull the hemispheres apart and look into the space between them. This commissure is called the *corpus callosum* or hard body from its firm fibrous texture.

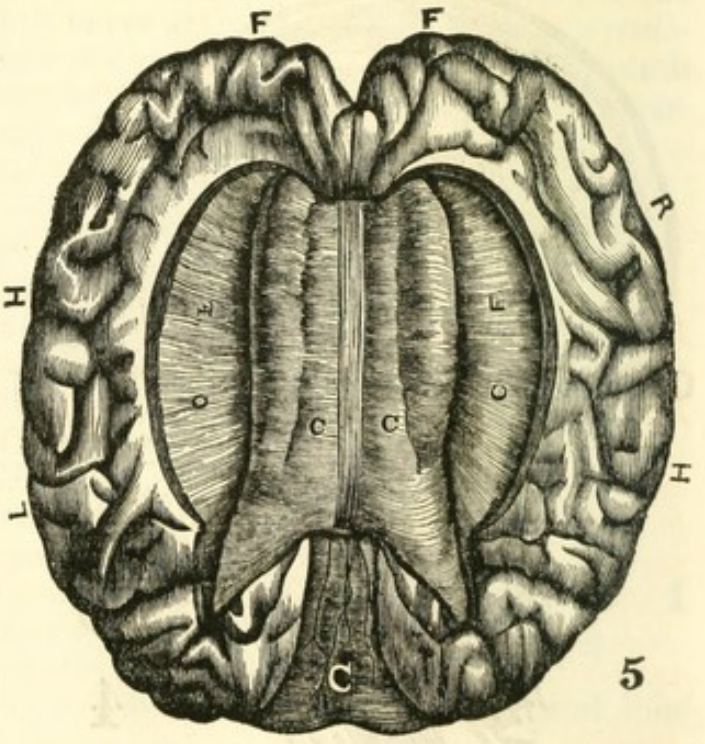

Fig 5.—In this figure we have a view of the corpus callosum from above.—Looking down upon the hemispheres, we pull them apart as far as possible, until their internal surface is presented upwards. We then observe CC the corpus callosum, the fibres of which run out laterally into the hemispheres, and CF CF the converging fibres from the hemispheres to the corpus callosum. F F, indicates the position of the front lobes, and at C we notice between the separated occipital lobes the upper surface of the cerebellum.

If we look at the front surface of the cerebellum, which is toward the face, we observe another commissure—a body of white fibres connecting the hemispheres of the cerebellum called the *pons varolii*, or bridge of varolius, as the fibres pass like a bridge across the ascending fibres from the medulla oblongata (see fig 3). This pons and the subjacent medulla are so situated as to be intersected by a line passing through from ear to ear at and below the meatus auditorius (or opening of the ear).

From this spot we observe the nervous fibres after passing up through the pons, separating to the right and left to constitute the crura or legs of the cerebrum. Each crus, which, by its expansion forms one hemisphere, may be compared to the footstalk of a flower, of which the convolutions constitute the leaves or petals. The fibres of each crus extending outward and forward, expand in the swelling, called optic thalamus and corpus striatum (see fig 9 T; fig 10 TCS; fig 11 S; fig 12 TS.) in which they mingle with

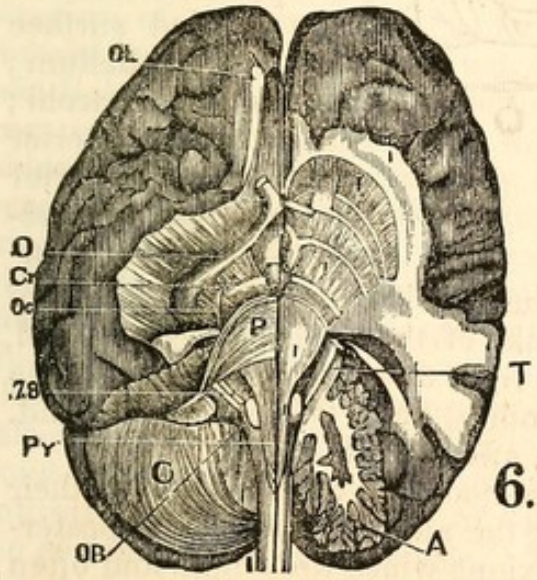

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Fig. 6.—In this figure we observe the brain laid upon its surface and the radiating course of the fibres from the medulla oblongata as shown by Gall and Spurzheim demonstrated by dissection. In the right half of the encephalon we observe the cerebellum C undisturbed. In the left half we observe a nearly vertical section displaying the radiated appearance called the *abor vitæ* from its resemblance to that shrub. In the right hemisphere we observe fibres radiating into the convolutions. The optic nerve O, passes round the radiating fibres.—In the space between the optic nerve O and the pons varolii P, they are called the *crura* or thighs of the brain. The right *crus* Cr appears to proceed from the pons varolii P. On the left side the transverse fibres of the pons have been cut away and we are enabled to perceive the whole course of the radiating fibres starting from the anterior part of the medulla oblongata [where the fibres cross or decussate] and continuing through the pons [as indicated by the figures 1,1,1,1,1,] into the substance of the hemisphere.—The anterior fibres of the medulla oblongata from which this radiation is traced, are called the pyramidal bodies Py, exterior to which the olivary bodies OB, occupy the lateral portion of the medulla. The origins of several nerves are shown in this drawing, viz: the trifacial or sensitive nerve of the face T, the facial muscular nerve and the auditory 7, 8, the oculo-motor or eye-mover Oc, the optic O and the olfactory Ol.

the brown or cineritious substance, and beyond which they are prolonged into an extensive nervous membrane, brown externally and white internally, which, growing more voluminous, becomes convoluted, or folded together, above the thalamus and striated body, and leaves an extensive cavity or ventricle, within or beneath the convolutions, and above the former bodies, (see fig. 11). The fibres of the convolutions in continuation run to the median line, to connect with the corresponding fibres of the opposite hemisphere and thus form the corpus callosum, [fig 5, CC ; fig 9 CA ; figs. 10 and 11, C.]

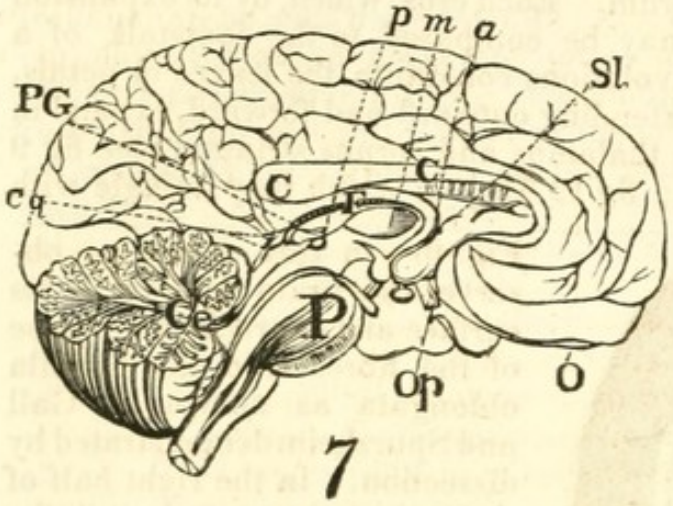

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Fig 7.—In this outline view of the mature brain divided on the median line, we observe the apparatus of union CC, the corpus callosum; Ce the divided surface of the cerebellum ; P, the pons varolii ; a, m, p, the anterior middle and posterior commissures. In addition to these connexions, there are several structures below the corpus callosum which increase the connecting links of the hemispheres—viz : Sl, the septum lucidum between the right and left ventricles ; F, the fornix ; Cq, the quadrigeminal bodies, and PG, the pineal gland. [The optic nerve is shown at Op, and the olfactory at O].

The optic thalamus and striated body are connected with their fellows across the median line by the anterior middle and posterior commissures—nervous connexions which are small and often torn in dissection. The hemispheres of the cerebellum connect directly in their middle lobe and are also united by the white fibres of their commissure the pons varolii. (see fig. 7, P.)

If we cut out one of these convolutions from the mass we shall find that it is a fold of the two species of cerebral matter, which may by a slight pressure be opened out as a book so as to present the white fibre on one surface, and the brownish substance on the other.

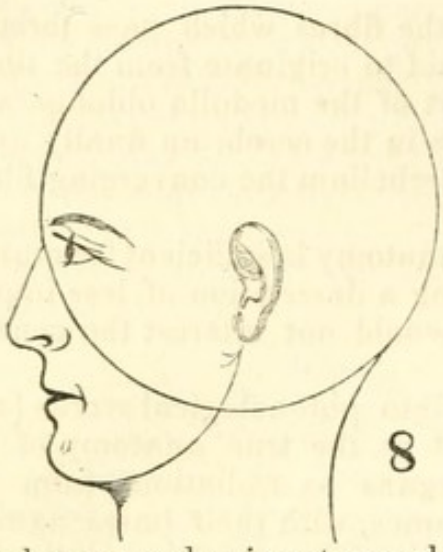
The principal lesson to be learned from a glance at the cerebral structure is this : that the convolutions are formed around a cavity or ventricle, which is to be regarded as the central region of the brain, around which in every direction the convolutions are developed, and from which their developement should be estimated instead of estimating from the medulla oblongata, which is not the centre of developement, but the point of origin for the fibres of each hemisphere, (see fig. 8).

As the cerebrum springs from the fibres which pass through the pons, the cerebellum may be said to originate from the fibres which arise from the posterior part of the medulla oblongata or restiform bodies, and as these fibres in the cerebrum finally unite in the corpus callosum so in the cerebellum the converging fibres unite in the pons varolii.

This hasty view of the cerebral anatomy is sufficient for craniological purposes, without attempting a description of less important parts or appearances which would not interest the general reader.

The absurdity which has crept into phrenological works [and which has been popularly taught as the true anatomy of the brain] of regarding the various organs as radiations from the medulla oblongata like inverted cones, with their bases against the inner plate of the skull, and their apices at the medulla, has no foundation in anatomy. The central region of the brain consists of the ventricles, around which the hemispheres are formed, and become convoluted. The measurements of organs, which have been made by phrenologists, from the cavity of the ear, upon the supposition that they extended from the medulla oblongata to the skull, are quite fallacious. There are no such organs; they could not exist without passing through the ventricles, and disregarding the facts of anatomy. The medulla oblongata is neither anatomically, physiologically, nor mathematically the centre of cerebral developement. There is no single centre, as there are two distinct hemispheres, each complete in itself, and possessing its own central region. When we select the ear as corresponding to the medulla, for the central point, we take a position which, instead of being central, is entirely below every portion of the cerebrum, and is therefore at the circumference of the circle. Taking that point as a centre, our circle would contain on one side, the brain, and on the other merely the face and neck; nor would the outline at all correspond to the outline of the cranium. But if we take a position in the temples corresponding to the region of the ventricles, a circle described around that centre would correspond accurately with the outline of the cranium* (Fig. 8), and the centre of that circle would be a central region from which to estimate cerebral developement.

* There are portions of the cranium concealed by the neck and face, which would fall within the circle, because they cover organs which are designed by Nature to be remarkably small, as they must be in every well formed head. If the lower half of the circle were filled by brain like the upper half, there would be as much of evil as of good in the constitution of man—as much of murder as of kindness, as much of the wildest insanity as of rational conduct, as much of malignant and fatal disease as of healthy action—in short the human race would be a failure. Nature reduces these elements of the human constitution within limits so small that they produce only occasional and not continual evil; while in the best organized constitutions they operate like certain metallic poisons, which in small doses are efficient tonics.



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When we estimate developement above and below this central region, we arrive at correct conclusions; but when we assume the ear as the position corresponding to the centre, and measure the upward developement as indicating the size of the moral organs, we are really measuring both upward and downward developements at once. Hence some of the most violent and murderous felons have been supposed to have large, predominant moral organs, because, by this method of measurement, height and depth were confounded, and the deep developement of the basis of the skull was estimated in connexion with the upward developement of the coronal organs; thus assigning the whole moral and animal force to the moral organs. At the same time persons of full moral developement, and shallow basilar regions, with perfectly virtuous characters, measured less from the cavity of the ear upwards, and were therefore supposed to have smaller moral organs than the violent criminals. In my first craniological observations, I was misled by these erroneous views of craniologists, until, by reference to cerebral anatomy, I corrected the error.

VIEWS OF THE FORMATION AND GROWTH OF THE BRAIN, ILLUSTRATING LECTURES XI AND XII.

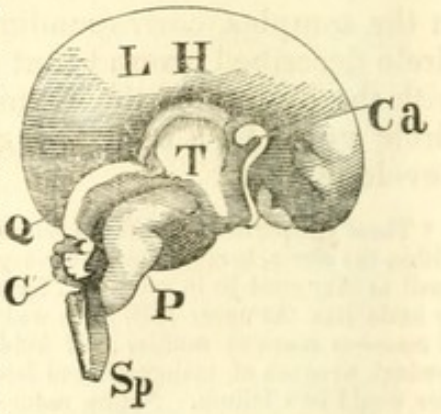


Fig. 9.—In this figure we observe the embryo brain divided on the median line and the internal face of the left hemisphere displayed.

Sp spinal cord and medulla oblongata; C, Cerebellum; P, Pons Varolii; Q, Quadrigeminal bodies; T, Optic Thalamus; Ca, Corpus Callosum; LH, Left Hemisphere.

On the internal surface of the left hemisphere, we observe certain incipient furrows destined to separate the convolutions.

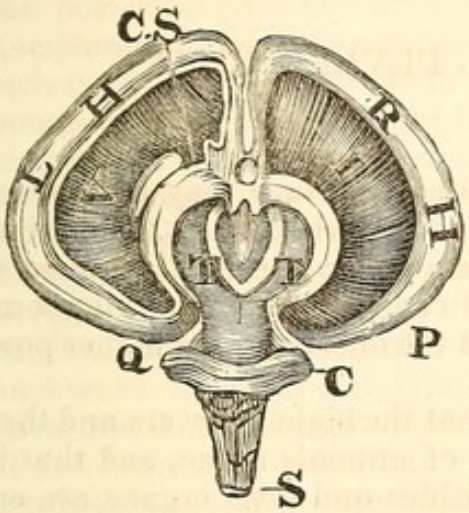
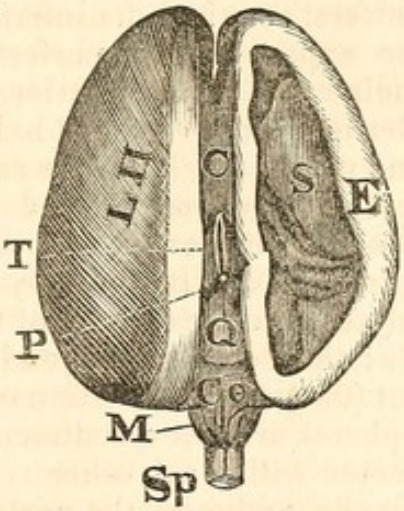


FIG. 10.—In this figure we have a view of the same embryo brain of the 4th month lying upon its basis, while we have pulled the hemispheres apart to look down between them from above and behind. The left hemisphere is cut open on its internal face to display its lateral ventricle.

LH. Left Hemisphere; RH. Right Hemisphere; I, Its internal surface beginning to be convoluted; V, The ventricle of the left hemisphere; S, spinal cord; C, cerebellum; Q, Quadrigeminal bodies; TT, the optic thalami; CS, the corpus striatum; C, Corpus callosum; P, Pineal gland.

FIG. 11.—In this figure we view the upper surface of an embryo brain of twenty-one weeks. The hemispheres are slightly separated, and the right hemisphere opened in its whole length to display the ventricle. LH, left hemisphere; E, divided edge of the right hemisphere; S, corpus striatum at the bottom of the ventricle; C, corpus callosum; T, optic thalamus; P, pineal gland; Q, Quadrigeminal bodies; Ce, cerebellum; M, medulla oblongata; Sp, spinal cord.



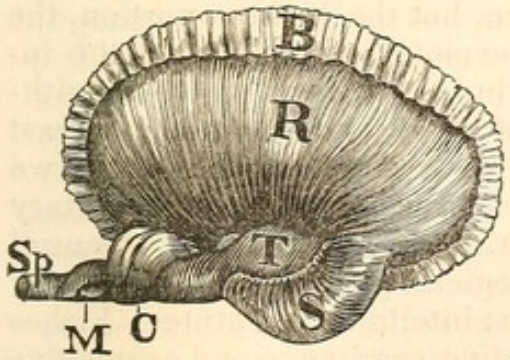


FIG. 12.—In this figure we have a simple view of the course of the fibres which proceed from the spinal cord Sp, through the medulla oblongata M, in front of the cerebellum C, through the thalamus T, and the striated body S, to radiate in the convoluted hemisphere. R presents the course of the radiating fibres, and B the border of the divided hemisphere in which the exterior fibres radiate to the surface. The striated body (corpus striatum S,) has been cut from its position exterior to the thalamus and thrown back so as to expose its inferior surface and the passage of the radiating fibres through it.

LECT. XII.—CEREBRAL DEVELOPEMENT.

The general theory of the cerebral structure may be learned from the process of developement in the embryo. In the original fœtal formation of the brain there is a successive developement of parts, as in the successive gradations of the animal kingdom: the inferior organs appear first, and the organs of the higher powers are last perfected.

It cannot, however, be affirmed that the higher powers and their organs belong to the higher classes of animals alone, and that in the lower animals these higher faculties and their organs are entirely absent. The elevation of an animal above its inferiors in organization (of the same great division of the animal kingdom, does not consist of the addition of peculiar organs and peculiar powers, of which its inferiors possess no analogue, but rather of the expansion and perfection of those organs which are merely rudimental in the inferior, thus giving to the higher powers a nobler and more elevated habitation. The faculties which in insects and worms are lodged in small masses of nervous matter scattered through the body called ganglia, are in fish (which belong to another division called the Vertebrata) located in the brain and spinal cord. In the very imperfect brain of the fish the parts adjacent to the summit of the spinal cord are distinctly developed, viz: the cerebellum, quadrigeminal bodies, thalami and striata, but (the principal portion of the human brain) the convoluted hemispheres are but a rudiment, or small nervous structures not connected with each other. In the ascending scale of birds, quadrupeds, and man, the parts possessed by the fish all receive additional developement and expansion; but the highest portion, the hemispheres, being vastly more developed in man than the inferior portions, overwhelms them by expansion. Yet, notwithstanding the great developement of the human brain in contrast with that of fishes (the lowest of the vertebrated animals), we cannot but regard the hemispheres of the fish as the rudimentary form of the hemispheres of man, possessing similar essential organs. All the *essential* psychological powers of a voluntary being are possessed by the humblest intelligent creature. Fishes manifest affection, aversion, destructive, combative and acquisitive propensities, firmness, fear, hunger, caution, anger, kindness, perception, memory, reflection, etc. In man, these powers (so poorly lodged in the fish) are placed in similar but ampler organs, and have a more powerful and diversified manifestation.

The same progressive developement and improvement of the cerebral structure, which we find in the ascending ranks of the animal kingdom, occurs in the formation and growth of the embryo brain of man.

In the first stages of distinct developement, in the latter part of the second month of the embryo brain, we observe rising from the posterior part of the summit of the spinal cord, two small unconnected rudiments of the CEREBELLUM, about a seventh of an inch in breadth. In front of this are the two unconnected rudiments of the quadrigeminal bodies, about a twelfth of an inch in length and breadth. In front of these quadrigeminal bodies, the crura expand into "two rounded protuberances," called the optic thalami; of similar dimensions, and immediately adjacent to them, we find the rounded form of the corpora striata, about a twelfth of an inch in length, from the outer margin of which the nervous matter rises in the form of a membrane, curving over backward and inward, being the portion destined ultimately to form the hemispheres. Here we see the five essential portions of the brain, common to nearly all vertebrated animals, viz: the cerebellum, quadrigemina, thalami, striata and hemispheres, existing all in imperfect developement—the greatest deficiency being in the hemispheres.

In the progress of developement, the rudiments of the cerebellum, during the third month, unite on the median line, forming a hollow convex body or smooth nervous sac. In the fourth month, its hemispheres connect by transverse fibres in front of the medulla oblongata, forming the commissure called the pons varolii. In the fifth month its nervous matter becomes folded or grooved upon its surface, and these grooves or foldings progressively increase until it presents the arrangement which is exhibited as the *arbor vitæ* when its substance is cut by the knife (fig. 6, A; fig. 7, Ce.)

The rudiments of the QUADRIGEMINAL bodies like the cerebellum, unite on the median line, forming a convex nervous vesicle about the end of the third month, resembling the same bodies as seen in fish and birds. In the seventh month they assume the form characteristic of quadrupeds—by the separation of the anterior and posterior portions forming the four quadrigeminal bodies (figs. 9, 10, 11, Q).

The OPTIC THALAMI (figs. 9, 10, 11, 12, T,) in the second month, are seen in front of the quadrigemina, each about the fifteenth or tenth of an inch in length, becoming at the commencement of the third month, the eighth of an inch long, and by the commencement of the fourth month a fifth of an inch. During the latter part of the third month, they form a connexion with each other called the posterior commissure. In the fourth month they measure a quarter of an inch by a seventh; in the fifth month, they measure nearly a third by a fifth, and in their subsequent developement they expand with the growth of the hemispheres becoming over half an inch by a fourth in the eighth month, and three-fourths by nearly a half in the ninth, in which month their internal faces unite across the median line in the *commissura mollis* or middle commissure. The developement of the thalami cor-

responds with that of the cerebral hemispheres, not only in the growth of the embryo, but generally in their comparative size in different animals, those of man being the largest, and those of reptiles being so small as to have been formerly overlooked by anatomists, while in fish nothing corresponding to the thalami was observed by Tiedemann.* Hence we may regard the thalami like the striata, as rudiments or roots or the hemispheres, containing, probably, an organic apparatus of which the hemispheres offer an ample developement. The thalami being largely composed of the gray substance and very abundantly supplied with blood, we may presume their functions important and active, and as they receive fibres from the crura of the hemispheres (originating in the medulla oblongata) which are reinforced by new fibres in the thalami, thus transmitting an augmented mass to form the convolutions of the hemispheres, we are constrained to connect the thalami with the cerebral organs to which they occupy a subordinate relation, their position being between the hemispheres and the expansions of the spinal system in the body. The fact that the optic nerve partially originates from the thalami (the principal origin being in the quadrigemina) confirms the idea that the thalami correspond to the hemispheres and are competent in their absence to receive and act upon the visual intelligence supplied by the optic nerve.† Another fact supporting the same idea is that the thalami are believed to be connected with the sensitive tract of the spinal cord and middle lobe of the hemispheres, while the striata are connected with the pyramidal bodies or motor tract and the front lobe or intellectual region. Hence, we might infer that the thalami are especially connected with sensibility, emotion and passion, or in other words, with our affective organs, and that the striata are especially connected with voluntary action and manifestation.

This doctrine to which anatomy gives some plausibility, is further sanctioned by our experiments upon the brain, which demonstrate organs of voluntary manifestation immediately behind the intellectual organs, and organs of sensibility and excitability lying behind the organs of manifestation.

The corpora striata, which in the second month each measure about the twelfth of an inch, are, in the third, a fifth long by a twelfth broad, and are overhung by the nervous membrane which grows from their external borders to form the hemispheres of the cerebrum. In the sixth month each becomes fully half an inch long, with a breadth of a fifth in front, and an eighth posteriorly. In the seventh month their length is three fourths of an inch; in the ninth an inch and a quarter. At this stage of developement, (although they are called the striated bodies from their mixture

* The dolphin, which belongs to the class of mammalia, and has a convoluted brain, has a large developement of the thalami—larger than the striated bodies.

† The olfactory nerve is also in connexion with the thalami.

of white and gray neurine in the mature brain), we do not necessarily recognize that distinction of white and gray substance in the infant or fœtal brain. They have a more pulpy and vascular character than exists subsequently when the fibrous structure is more distinctly developed.

The striated bodies in fish are liable to be confounded with their small hemispheres; hence, Tiedemann denies their existance, which others affirm. In reptiles these are developed as in the human embryo of the third or fourth motnh. Their magnitude, Tiedemann affirms, is proportional to the developement of the hemispheres; being quite small, proportionally, in the frog and toad, which have very small hemispheres, and more fully developed in the serpent, tortoise, and crocodile, which have much larger hemispheres. In the dolphin (an exception to the general rule), the thalami are much larger than the striata.

They do not, however, follow the developement of the cerebrum so closely as do the thalami. In man the thalami and striata are nearly equal, but as we descend in the scale the striata gain the ascendancy, until in fish the thalami disappear, and the striata alone are seen.

The corpora striata take their name from the fact that in man they present a white nervous fibre, passing through the gray substance, and when cut, present a striped or striated appearance. In the infant or embryo brain, this distinction of appearance is not observable, and in lower animals there is not much display of the white.

From the relations which the thalami and striata bear to the convoluted hemispheres, they are called the hemispherical ganglia, being regarded as the sources of the nervous fibres of the convolutions. And from their anatomical relations to the spinal cord the striata are regarded as the continuations of the anterior and the thalami, as the prolongations of the posterior column of the cord. Pathology, however, does not sanction the idea that the thalami are the organs of sensibility, as diseases of the thalami, like those of the striata, have been observed to paralyze the muscular system without affecting sensibility.

Pathology, however, has not given us any reason to deny that the striated bodies are the especial channel of volition, by which the intellectual organs of the brain hold an active relation to the muscles with which they connect, through the striata, crura, and spinal cord.

THE APPARATUS OF UNION between the hemispheres of the encephalon is developed about the end of the third and beginning of the fourth month. The right and left halves of the cerebellum unite on the median line during the third month, and their union by their commissure, the pons varolie takes place during the fourth. The quadrigeminal bodies unite on the median line about the end of the third month. The corpus callosum, which connects the

convoluted hemispheres, commences its evolution about the end of the third month, at its anterior extremity, and advances during the remaining six months, with the developement of the hemispheres, extending backwards. The anterior commissure, which connects the corpora striata, appears during the third month, and the posterior commissure, which connects the thalami, is developed about the end of the third; but the union of the thalami by the soft commissure of cineritious substance, does not appear until the ninth month, at which time the corpus callosum attains its full developement. The corpus callosum being the bond of the convolutions, is of a higher grade than the commissures below it, and is not visible in the brains of animals without convolutions—as fishes, reptiles, and birds.

The hemispheres of the cerebrum first appear in the second month as rudiments—a nervous membrane springing out and growing upward and backward from the edge of the striata, which they cover during the third month. During the fourth month they cover the thalami. During the sixth they have covered also the quadrigeminal bodies, and advanced to the margin of the cerebellum. A considerable cavity or ventricle is thus formed between the hemispheric membrane above, and the thalami and corpora striata below. This cavity diminishes as the membrane accumulates and becomes folded into convolutions. The smooth sac which it forms, begins in the sixth month to become folded, by exhibiting depressions near the median line. In the seventh month the hemispheres extend over the cerebellum, and in the eighth and ninth months they extend beyond it as in the adult. The growth of the hemispheres of the cerebrum thus appears to progress from the margin of the striata backwards and inwards, covering successively the striata, thalami, quadrigemina, and cerebellum. This course of developement in the human embryo corresponds to the progress in the successive gradations of fishes, reptiles, birds, and quadrupeds.

Thus the posterior and interior portions of the brain are the last in obtaining full developement, while the frontal and basilar organs take the precedence. According to Prof. Retzius the posterior lobes do not exist at all, until in the course of the fifth month. The front lobe being developed during the first three months, the middle lobe during the fourth and part of the fifth; after which the developement of the posterior lobes commences.*

*The posterior margin of the hemispheres in the third and fourth month, do not, as Retzius affirms, correspond to the posterior lobes which are subsequently developed. A notch or furrow appears in the latter part of the fourth month, above and behind which the posterior lobe is developed. The difference between Retzius and Tiedemann, however, is not very great as to the facts. And I think there is no reason to doubt that the part posterior the separating furrow, existed previous to the separation and was then the rudiment of the posterior lobe.

But, according to Tiedemann, the furrow separating the middle and posterior lobes is visible in the fourth month, and the developement of the latter must have commenced much earlier.

These facts do not well harmonize with the phrenological doctrines of Gall and Spurzheim, but they are satisfactorily intelligible when we have discovered the true functions of the brain by experimental analysis. Comparative anatomy shows us that when the higher faculties of the mind are not provided with their proper organs, they descend to a lower position in the nervous system, as from the brain to the spinal cord, from the cord to the ganglia. Hence, when the cerebral convolutions are defective, the non-convoluted parts of the brain become their substitutes; the thalami and striata, as the highest developements, contain the highest powers that exist; but in proportion as the convoluted hemispheres grow, the faculties become localized in them. Their highest developement is confined to man. It is only in man and in a few of the monkey tribe which most nearly resemble him, that the posterior lobes are sufficiently developed to cover the cerebellum. The posterior and interior organs, which are last developed, are those which give the highest developement of greatness and force of character, qualifying the individual to assume an eminent rank among his fellow beings. In these respects, man vastly exceeds all animals, as well as in the general developement of his brain; and this difference corresponds well with the fact that he has ampler and more numerous convolutions, as well as a special superiority in the region which gives commanding strength of character.

These facts, in embryology, are fatal to the doctrines of Gall and Spurzheim, concerning the occiput, to which they ascribe philoprogenitive, adhesive, and inhabitive propensities; but perfectly consistent with the true functions of the middle occipital organs, which give to man those ambitious, domineering and conquering passions in which he excels all animals.

LECT. XIII.—CEREBRAL FORMS.

We observe a great variety of cerebral forms. Convolutions may be numerous and thin, or few and broad; they may be characterized by projecting length of fibre, or by breadth; the different superficial developements may be prominent or depressed, broad or narrow. These various forms must be significant.

The length of a fibre (including its adjacent and connected portion of the gray substance), indicates its power and (*ceteris paribus*) the longest fibres are the most powerful. The repetition of similar fibres would be but the repetition of similar functions,

and would not increase the range of power. Broad convolutions, therefore, may give greater copiousness, or amount of mental action without increasing the intensity or grade of the manifestation. Hence we have the rule that *length gives power, or range of action*, and *breadth gives copiousness, or activity of manifestation*. There are additional reasons for this. Organs exercise a checking influence over their antagonists; and tend to convert their direct and powerful into an indirect and perverted or modified action. Thus each tends to make the collateral functions predominate in its antagonistic convolutions, and to give their breadth a predominance over their length. Hence this breadth indicates modified forms of action, in which the legitimate action of the organ is restrained and modified by the influence of others. [In the mathematical or pathognomic lectures these principles will be explained in detail.]

The remark that *length gives power*, and *breadth copiousness* of action, is applicable not only to the convolutions but to the general developement of the brain. Thus a prominent but narrow forehead indicates intellectual power, but it also indicates less intellectual activity than would be found in a broad forehead, in which the region of Ideality gives activity to the different ranges of intellectual organs. The lower portion of Ideality gives an activity to the perceptive organs, which not only enables them to conceive with more creative power, but may even produce optic illusions. The middle portion gives activity to memory in the way of contemplation and reminiscence; hence the great literary power which it bestows. Persons with a small organ of Memory and really deficient in that faculty are sometimes enabled to display a copiousness of reminiscence in consequence of the contemplative influence of their Ideality, which might lead to the impression that their memory was very strong, activity being mistaken for power.

The breadth of the coronal region indicates the activity of the organs of virtue. This breadth gives a developement of the organs of Reverence and Sublimity, which mantains an elevated train of thought and feeling. The respect for our fellow-beings keeps our kindly feelings continually alive towards them. We never approach them with indifference nor neglect any duty from its apparent insignificance. The opposite spirit of scorn, on the other hand, renders us reckless of their feelings, rights, interests, or even life. Thus the breadth of the head, at the temporal arch, indicates an activity of the virtuous faculties, and a copiousness of manifestation which does not occur in the narrow head. Breadth a little lower indicates general activity of the temperament, as it developes the region of excitability. Breadth still lower indicates the activity of the basilar organs, as it developes Irritability, the general source of all bad passions.

In the occiput also we may perceive that breadth increases the

activity. Breadth developes Combativeness, a more active but less intense element than Hatred. Pride and Love of Power, on the median line, are less active than Ambition and Coarseness, which are farther off.

In the neck, the organs indicated at the front and back give rather a sluggish temperament, while the organs which give breadth produce the highest degree of muscular activity, excitement, fury, and even raving madness.

The forms of the brain are almost infinitely varied now, and will continually change hereafter. As each fibre of a convolution exercises a different function, different portions of a convolution will be exercised in different individuals; consequently, the convolûtions must assume different forms under different circumstances. Hence there may be certain national forms of developement, and peculiarities in the different classes of society. The peculiar influences of each individual's life produce peculiar forms in his brain, and to this diversity there is no end; even the two hemispheres of the same individual present striking differences, arising probably from the difference of the two sides of the body, and the impressions which they yield.

The developement of the interior surfaces of the convolutions (the surfaces of the sides looking towards each other) is remarkable; as I believe that in this region a great variety of subordinate or modified functions will be found. I have in my experiments found such modifications: and it is in this way that each organ becomes susceptible of all the various modes of action which may be imposed upon it by surrounding circumstances.

Hence it appears that the apparent confusion of cerebral forms is in reality a matter of endless scientific interest and beauty. The laws according to which different forms are assumed by the convolutions and different functions are manifested by different portions of a convolution, belong to the mathematical science of pathognomy, and are elucidated in the latter portion of this volume. [It will be well to recur to this lecture after reading through the volume.]

LECT. XIV.—DUALITY AND DECUSSATION.

The brain is double, like other parts of our body and might be considered as two complete brains—the right brain and the left brain. The hemispheres of the cerebrum are separated by a firm membrane called the falx, except where they are connected by commissures. All organs are, therefore, double; those on the median line consisting of separate halves with an intervening

membrane. The organs of either hemisphere are sufficient alone to manifest the faculties; hence injuries seldom obliterate any particular power or passion.

The unity of mind or single consciousness with the double brain, must be connected with its apparatus of union—the corpus callosum, the anterior middle and posterior commissures, the pons varolii, the junction of the hemispheres of the cerebellum in their middle lobe and the junction of the lateral halves of the quadrigeminal bodies, crura cerebri, medulla oblongata and spinal cord.* Of these unions, the corpus callosum is probably highest in rank, being situated higher in the brain, and being the bond of the convolutions. It does not exist in the greater portion of the animal kingdom, being peculiar to the mammalia, and absent in birds, reptiles and fishes. The junctions below the level of the corpus callosum, are probably more physiological than mental in their functions in man; but below the class of mammalia, the corpus callosum being absent, the other commissures effect all the mental and physiological union. If we operate upon the apparatus of junction we produce astonishing effects. The excitement of all the organs along the median line tends to produce a great and powerful character—it gives the highest energy of will, thought, and sentiment.

If we pass the fingers along the entire length of the median line from before backward, rapidly, we disperse the excitement of these higher organs, and destroy the unity of mind, the concentrated will and the clear intellect. The whole of the functions located at the median line must be arrested to produce the full effect. The operation may be made backward, forward, or both ways—the movement forward is more debilitant, but more intellectual, the movement backward is more exciting but less intellectual. The effect of these operations is to produce a diminution of our physiological unity. The subject cannot concentrate his vision upon any object—his eyes turn apart, his limbs do not seem to obey his volition, or rather his volition is confused—he cannot perform any concerted action, he cannot stand or even bring his hands together, the muscles of the body do not properly balance each other, and he cannot sit erect, but falls to one side or vibrates between opposite forces. I have never carried this experiment far or continued it long, as the appearances are rather alarming to a spectator.

The independence of the hemispheres and the fact that they are often in different conditions corresponds with the independence and difference of the two halves of the body in which we observe, most invariably, a difference of developement if not of health. The diseases of either side often terminate on the median line.

* The pineal gland and mammillary body, which are small unimportant parts, are located upon the median line and supposed to perform a commissural function. The same remarks apply to the fornix and septum lucidum just below the corpus callosum.

The unity of our will and consciousness originates, perhaps, from the unity of the mental power rather than from the cerebral apparatus of union by which the two halves of the brain and of the whole body are associated. The mental power may reside in the region of union—we cannot positively say that it resides in the corpus callosum, or in any particular adjacent convolutions, but that this inter-hemispherical region is the seat of the spiritual or conscious power in man, I consider established by my experiments on the front lobe. In the absence of the corpus callosum its functions doubtless descend to lower structures, as in the case of an idiot woman described by Reil, in whom the corpus callosum was absent from imperfect developement of the brain.

The connexion of the brain with the body, is diagonal—each hemisphere controlling the opposite half of the body. This is owing to the decussation or crossing of fibres in the medulla oblongata, which can be very distinctly shown upon its anterior face, about an inch below the pons. A decussation of the greater portion of the nervous fibres is also shown in the optic nerves at their junction, but anatomists have not yet detected a thorough and complete decussation of all the nervous connexions between the brain and body.* Anatomy, therefore, seems to indicate a partial connexion of each hemisphere with its own half of the body and a more decided functional connexion with the opposite half.† Pathology sustains the doctrine of decussation, and was, in fact, the origin of the idea; lesions on one side of the brain having been observed to be followed by paralysis on the opposite side of the body. Anatomy in this, as in most instances, has rather followed than preceded physiology, in indicating functions.

Experimentally, we find that each eye is affected by operations upon the opposite front lobe, and that the muscular power is invariably controlled by the opposite hemisphere. If we excite the organ of Relaxation in the left hemisphere with the organ of Energy in the right hemisphere, we weaken the right arm, while we strengthen the left. We might thus even convert a right handed into left handed person, after the lapse of considerable time. Excite the organs of Light, Shade or Somnolence in the left hemisphere, and the right eye will show the effect. I have a skull in which the left perceptive organs appear to have been very sensibly diminished, in consequence of the loss of the right eye. The atrophy of the optic nerve in cases of blindness of an eye has been traced by pathologists to the opposite hemisphere, but I do not know that a corresponding atrophy of the visual organs in the superciliary arch has ever before been noticed.

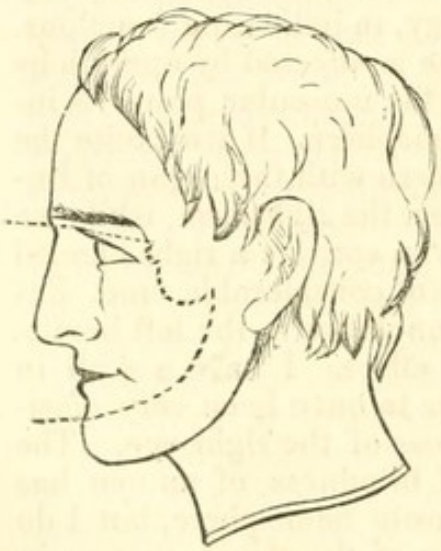
* Mr. Solly and others affirm that the posterior columns of the spinal system decussate in their ascending course behind the pons varolii.

† The hemispheres of the cerebellum being connected with the restiform bodies or posterior aspect of the medulla oblongata are not subject to the law of decussation, except perhaps, when influenced by their connexion with the pons varolii.

LECT. XV.—ORGANS OF MANIFESTATION AND SUPPRESSION—CONDUCTOR ORGANS AND ORGANS OF RESTRAINT.

The transmission of the influence of the brain into the body enables the former to act physiologically. Confined within the cranium, its action can be only psychological. There being no organ or faculty which does not exert some influence upon the body, all portions of the brain must possess distinct and peculiar physiological functions, and as there is no portion which does not influence the mind, each portion has its peculiar psychological function. Every organ, therefore, has its mental and corporeal—its psychological and physiological function—both usually manifested together—either capable of assuming the predominance.

The tendency to corporeal manifestation, or power of acting upon the body, depends upon a special apparatus—this apparatus is necessarily in the basis of the cranium, as it is only the basilar organs which tend to act directly upon the body, and from its semi-intellectual character, is necessarily in the anterior region. Experiment shows us that it is located just beneath the intellectual organs at the junction of the front and middle lobes. This power being one of the essential or fundamental, is necessarily placed near the medulla oblongata, as it belongs to the whole of the animal kingdom. The organs which it occupies are among the first in the order of formation, being at the edge of the striated bodies which are the channels for the transmission of volition to the muscular system. The location is such that we mark these organs externally upon the face, through which they may be excited as easily as others are through the cranium. The most remarkable fact, however, upon this subject, is the coincidence between the developement of these organs and the developement of their locations upon the face which serves as the foundation of a very interesting system of physiognomy. (See Lectures on Physiognomy.)



The region antagonistic to the conductor organs located above and behind the centre of the parietal bone tends to destroy the free manifestation of the faculties and is called the organ of

Restraint. The impressible individual who places his hand upon the organ of Restraint in another, finds a benumbing influence imparted to his arm, the muscles move slowly and stiffly, and finally he loses all control of them and is compelled to remain in a fixed position. This rigidity is usually experienced directly in the muscles of the arm which are in contact with the organ of Restraint. It may happen that the impressibility of the brain is greater than that of the arm, for we find that the principal effect of such experiments may sometimes be produced upon the opposite side; the nervaura in this case makes its impression upon the side of the brain nearest the arm which is used, because it is the most accessible, and by that hemisphere affects the opposite side of the body.

The organ of Restraint gives a quiet steadiness to the manners and in excess produces a stiffness which has sometimes been attributed to Firmness, but which really belongs to its co-operative organ, Restraint. Both Firmness and Pride are co-operative organs of Restraint, (see Lect. on Co-operation) and hence each of those qualities is generally associated with stiffness of manners, when the upper occipital region is too large. Yet no such association necessarily exists when Restraint is small. The proper function of Restraint is to produce stability and self-control, to concentrate excitement within the cranium, and keep it under control of the will—assisting its neighboring organs of Firmness, Conscientiousness and Cautiousness to control the character. Its developement is increased by situations which hinder the freedom of our action. Its predominance produces a calm, dry and rather negative character.

The Conductor Organs, or organs of manifestation, tend to produce a continual overflow of cerebral excitement into the body, hence, although compatible with mental activity, they are incompatible with quietness and steadiness of mind. They predominate in childhood and are indicated by the remarkable fullness of the childish face—hence the excitability of children, their incapacity for self-control and their unfitness for legal responsibility. (Would it not be just to look upon adults in a similar light—as subjects for reform instead of punishment, when they are deficient in Restraint and thus left a prey to unbridled impulse.) A very prominent developement of the conductor organs produces an excitable, restless and morbific state of the nervous system of the whole body. A very defective developement of the conductor organs is associated with a dry, passive, lifeless manner. We often find the conductor organs deficient in persons of sedentary habits, but generally larger in those of active out-door pursuits, and larger in persons of stout frames, but smaller in those of delicate constitutions. They are rather more uniform in the female than in the male, and throughout life, from infancy to old age there is a progressive inequality as the organs which are most ex-

ercised become most prominent while those which are least active decline. Thus we recognize in an irregular strongly-marked countenance the indications of a marked and peculiar character.

The business of self-cultivation and developement lies in the exercise of the organs of Restraint and Conductor organs. The traces of this developement are obvious in the face. A great amount of vigorous exertion of all our powers leads to an ample developement of the whole person, which is accompanied by a corresponding developement of the face. Hence a large face conveys at once assurance of a strong character, although the strength *may be* of a low order. A small face may be accompanied by mental energy, especially when it developes the more efficient conductor organs, but it would be entirely out of harmony with a well-developed person, unless the organ of Restraint was more than proportionally deficient.

The region of the Conductor organs extends from the brow to the lower jaw, occupying the space in front of Alimentiveness and Disease. In this space, we find for every distinct organ of the brain a distinct channel or organ of manifestation—the entire organs of conduction representing the whole brain and every special portion of one corresponding to a special portion of the other, in accordance with the general law of the nervous system, that every organ is distinct from all others, and that every channel of nervous power leading to or from the brain—every nervous fibre—is entirely distinct and independent in its course, having no anastomosis or connection with any other channel or fibre.

Psychologically speaking, the Conductor organs are the organs of manifestation or expression, and might, without impropriety, be called the organs of natural language, being the next neighbors of the organs of artificial Language and Music, and being really the organs of vocal expression; for the physical power of speech depends upon the respiratory portion of the Conductor organs.

Physiologically speaking, the Conductor organs are the organs of innervation, by means of which mental excitement, or motives acting through the brain, may operate upon the body and stimulate its various organs. Hence, they may serve for indices of corporeal developement, as well as of mental manifestation.

A large developement of the Conductor organs, indicated by the face, requires a corresponding developement of the antagonistic region of Restraint, as the predominant action of the Conductor organs for any considerable length of time produces great exhaustion, fatigue, disease, and morbid excitability, resulting in fever and inflammation, which are usually the effects of undue exertion and excitement. Hence, it is not judicious to excite the Conductor organs very often, or to a great extent, in an impressible subject. The facility with which, in a highly impressible

person, all the various cerebral excitements may be produced, by operating on the conductor organs, is marvelous and beautiful; as the finger passes over the various portions of the face, the different faculties and passions are evolved, as in sweeping the strings of a harp.

LECT. XVI.—THE GALLIAN SYSTEM OF PHRENOLOGY, COMPARED WITH THE NEUROLOGICAL SYSTEM.

The system of Phrenology established by Gall and enlarged by Spurzheim, which I shall call the Gallian system, from the founder, contains the rudiments of a great and true science. It recognizes organs of thirty-five faculties.*

The defect of this system as a mental philosophy, consists in recognizing so small a number of faculties. All the powers, passions, emotions, etc., that have ever been observed by men of the world—historians, philosophers, dramatists, etc.—are entitled to recognition, for every peculiar trait or faculty requires a peculiar organic apparatus. The faculties above mentioned, are not sufficient to constitute a portrait of human nature.

Its defect as a cerebral science, arises from the fact that an arbitrary division into a specific number of organs is contrary to anatomy. The cerebrum is, in one sense, a single organ, but is composed of associated or blending parts, not of entirely distinct independent organs, for it has none. The doctrine of cere-

*The nomenclature of Spurzheim having been followed by English Phrenologists has been taken as the representative of the current Phrenological system. The nomenclature of Gall, as well as we can arrive at it, by a liberal translation, is as follows:—

1. Instinct of generation.
2. Love of Offspring.
3. Attachment, Friendship.
4. Courage, Self-Defence, Quarrelsomeness.
5. Carnivorous Instinct, Murder.
6. Cunning, Trick, Tact.
7. Sense of Property, Instinct of Providing, Covetousness, Theft.
8. Pride Hauteur, Loftiness, Elevation.
9. Vanity, Ambition, Love of Glory.
   Cautiousness, Circumspection, Foresight.
   Memory of Things or Facts, Educability, Perfectibility.
   Locality, Sense of Relations of Space.
13. Sense of Persons.
14. Sense of Words, Verbal Memory.
15. Language, Talent of Philology.
16. Sense of Colors, Talent for Painting.
17. Sense of Tones, Talent for Music.
18. Sense of Numbers and their relations, Sense of Time (undetermined.)
19. Constructiveness.
20. Comparative Sagacity.
21. Metaphysical Depth, Talent for Inference.
22. Wit, Faculty for Humor, Satire, etc
23. Talent for Poetry.
24. Goodness, Benevolence, Compassion, Moral Sense, Conscience,
25. Imitation, Mimicry.
—— Faculty of Visions (not named.)
26. Religious Sentiment, Belief in God, Religious Worship.
27. Firmness, Constancy, Perseverance, Obstinacy.

bral unity is true, and the doctrine of its plurality is true; but the former was not true, as understood by anti-phrenologists, nor the latter, in the limited sense of Gall and his immediate followers. The phrenological principle of subdivision has no very obvious limit. Two convolutions (of one hemisphere) cannot exercise the same function; neither can two portions of one convolution; nor can two fibres. There is no repetition of function in the right or in the left brain. As every fibre has a different organic power from every other fibre, the number of functions, or modes of manifestation, is innumerable.

Adjacent organs blend or approximate in function; those more remote, differ more widely, and those in opposite positions, have antagonistic functions. We may group the fibres and functions as we please, to form a system of organology. Such arrangements are merely arbitrary.

The faculties recognized by Gall and Spurzheim may be demonstrated generally in similar localities, but occupying much less space. Form, Size, Locality, Weight, Color, Order, and Calculation, occupy almost precisely the same locations which were assigned them. Tune is situated lower. Language a little more exteriorly; Constructiveness, or Mechanical Invention, higher, and more anteriorly, Individuality, Eventuality, Time, Causality, and Comparison, nearly as before. Wit and Mirthfulness more internally, in distinct organs. Imitation, Marvelousness, and

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NOMENCLATURE OF SPURZHEIM.

I. PROPENSITIES.
1. Destructiveness.
2. Amativeness.
3. Philoprogenitiveness.
4. Adhesiveness.
5. Inhabitiveness.
6. Combativeness.
7. Secretiveness.
8. Acquisitiveness.
9. Constructiveness.

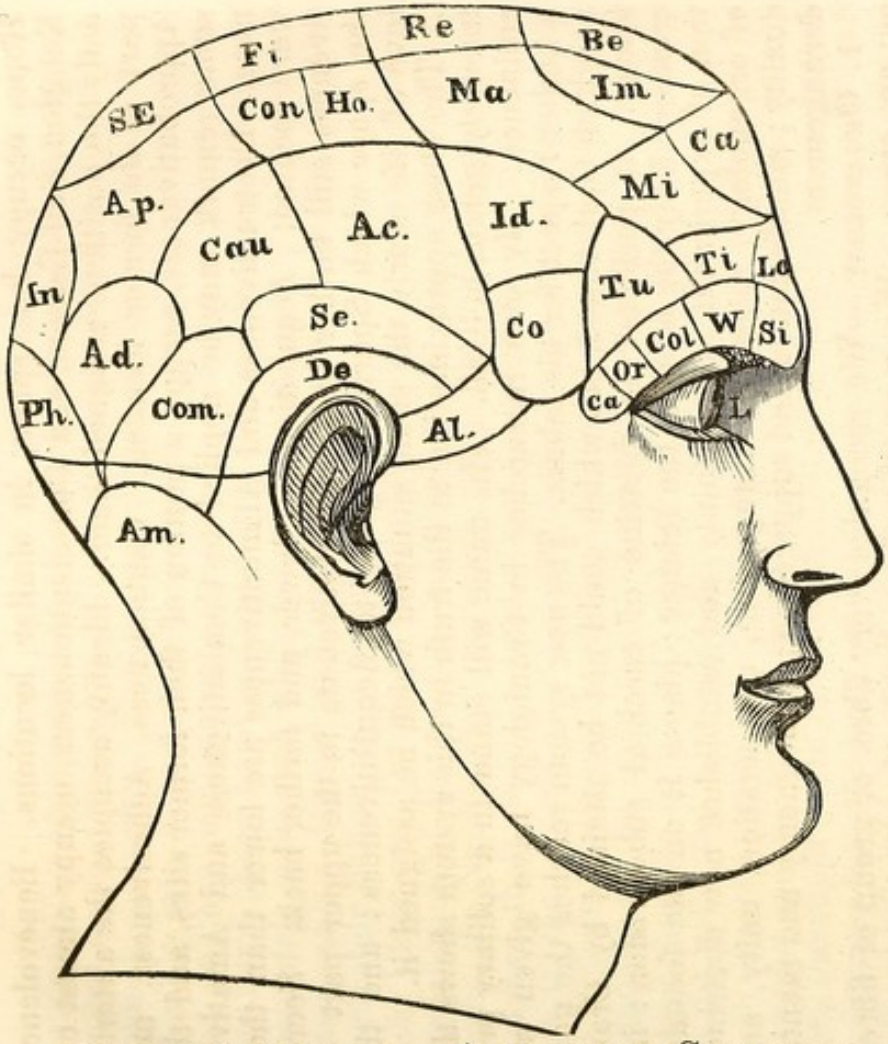
II. SENTIMENTS.
10. Cautiousness.
11. Approbativeness.
12. Self Esteem.
13. Benevolence.
14. Reverence.
15. Firmness.
16. Conscientiousness.
17. Hope.
18. Marvelousness.
19. Ideality.
20. Mirthfulness.
21. Imitation.

INTELLECTUAL.

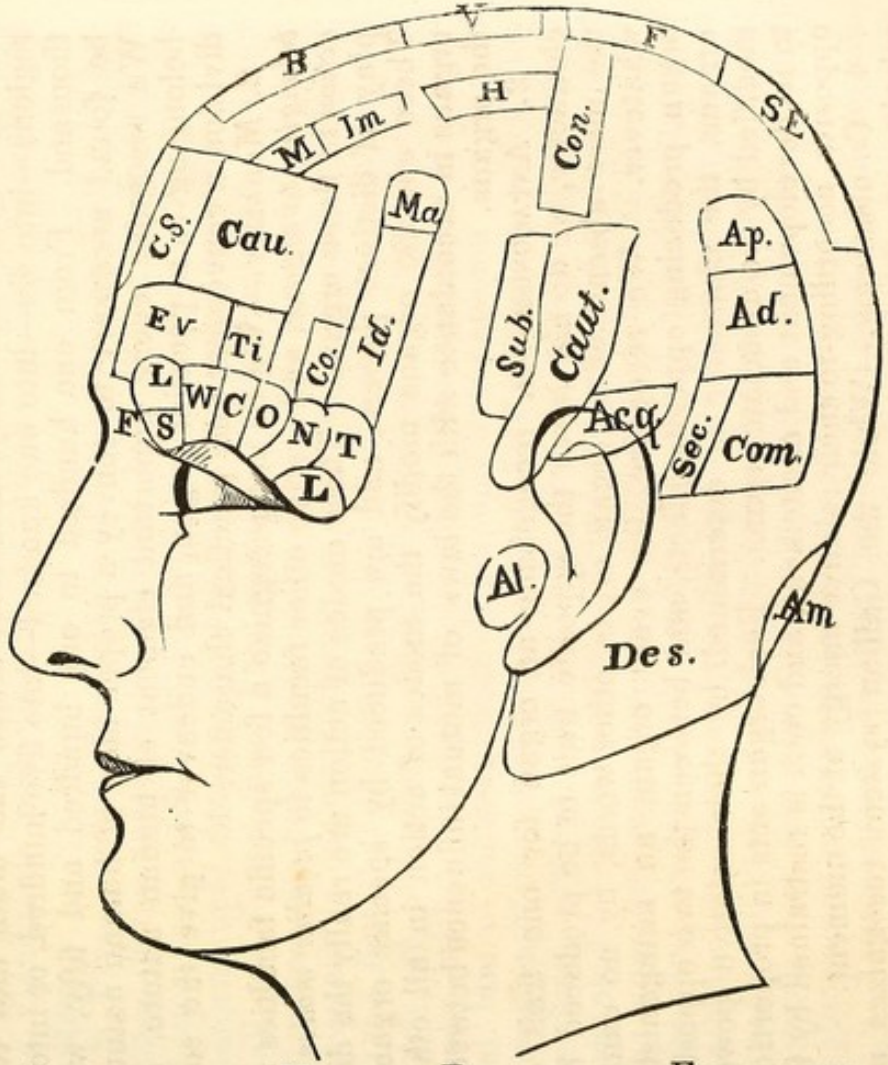
I. Perceptive
22. Individuality.
23. Form.
24. Size.
25. Weight.
26. Color.
27. Locality.
28. Order.
29. Calculation.
30. Eventuality.
31. Time.
32. Tune.
33. Language.

II. Reflective.
34. Comparison.
35. Causality.

III. Probable.
Desire to live.
Alimentiveness.



GALLIAN ORGANOLOGY—ACCORDING TO SPURZHEIM.



ORGANOLOGY OF NATURE—DERIVED FROM EXPERIMENT.

Hope, occupy less space, in similar locations. Benevolence, Religion, Self-Esteem, and Conscientiousness, occupy almost exactly the positions assigned them. Ideality occupies the anterior part of its former location. Cautiousness, Adhesiveness, and Approbativeness, occupy a portion of their former sites, and the same remark may be applied to Combativeness and Amativeness; Destructiveness and Alimentiveness are lower than they were located; Acquisitiveness lower, and farther back; Secretiveness still farther back; Inhabitiveness in the upper part of the space which Spurzheim gives to Acquisitiveness; and the love of life nearly the same situation which he assigned it.

The close approximation to the truth in this system shows the masterly genius of Gall. His name will stand in a solitary pre-eminence. My own researches in Craniology have given me a higher respect for his labors. The new system reaches the goal at which Gall aimed, but which could not be attained by Craniology. It perfects the doctrine of cerebral sub-division; increases vastly the area of the science; places it on the foundation of experiment and certainty, and establishes new doctrines of organology, modality, antagonism, co-operation, unity, and duality; manifestation and suppression; pathognomy and mental derangement.

1. Organology.—We recognize every fibre, or group of fibres, as an organ. We may, therefore, divide the brain into two regions—into six—into one hundred—into five hundred, or into a thousand. From one hundred to one hundred and fifty, will be found necessary to convey a proper idea of human nature. We recognize every important element of human nature, as belonging to a peculiar organ, and endeavor to give the subdivision a convenient and practical character.

2. Modality.—We do not recognize a few specific faculties as *belonging to organs*, and ascribe other faculties to *peculiar modes of action* in these organs. These modes of action are really the display of distinct powers, and are produced by specific organs. These specific organs modify the modes of action in all other organs in accordance with the laws of mutual influence between the organs.

2. Antagonism.—In recognizing an organ for one trait of character, we do not leave the opposite trait to be produced by the mere absence of an organ, or, in other words, by no cause whatever. We recognize, for every organ, an antagonistic organ, producing opposite effects, and between the two opposite organs, the character is determined by their relative power modified by the associate organs. Each organ acts in proportion to its developement and excitement, and each is restrained by its opposite, according to their relative energy at the moment.

4. Co-operation.—While the Gallian system recognizes no relations among organs, except such as may be inferred from the

compatibility or incompatibility of their several acts, the Neurological system recognizes relations of a precise and accurately defined character. The entire sphere of human faculties is divisible into a hemisphere co-operative with any given organ and another hemisphere, antagonistic. Those of the co-operative hemisphere have various degrees of co-operation, which are accurately estimated, while those of the antagonistic hemisphere have various degrees and modes of antagonism, which are also accurately defined by a mathematical law.

5. Unity and Duality.—While the Gallian system makes no explanation of the mutual relations of the hemispheres of the brain, the Neurological system explains their harmony and dissonance, their possible separation, their systematic mutual reaction, the various relations of specific organs in one hemisphere to different organs in the other; their diagonal decussating relations to the body, their difference of developement, with its cause, and the final cause or purpose of their peculiar relations to the body and to each other.

6. Manifestation and Suppression.—The manifestation of the various organs by the action of the brain through the nerves, and the suppression of that manifestation—the influx of cerebral influences into the body, and the arrest of that process which are left unexplained by the Gallian system, are fully explained by the Conductor and Restraining organs of the Neurological system.

7. Pathognomy.—The science of Expression or Natural Language of the faculties is described by Gall, as an observer of phenomena, which could not well be overlooked. But the true mathematical developement of this science was not effected by Gall and Spurzheim. They speak in a rather indefinite manner of movements being made in the direction of the organs, without ascertaining correctly what those directions are—without looking to the fact, that the brain is double, and that the pathognomic lines are also double, being different on the two sides of the body—without, in short, establishing a clear, simple, and universal law of mathematical correspondence between the line of direction of nervous fibres, and that of the movements which they produce, without carrying this law throughout physiological organic life, and without classifying and correctly understanding the numerous complex and antagonistic motions of life. The empirical or inaccurate condition in which this department of anthropological science was left by Gall and Spurzheim was one reason why it has not advanced since their publications. In the present work, the outlines of the great mathematical science which pathognomy establishes, are briefly sketched.

8. Temperaments.—Gallian Phrenological science made no contribution to our knowledge of temperaments, for the very obvious reason that it studied the brain only as a phrenological and not as

a physiological organ. Hence this cardinal principle of the dependence of temperaments upon cerebral developement was not announced, and the old crude arrangements were preserved. Neurology, by showing the temperamental influence of every organ, developes an infinite science of temperaments or psycho-physiological modes of being.

9. Mental Derangement.—The Gallian system regarded mental derangement as a disease of the brain, belonging to one or more of its organs, and having no definite organic cause in the brain itself, being entirely produced by external, unfavorable influences. This was a vast advance upon the previous ignorance of philosophers and physiologists, but was only an approximation to the truth. Neurology shows that mental derangement is not a disease, but a functional depravity of action, depending upon organic developements, which may be ascertained by inspection, and which may be increased or diminished by an appropriate course, like any other peculiarity of cerebral developement.

Beside thus changing the fundamental philosophy of the science in eight essential characteristics, the neurological system adds two important classes of mental faculties which were singularly overlooked by Gall and Spurzheim.

1. The External Senses.—Neurology gives to these their definite location in cerebral organs, thus supplying a singular hiatus in the Gallian system.

2. The higher or more subtle powers of the mind.—Neurology recognizes, explains, and locates those wonderful powers which maintain our relations to the subtle influences of nature, which give rise to the phenomena of animal magnetism, and which bring us into contact with the sphere of what is called spiritual and supernatural. The importance of these powers to the progress and elevation of mankind can be appreciated only by the more advanced students of anthropology.

In addition to these new classes of cerebral organs, a great number of faculties or organs of the more familiar species, which have heretofore been overlooked, are demonstrated by Neurology.

Moreover, the Neurological system of investigation establishes three distinct and important contributions to mental science—Psychometry, Physiognomy, and Sarcognomy.

Psychometry.—The Psychometry, or mind-measuring of the Gallian system was merely a rude system of craniology, sketching boldly and roughly the profile of a character appropriate to the skull, which the individual often failed to realize practically from the want of full and systematic mental cultivation. The Psychometry of the Neurological system determines the *actual power* of the organs by the impression which they give of their vital energy to an impressible and intuitive person. Hence the new Psychometry differs from the old Cranoscopic sketching as much as

a cast or daguerreotype of the face differs from a penciled profile. Our Psychometry has also the advantage that it is entirely independent of the cranium, and applies with as much facility to the absent, the dead, or the ancient, as to the present. (See lecture on Psychometry.)

2. PHYSIOGNOMY.—The Neurological system differs from the Gallian system in the fact that while the latter gives us only a limited Craniology, the former gives us, in addition to a very extensive and minute Craniology, a system of facial and corporeal Physiognomy, which enables us to determine even without the sympathetic Psychometry, the general character and condition of the brain, as they are distinctly indicated in the countenance and person. A reference to Physiognomy is often as important as the examination of the cranium, in determining the actual character.

3. SARCOGNOMY.—The laws of sympathy between the mind and body, of which the Gallian system offered no explanation beyond the location of the mind in the brain, may now be understood. Neurology, by showing that every individual portion of the brain sympathizes and is connected with a corresponding portion of the body, explains all the sympathies of the mind with the body and the body with the mind, both in health and in disease. The sympathy, connection, or correspondence between the cerebral and corporeal organs, is such that we make a Psychological map of the body corresponding to that of the brain, in all its organs and subdivisions. In the study of these new relations and correspondences we obtain a large amount of psycho-sarcological knowledge of the relative developement of mind and body. This Sarcological knowledge being principally exercised in discovering the mental sympathies and characteristics connected with the different parts of the body, may be appropriately called SARCOGNOMY. By this name we give it a position by the side of Physiognomy, which interprets the character of the face as Sarcognomy does of the body, revealing laws, connections, and sympathies of immense importance to the physician, the artist, and the teacher.

The above nine changes in the fundamental philosophy of the science, and five new departments of science which are added belong to the *Phrenological* division of Anthropology; hence, in these respects, the Neurological system has been compared with the Gallian system. But in reference to diseases, health, life, death sleeping, waking, respiration, calorification, circulation, secretion and all the various normal and abnormal states of our physical constitution, and actions of the viscera, these belong to the physiological department of Anthropology, and require a comparison of Neurology, not with the Gallian system, but with the doctrines of the writers on Physiology.

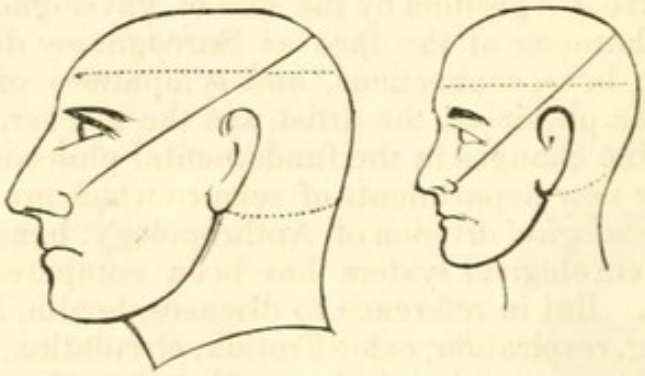
In reference to the action of mind on mind, the mutual relations of mankind, the philosophy of morals, education, society, and gov-

ernment, the Neurological system views all from a different standpoint, relies upon different facts, and comes to different conclusions from the greater portion of our philosophic teachers.

FINALLY.—As Neurology embraces more than mere Anthropology, it gives us new views of Zoology and comparative Phrenology. Nor is it limited to human and comparative Psychology and Physiology; for it developes the relations of man to the material world, and takes cognizance of materia medica, dietetics, medical geology, and meteorology, physiological and psychological chemistry, astronomy, cosmology, and UNIVERSAL ONTOLOGY.

LECT. XVII.—ORGANOLOGY—HEMISPHERES OF GOOD AND EVIL.

Our system of organology regards the brain not as a mass of organs radiating from the medulla oblongata, as their centre, to the skull, (in which case they would cross the ventricles,) but as two cerebral masses, each of which is developed as the radii of a sphere, around the great ventricle. It rejects the measurement from the cavity of the ear upward as a criterion of moral developement; for that measurement includes the basilar depth, or downward developement of the brain, as well as the height or upward developement. Thus, in the following outlines, two heads which have the same height from the cavity of the ear upwards, have an essentially different moral character—the one presenting a greater developement of height and the other of

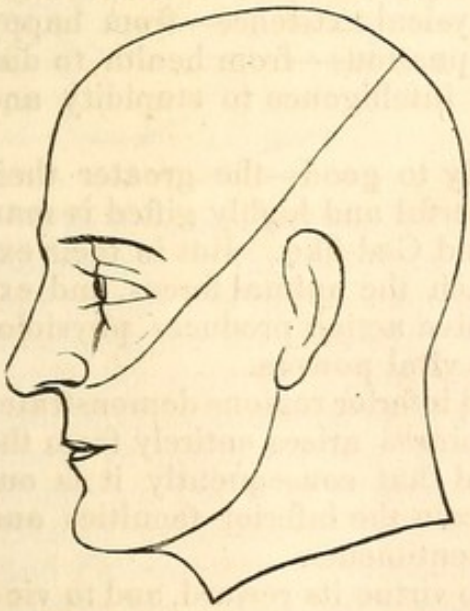


depth. For moral and intellectual excellence, we compare the region above and before the oblique line with that below and behind it. It is equally convenient for practical purposes to draw a horizontal line back from the middle of the forehead and compare the developement above and below it. In reference to each individual organ, we estimate the centrifugal extension from the central region of each hemisphere.

Our nomenclature rejects the use of technical terms. Whatever effect an organ produces when acting in entire predominance is regarded as the function of that organ and is expressed by its name. Hence the name may sufficiently express the function without the necessity for a long commentary or explanation. To obtain this result, we must adapt our nomenclature and classification to the pre-existing arrangements of language, and our nomenclature will be deficient just in proportion as language itself is imperfect. There are so many ideas—so many emotions and traits of character which language but poorly conveys, and which cannot be expressed by any word in our language, that the best nomenclature we can devise must be deficient in fullness and precision.

Bearing in mind that divisions are mostly arbitrary and designed merely for convenience, we may arrange the cerebral organs in the manner best adapted to facilitate their study.

The organs of good tendencies may be separated from those of evil tendencies by a dividing line, to run from the upper part of the face or outer canthus of the eye, toward the region of Self-esteem and Firmness, terminating generally at the spot around which the hair radiates as from a centre. This line will run through the regions of Sensibility, Humility, Caution, Coldness, Restraint, Hardihood, Moral Ambition and Dignity. Passing under the eyes it will descend upon the median line, through the organ of Calorification and complete the circuit through the interior of the head. The organs above and before this line may be considered decidedly good, and those below and behind it decidedly evil in their *ultimate* tendency. The upper class in predominance produce happiness, and the lower, in predominance, produce misery. They are not only injurious to others, but decidedly injurious to the individual in whom they act, whenever they control the character. An impressible subject in placing his hands upon the upper organs feels a delightful influence —he feels as one does toward whom friendly and affectionate feelings have been manifested.



When those organs are excited in himself by touch, a similar pleasure is experienced. But when touching any of the inferior class of organs, he soon feels an influence which becomes decidedly injurious to the mind and the body. The organs anterior to the ear being injurious to his physical frame, and those posterior to the ear being more especially injurious to his

intellectual and moral enjoyment. If these inferior organs are excited in himself by touching his head, he feels the various angry, gloomy, morbid, stupid, harsh and prostrating influences, when they are *fully excited*, and will be very reluctant to repeat the experiment. These facts demonstrate the opposite tendencies of the virtuous and evil elements of our constitution.

But it has been supposed that all our organs are good, and that evil arises from misapplication or misdirection of their powers. This view, which is a favorite one with many, need not be entirely rejected. Our inferior faculties are good and useful in their proper sphere, but this sphere is very limited—it consists of acting as mere instrumentalities in the hands of the higher powers. Whenever they become sufficiently powerful to rise from the rank of servants to that of masters, and compete with the moral faculties for the control of our conduct, they may be considered as perverted from their legitimate purpose in man. In other words, evil arises from their large developement and powerful influence. Consequently their tendency is to evil as their ultimate goal.

But that a moderate action of the inferior organs is legitimate and beneficial, is proved by the fact that if you excite some of them in one but moderately impressible, or by placing your hand around the back of his head from ear to ear (especially when these organs are small and inactive) you will produce a slight invigoration of his system, which will be agreeable and beneficial. A moderate action of the inferior organs is necessary for certain physiological influences upon the body; but a predominant action reduces man from a moral to a physical existence—from happy and serene emotions to turbulent passions—from health to disease, from sanity to insanity, from intelligence to stupidity and brute force.

The superior organs tend entirely to good—the greater their power, the more noble, lovely, powerful and highly gifted is man—they tend to make him perfect and God-like. But in their excessive action, they subdue too much the animal forces, and exhaust vitality. Hence their excessive action produces physiological evils or the destruction of our vital powers.

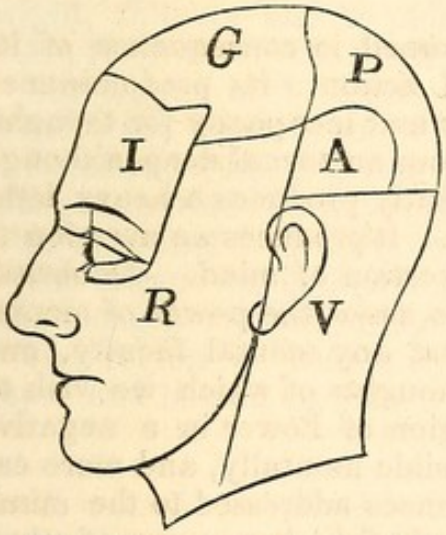
Experiment upon the superior and inferior regions demonstrates the important proposition that happiness arises entirely from the exercise of our higher faculties, and that consequently it is our interest as well as our duty to restrain the inferior faculties and to obey the dictates of the highest sentiments.

Thus the laws of nature attach to virtue its reward, and to vice its punishment, in such a manner that there is no possible escape from the punishment when merited, or the reward when due. All who are happy, enjoy the reward of obedience to law, and all who suffer are paying the penalty of its violation. They have either neglected the proper cultiuation of intellect, and therefore acted unwisely, or have failed to cultivate their moral nature up to the

standard of happiness—or else have neglected that proper cultivation of Industry, Energy, Firmness and Health which is essential to the moral, intellectual and physical perfection of man.

LECT. XVIII.—ORGANOLOGY—SIX GREAT REGIONS.

The most convenient division of the head for practical purposes will be into the regions of Intellect, Virtue and Power, occupying the frontal, the superior, and the upper posterior regions, to which we add their antagonists, the regions of Animality, Violence and Relaxation, occupying the occipito-lateral, occipito-basilar and antero-basilar regions.



[I. Intellect; G. Goodness or Virtue; P. Power; A. Animality; V. Violence and Crime; R. Relaxation.]

(It must be borne in mind that precise divisions have an arbitrary character. There are many organs near the dividing lines, which are connected by natural affinities with each of the adjacent divisions. We might with great propriety trace a neutral zone in the temples, bordering upon each of the six great regions and possessing an intermediate character.)

The comparative size of these regions will determine their predominance in the character. But it is to be borne in mind, that our organs are not characterized by a democratic equality of influence upon the character. In the normal developement of the brain, the superior organs have a decided ascendancy. The organ of Consciousness or Wakefulness has usually from 16 to 18 hours of predominance, and its antagonist, producing profound sleep, has but 6 or 8 hours of full indulgence. The region of Health predominates habitually over that of Disease. Honesty and Philanthropy predominate habitually over Fraud and Felony. Abstinence yields but occasionally through the day to the influence of Alimentiveness, and it would seem that the lower organs of the brain are more and more deprived of a controlling influence upon the character in proportion as they are inferior in rank. Yet in proportion to the size of their developement, it becomes probable that they will assume and maintain an occasional control of the character.

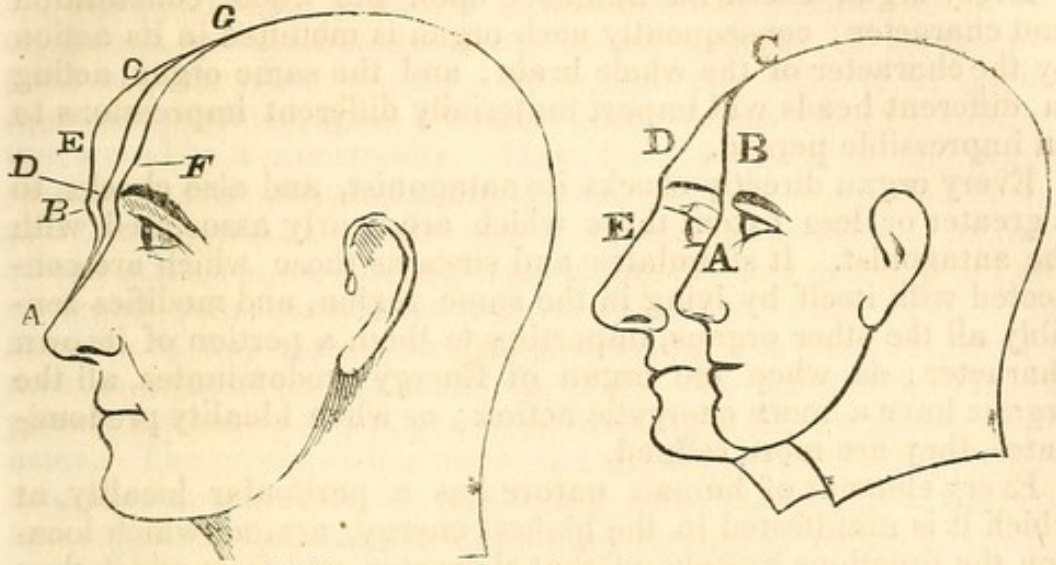
The inferior organs are to be regarded as the physiological antagonists of the higher, standing related to corporeal functions as the higher do to the mental. The constitution of man may be compared to a tree, the higher portion of which expanding in the sunlight and atmosphere is dependent upon its subterranean portion rooted in the soil. As the roots are to the tree, so in their legitimate range of action are the inferior organs to the superior, which are able to exist in man only when they have a physiological support.

The different regions are named from their ultimate tendency. The region anterior the ears producing disease and feebleness—the region posterior to the ears producing various crimes and vices, when acting unrestrained—the frontal organs producing various forms of intelligence, the coronal organs various species of virtue—the upper occipital producing various efficient energies, and the occipito-lateral tending to diminish or destroy the intellectual action, and keep man in a condition of stationary barbarism.

The region of Animality is so named in consequence of its being the antagonist of intellectual action. Its predominance would produce entire mental vacuity and incapacity for thought. Its most predominant action is during our nocturnal sleep, although during our waking moments it frequently produces a heavy lethargic influence and mental inactivity. It produces an aversion to deep investigation and continuous exertion of mind. Doubtless one of its most important effects is to assist the power of mental self-control by enabling us to arrest any mental faculty, and thereby discharge from the mind thoughts of which we wish to get rid. Hence it sustains the region of Power in a negative manner, by rendering us less impressible mentally, and more capable of resisting surrounding influences addressed to the mind. It diminishes all the intense and wonderful phenomena of mind. The enthusiasm of genius—the wakefulness of the student—the intensity of thought, when hope, rage or remorse disturb the mind are all quietly restrained by the unintelligent region when predominant. This influence is to some extent desirable or necessary to health, for extreme devotion to intellectual pursuits is debilitating if not positively morbific.

We determine the intellectual developement by projection of the front lobe—not by the apparent height or area of the forehead. A forehead may be receding or even narrow, and yet contain much intellect—it may be vertical, high and broad, with a great intellectual deficiency. Thus the forehead of A B E C, which is less elevated, is far more intellectual than the high forehead A F G, because it is much more projecting. On the other hand the vertical forehead of A B C is far less intellectual than the receding forehead C D E. In intellectual heads the forehead

often projects sensibly over the face, making the eye sockets apparently deep.



The organs of Virtue are developed upwards, so as to give a height, fullness and roundness to the upper part of the head, which rises above the forehead and above the temporal arch.

The organs of Violence and Crime give fullness, roundness breadth and depth to the lower part of the occiput. The organs of Relaxation, Debility and Disease, which produce a feeble, inefficient, morbid character, give breadth and depth to the middle lobe, indicated by breadth in front of the ears.

The organs which produce an efficient commanding character give elongation upward and backward.

The region of Animality produces breadth and roundness above and behind the ears.

LECT. XIX.—ORGANOLOGY CONTINUED.

Our cerebral organs should be regarded as instruments to be used, or as embodying capacities to be developed. Surrounding circumstances impress an organ and develope its functional activity. Disease, for example, cannot display itself without some morbific influences; intellect cannot be displayed without impressions upon the senses, to excite and develope intellectual action; nor can the moral faculties attain their full developement and activity without the proper ob jects to excite our kindly emotions. This view enforces the importance of education.

Education changes the form of the head by increasing and diminishing the various organs. It also changes the form of the convolutions, by developing particular portions of a convolution at the expense of others. The brain is thus susceptible of an indefinite number of modifications, and will become adapted to any

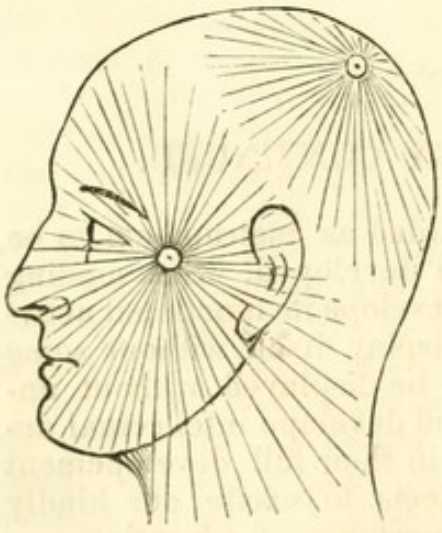
situation in which man is placed. The future has in store countless varieties of humanity.

Every organ exerts an influence upon the whole constitution and character; consequently each organ is modified in its action by the character of the whole brain; and the same organ, acting in different heads will impart materially different impressions to an impressible person.

Every organ directly checks its antagonist, and also checks, to a greater or less extent those which are nearly associated with the antagonist. It stimulates and sustains those which are connected with itself by lying in the same region, and modifies sensibly all the other organs, imparting to them a portion of its own character; as when the organ of Energy predominates, all the organs have a more energetic action; or when Ideality predominates, they are more refined.

Every element of human nature has a particular locality, at which it is manifested in the highest energy, around which location the functions partake of that character, and from which they gradually change to an opposite. Hence we may say that every faculty culminates to a particular point, where it is manifested in the highest energy.

Around every organ will be found grouped those which are congenial or connected with it, and around its antagonist an opposing group. Hence we may divide the brain between any two antagonistic organs into antagonistic hemispheres. The organs around each principal organ, partaking of its character; and hence the hemispheres * opposing each other, as the hemispheres of Light and Darkness, of Good and Evil, of Health and Disease, etc., etc.



[In this sketch we present the opposite centres of healthy and morbific influences. Organs lying nearer the centre of health have a healthy tendency in their action. Organs lying nearer the centres of disease are liable to producing a morbid and debilitated condition. Thus, for example, Ideality, Sensibility, and Alimentiveness are much more capable of producing morbid effects than Firmness, Energy, and Patience.]

Thus we determine how far an organ is to be regarded as intellectual or unintellectual, as virtuous or vicious, as healthy or

* This does not allude to what anatomists call the hemispheres of the whole brain, that is, the right and left brain, but to the hemispheres into which either half may be divided.

morbid, by its position in these hemispheres, and its relation to their centres.

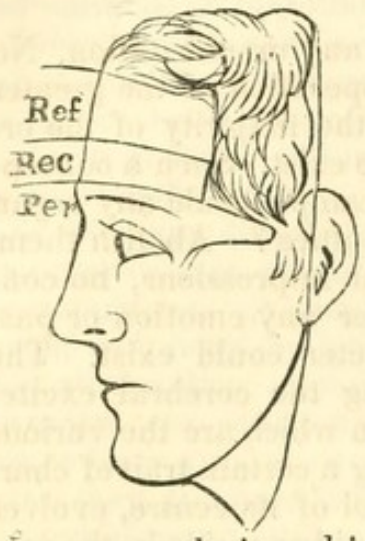
Finally, no organ in and of itself makes any manifestation. No organ can be manifested without the co-operation of the greater portion of the other organs; for without the majority of the organs we cannot imagine a human being to exist. Such a conception would be a monstrosity. How, for example could any organ manifest itself without the intellectual faculties? Abolish them, and there would be no senses, no mental impressions, no conscious existence, no thoughts, no object for any emotion or passion, and consequently no trait of character could exist. The function of any organ consists of bringing the cerebral excitement to a particular region of the brain, in which are the various powers necessary to co-operate in evolving a certain trait of character. The group acting under the control of its centre, evolves a particular power, which power may be said to reside in the central organ, but requires the subsidiary support of its neighbors for its evolution.

Thus there are no radically distinct organs in any one region, as each organ participates in the character of its neighbors, as the color green participates in the character of its next neighbors blue and yellow, of which it may be considered a combination. Radically distinct organs will be found in opposite regions as antagonists. As organs approximate they may be considered members of one family; as they separate the relationship becomes more remote.

LECT. XX.—INTELLECTUAL ORGANS, CLASSIFICATION.

The intellectual organs occupy the anterior surface of the head, —the space which is usually free from the hair. The upper surface of the front lobe, which is covered by hair, contains the organs of moral faculties which approximate the intellectual. Even the anterior surface of the middle lobe contains a lower species of intellect, and the upper part of the face (which is not covered by beard) corresponds to organs of an intellectual tendency.

The intellectual region may be divided into three por-

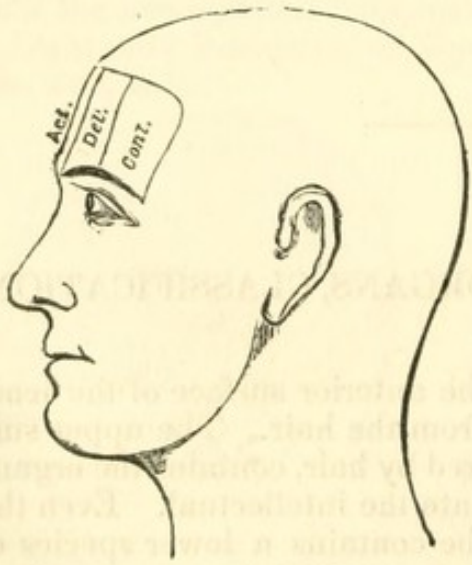


tions by nearly horizontal lines, thus—the lower portion being the region of sensation, and perception, the middle, the region of memory or retention and repetition of impressions, and the upper the region of reflection or judgment. By the lower stratum we live in contact with the external world, and hourly receive many impressions from it. By the second stratum we are enabled to retain or accumulate these impressions, to acquire experience and a fund of knowledge—to live more independent of the present—to be guided by the past, and to retain the materials for investigation reason, analysis and invention.

As the middle range is supplied by the lower, so the upper or third range is supplied by the middle with the materials for its action. This range gives penetration, soundness of judgment, depth of reason, forecast, originality, genius and grandeur of conception.

The lower range supplies observation, which renders our knowledge positive and exact—the middle gives learning and the upper talent.

We may divide the forehead by three vertical lines, thus : into the interior, middle and exterior ranges, (Active, Deliberate, Contemplative). The interior gives an active, prompt, clear intellect, the middle a more deliberate power and more solid judgment; the exterior gives a profound contemplative talent, capable of producing very elaborate and perfect results. We may style them the active, deliberate, and contemplative departments of the intellect. The active department is developed especially in social intercourse, in business life, in military affairs, in oratory, and we may say in all action. The deliberate being slower, and acting upon more extensive data, is not so well adapted to sudden emergencies, but prescribes a generally jûdicious course, guided by experience. It gives a sound and penetrating rather than a capacious or original mind. The contemplative is adapted to philosphy, literature and art—to a thoughtful, rather than an active life—to originality rather than learning—to mental crea-



tion rather than to the reception of impressions through the senses —to the general spirit and relations of the external world, rather than to its special facts and forms.

The broad forehead, therefore, (cæteris paribus) indicates literary, philosophical or inventive ability, as the prominent, yet narrow one indicates a strong, penetrating, practical mind. As the broad forehead is apt to be found associated with Modesty, and the other tranquil restraining organs of the sidehead, which give breadth, we perceive why the philosophers, inventors and literati, to whom the world is most indebted, are seldom men of any commanding force of character, and are often neglected. The true voice of Reason is generally, "a still small voice."

The frontal organs when viewed from below upwards, appear to be physical below—but progressively more and more remote from the physical above. They are higher in rank or character as they are higher in position.

When viewed from within or outward, they appear internally, to originate simple conceptions, and externally to give the power of combination. Thus, Form, Size and Distance supply the simple conceptions which the organs of Order and Calculation, System and Invention, arrange and combine; Foresight and Sagacity supply the elementary conceptions, which are combined by Reason, Ingenuity and Scheming.

Above the upper margin of the forehead, the organs of Liberality, Sympathy, Sincerity, Expression, Imitation, Mirth, Admiration, Vivacity, Imagination, Marvelousness, and in the temples, Ideality constitute the boundary of intellect, the intermedium between thought and emotion—a sentimental range contributing by refinement, equally to the virtues and the intelligence.

LECT. XXI.—INTELLECTUAL ORGANS—LOWER RANGE ORGANS OF THE SENSES.

The external senses, for which no cerebral organs were recognized by the old system of Phrenology, have each an appropriate cerebral location. This subject early attracted my attention, and by means of Craniology alone, I approximated the true locations of the senses of sight, hearing, touch, taste, smell and feeling. Experiment has corrected the errors of Craniology, and enabled me to give the true seats of the senses. Of these we may recognize Vision, Hearing, Taste, Smell and Touch, which are usually recognized as the five external senses, to which we may add the Psycho sense or mind-sight, a power of mental recognition independent of the eye-metric which has been so often demonstrated

in Mesmeric experiments, and of which my own experiments give evidence.

We must also recognize the sense of Feeling as chiefly an external sense, since it furnishes many ideas of the exterior world. But as the external and internal senses are very closely blended, the distinction between them is rather arbitrary. Using the term Feeling in its most enlarged sense we may recognize nine subdivisions, viz: the Respiratory sense, the senses of Hunger, Thirst, Fatigue, Pain, Common Feeling, the Thermal sense, the Hygrometric sense, and the sense of the Imponderable agents. Finally, we must recognize the sense of Force; a power which perceives our own muscular action or exertion. Thus, besides the usually recognized five senses, we have one psychological, and, at least ten physiological senses or modifications of sensibility. Each of these sixteen is quite peculiar and distinct.

The sense of Vision occupies the brow—its especial or primary seat being that point in the superciliary arch which is immediately above the pupil of the eye. This organ gives a sense of the impression of light, and is, therefore, named Light. The conceptions of the appearances of objects are formed by the adjacent organs. Form gives distinctness, and Distance extent of vision. Color, the perception of their colors, and Shade of their darkness. The organ of Light adapts the eyes to light, the organ of Shade to darkness. One alone would produce day-sight, the other alone night-vision. Deficiency of the latter would produce Nyctalopia or day-blindness. Deficiency of the former would produce Hemeralopia or night-blindness.* The organ of optic sensibility in the temples, gives the eyes a very sensitive constitution—in which respect it resembles the organ of Shade, and predisposes them to irritation and inflammation. A portion of the region of Somnolence tends to derange the visual powers and produce optic illusions of various kinds.

The sense of hearing is located at the anterior portion of Sensibility, in connexion with the organs of Language and Music to which it is directly tributary. Its connexion with general sensibility explains the influence of sounds, voices or music over the feelings.

Immediately behind the organ of Hearing, we find the region of the perception of imponderable agents Galvanism, Magnetism, Electricity and Nervaura. These organs being full, we are powerfully affected by those fluids; whence arise different species of impressibility. The Thermal sense or sense of heat and cold, is located lower than those just mentioned, and optic sensibility or sensitiveness of the eyes to the infiuence of light is in the midst of the arch formed by these organs. The deficiency of optic sensibility tends to produce amaurosis.

* I have here used the term Nyctalopia to signify a constitution of the eye, adapted to nocturnal vision alone, and Hemeralopia, to signify the condition adapted only to vision by daylight. They are sometimes used in the opposite sense.

The Thermal sense, the Hygrometric sense, or sense of moisture and dryness, and the senses of Touch, Taste and Smell, are arranged in succession from behind forward, at the upper margin of the cheek-bone. When the Thermal and Hygrometric senses are conspicuous, there is a great sensibility to the variations of the weather, and much tact in estimating its condition. The Hygrometric sense in morbid excitement, produces the condition of hydrophobia.

The sense of Pain we recognize as distinct from the sense of Feeling, and this distinction has been recognized by some physiologists. The sense of Fatigue, which is lower, has a very debilitating tendency. These two are very morbid in their tendency, and the whole region of Sensibility tends to foster disease.

The Respiratory sense creates a demand for respiration, and is the source of that terrible feeling of suffocation which is produced by the arrest of breathing.

The organs of Hunger and Thirst will be mentioned under the head of Alimentiveness, to which they belong.

These are not all the subdivisions which may be distinctly recognized, but are sufficient for any practical purpose.

We may add that the upper margin of sensibility is the source of *Sensitiveness*. This produces a character in which the feelings are easily touched—it is the source of mental sensibility.

LECT. XXII.—PERCEPTIVE FACULTIES.

Light and Shade are the basis of all visual knowledge. For all objects may be represented by lights and shades (upon a plain surface) except as to their colors. These organs lie at the basis of the intellectual group, connected with those which they supply.

At the inner end of the brow we have the organ of Form, which conceives all objects; different portions of the organ being appropriated to different classes of objects—persons, being recognized by its inner portion, places by its exterior fibres.* The continuation of this organ backward underneath the front lobe, is reached through the nose, upon which we mark its locality under the name of "Director Organs." These portions of the organ of Form, are employed in determining or controlling the muscular movements—whence the name.

Distance and Size may be regarded as one organ of Magnitude; the upper portion of which, devoted to larger objects or

* There can be no great difference between the organs which recognize places as located upon a map, and places as located upon the surface of the earth.

distances, produces in conjunction with Form, the function called Locality, or the sense of places.

The functions of Distance, Size, Weight, and Color, are perhaps sufficiently expressed by their names, as they are perceptive faculties directed to those objects.

Weight, as a sense of gravitation and external powers, should be distinguished from the Sense of Force, which gives the sense of our own muscular energies. The organ of Weight, to an impressible subject, imparts a rather oppressive influence, while the organ of the sense of Force has an invigorating effect.

The organ of Color does not produce a fondness for a great display of colors, but produces a fine perception of colors, which is gratified by more delicate tints.

The organ of Order perceives the symmetry or exactness of physical arrangements, and desires regularity.

Calculation or Number, perceives the mathematical relations of forms, numbers, and magnitudes. At the outer angle of the brow, Order occupies its anterior and Calculation its exterior aspect.

Language is located by experiment behind the outer angle of the eye—a locality which is nearer to its true position in the brain than the location in front.

Music or Tune is located above Language, and posterior to these we find the organ of Sensibility. These locations will be easily confirmed by craniology. The projection of the eye, to which phrenologists have looked as the indication of Language, is not, however, entirely fallacious, for it indicates the Conductor Organs, the organs of Manifestation, by which the intellect is displayed. It has, indeed, a more loquacious or active character than Language itself.

The range of organs marked Phenomena, above those of simple physical perception, appears to take cognizance of changes in those things which the organs below perceive. For example, the organs above Weight recognize those changes or phenomena, produced by the disturbance of equilibrium. Here, we find all perceptions of Dynamic science, mechanical powers in action, winds, tides, waves, and all the phenomena of pneumatics and hydraulics are perceived by this organ. Its highest portion, situated between Distance and Time, conceives the facts of Astronomy.

The phenomena of Geology, are conceived by the organs above Form and Distance. Changes of form on a smaller scale, in which no great space is occupied, belong to the fibres above the organ of Form alone. These phenomena constitute the science of Chemistry. The still subtler changes or phenomena, which belong to Botany, Zoology, Physiology, and Psychology, belong to Organs, which in succession approximate the median line and lie above the organ of Form. We have, then in the space be-

tween the brow and the organ of Memory, a range of organs which we term PHENOMENA, because they perceive the phenomena of Astronomy, Natural Philosophy, Geology, Botany, Physiology, and Psychology. This organ of Phenomena accounts for the taste and capacity for these sciences, which may exist when the reasoning or reflective organs are small. The developement of the different portions of the organ determines the taste and relative capacity in these sciences. The fondness for mental science, is by no means proportioned in all cases to the reasoning faculties.

The point of the most vivid mental action, is the centre of the forehead—the organ of CONSCIOUSNESS. This region—the seat of observation and attention—the focus of thought and conscious existence—is included in the perceptive department, because it is absolutely necessary to perception, and when large, invigorates greatly all the senses, perceptions, and thoughts. This region produces presence of mind, and consciousness of things about us as well as of self. Its action being neither recollective nor reflective, neither deliberate nor contemplative, but instantaneous. It must be considered a perceptive power, yet at the same time it is internately connected with Memory and the reflective faculties, to all of which it imparts consciousness.

The minute examination of these organs in their various modifications of function, is highly interesting, but would exceed the limits of the present synopsis. I must not omit to mention that the organ of Color blends in ascending with a sense of universal vibration or pulsation, which becomes, as it ascends, a sense of intervals, times, and seasons, as it approaches the organ of Time. Some of the fibres at the margin of the organ of Color, give a perception of vitality, or vital conditions.

LECT. XXIII.—RECOLLECTIVE FACULTIES.

Our phrenological system differs from its predecessors in recognizing a special organ of Memory. In this we but carry out the fundamental principle of Phrenology—viz., that every peculiar mode of mental action connects with a specific portion of the brain. Reject this principle and Craniology is destroyed—there is but one mind, and all its modes of action use the whole brain alike—the whole brain being one indivisible organ; but adopt this principle and it requires us in consistency to recognize an organ for every peculiar mode of thought and feeling. Memory as a mode of mental action, is as distinct from all the faculties recognized by Gall and Spurzheim as any of their intellectua

faculties are from each other. Therefore it is equally entitled to "a local habitation and a name." By the Gallian philosophy it is recognized as a mode of action of the intellectual organs; but it is just as easy to consider Comparison and Causality modes of action as Memory. The comparison of faces, for example, is but a mode of action of Form—and Constructiveness, but a mode of action of Form, Size and Weight, etc. Indeed this mode of reasoning was adopted by Gall in considering Conscientiousness only an exalted manifestation of Benevolence—not perceiving that the same mode of reasoning carried out would have led him back to the old metaphysical philosophy—to the unitary mind and indivisible brain.

We carry out consistently the phrenological principle, when we recognize an organ for each particular mode of mentality, and when we have recognized an organ we determine its modes of action by reference to other organs. Thus Form, in conjunction with Memory, has great power of repeating its impressions—in conjunction with Imagination, has great power of conceiving or mentally creating forms—in conjunction with Invention, it has great power of conceiving forms in new combinations—in conjunction with Energy it acts with great vigor and continuance—in conjunction with Indolence, its action is feeble.

In like manner the organ of Memory acting in conjunction with other organs produces with Reason a memory of reasons and philosophy—with Form, a memory of forms or objects—with Language, a Memory of words—with Hearing, a memory of sounds, etc. It lays up a store of such materials as the various organs supply.

The organ of Memory runs horizontally across the middle of the forehead, coinciding with a depression which we often observe in the heads of persons who have a bad memory. The outer portion gives the highest degree of retentiveness and a greater mental range. The inner portion gives the least retentive power and blends with mere consciousness or knowledge of the present, from which there is a regular progression in the organ—the more exterior fibres running farther and farther back in point of time. The inner portion alone, indicates prompt acquisition and brief retention of knowledge. The outer, alone, indicates slower acquisition and more permanent retention. This permanent or far-reaching Memory connects with the organ of Time, the functions and location of which were tolerably well given by the old system of Phrenology.

Time lies below the organ of Reason between Memory and System, Reason and Color.

The organs of System and Invention, with the inferior portion of Ideality have a recollective character, but as they belong to the contemplative group or group of combination, that tendency is as conspicuous as the recollective.

The organ of System enables us to arrange in order all our engagements and proceedings, so as to avoid confusion or neglect of any duty. It makes us punctual and methodical—it may be said to produce a regular and *correlative memory*, a power of acquiring knowledge with proper consecutive arrangement, and of reproducing with the proper relations of time and place.

The organ of Invention perceives that mutual adaptation of forms and of movements, which fits them for combinations. Hence it enables us to unite together many substances and various apparatus so as to produce the most complicated works of art. In doing this it necessarily exerts a high degree of recollective power, as it is necessary to retain many forms and movements in the mind to produce this combination or to conceive an invention when executed Where Invention runs into Ideality, the combinations become delicate and abstract. At this point we find the talent for literary Composition—the power which makes the forcible writer, poet, etc. When this organ predominates there is a greater power to display talent by the pen than in any other method. Hence one may be a remarkable author and a very insignificant person. The mere literary facility which this developement gives, however it may be admired by a vitiated taste, cannot produce works of the highest order, which require other large intellectual organs and strong feelings.

Behind this literary location, we find a tendency to reverie, reminiscence, contemplation, day dreaming, and all the indistinct species of intellection which belong to the region of Somnolence. This region coöperates with Memory and tends to give habitual activity to that organ. Hence there is more thoughtfulness, and dwelling upon the past, when the forehead is broad.

To recapitulate—the middle horizontal range of recollective organs produces

1. At the centre of the forehead, a Consciousness of the present moment—a vivid wide-awake mentality.

2. Immediately exterior to the centre, a Brief Memory—a command of, or power of recalling, that which has just transpired—a command of recent events, running through days, weeks and months, adapted to an active business life.

3. In the middle of each front lobe (between the organs of Weight, Reason and Wit) a more Permanent Memory running through our whole lives and through the whole range of history and science--adapted to scientific and literary pursuits.

4. At the outer margin of Memory, between Reason and Color, a perception of Time or chronological succession, running down (near Color) into a perception of shorter periods of time.

5. Exterior to Time, a perception of System or harmonious chronological arrangement and mutual adaptation of actions and events—necessary to the management of business, and the guidance of military movements, or the comprehension of history and business transactions.

6. Exterior to System—a perception of the adaptation of parts and movements, giving a power of INVENTION or construction, a talent for the arts which depends upon the command or simultaneous recollections of many particulars in their mutual relations.

7. Exterior (or posterior) to Invention, a power of COMPOSITION, or perception of the mutual relations of words and of ideas, capacitating for writing with facility in prose and poetry.

8. Posterior to composition, a faculty for REVERIE or DREAMING —a mode of mental action so indefinite and so abstracted from surrounding objects as to produce absence of mind, and a condition bordering on sleep which may be termed SOMNOLENCE. A somnolent or dreamy condition being the most remarkable phenomenon presented by this region, the term SOMNOLENCE is used to express its aggregate character of dreamy or somnolent intellectual operation. FROM this region proceed the SOMNAMBULISM of natural or mesmeric sleep-walkers, and their SOMNILOQUENCE or sleep-talking, as well as the ordinary mental activity of Dreaming. This organ coöperates with the INTUITIVE or clairvoyant powers, by transferring the attention from surrounding objects to the interior world of thought.

LECT. XXIV.—REFLECTIVE FACULTIES.

The organs of the upper portion of the forehead, formerly called Comparison, Causality, and Wit or Mirthfulness, possess a retrospective, prospective, and penetrative, or discriminating power. Their conceptions are more abstract and elevated, more comprehensive and judicious than those of the inferior organs. The lowest organ or organs of the external senses enable us merely to recognize the impressions upon our nerves, and refer them to the external sources. The perceptive range recognizes external objects as they exist at any moment of time.

The Recollective range combines with matter, time, and motion. It dwells upon the phenomena or changes which are presented by Nature, thus originating historical and descriptive sciences.

The Reflective organs recognize (in addition to matter, motion, and time, organized into events) the relation which those events and material conditions bear to the past and the future, tracing backward the line of causation into the past, and recognizing in existing facts the powers and tendencies to bring about future results—thus scientifically understanding the world as it is, and wisely comprehending how to act for the remote future—two powers in which man pre-eminently excels all animals.

Neither reasoning nor observation enabled me to determine the exact character and distinctions of the reflective organs anterior to experiment, excepting on the outer portion of the forehead. The power of planning or scheming, and the critical synthetic power which I found associated with breadth, of the reflective organs really belong to the locality at which I found them by cranioscopy.

The reflective functions, like the organ of Memory, are arranged with reference to time, and comprehensiveness. The fibres above the internal portion of the organ (which merely conceives passing events), act upon those brief conceptions, and decide promptly in that method which we call SAGACITY. The fibres which supply a greater amount of material, or greater range of Memory, minister to a more deliberate action which we call JUDGMENT. Fibres still more exterior, minister to the analytic power called WIT, and those of the greatest range of recollective power minister to the organ of REASON. INGENUITY appears to be based upon Time and System; and SCHEMING appears to be derived from System and Invention.

Thus each inferior organ ministers to its superior. The Sense of VISION as the basis of intellect, ministers to the physical perceptive powers. These supply their scientific or casual conceptions to Memory, by which they are retained and supplied to the higher reflective organs. In like manner, at the exterior of the fore-head, the various delicate senses of feeling, contact, odor, taste, and sound, with the sense of the nervaura, and other imponderables supply to Ideality the luxurious delicate fragrant, harmonious and pleasing impressions which sustain its purity and refinement, while Language and Music supply it the materials of literature, beauty, sentiment, and harmonious exhileration; which materials (elaborated in the region of reverie or contemplation and combination) originate the higher forms of Ideality—the mystic depths of thought, the brilliant originality, the vast and indefinite range of Spirituality.

Perhaps the most important of the reflective organs is that of FORESIGHT, which enables us to determine the prospective tendency of every object or act, and which is always ready to decide promptly as to the best course to pursue in any given emergency. It gives a prophetic forecast, and is the source of presentiment and *prevoyance* in which it co-operates with Ideality and Spirituality.

The functions of FORESIGHT, SAGACITY, JUDGMENT, WIT, REASON, INGENUITY, and SCHEMING, are correctly indicated by their names. The term Wit, is used in its proper sense to indicate a power of *penetration* and *analysis*. REASON is the organ of theorizing, philosophizing, and forming opinions from numerous, though imperfect data. *Causality*, or the perception of causation, belongs to the inferior junction of Wit and Reason. These two organs are

the source of analytic investigation. Synthetic reasoning, arises from Reasoning, Ingenuity, Scheming, and Ideality. The more internal organs act upon simpler data—the more external upon more complicated—e. g. Foresight perceives the bearings of any object or power—the tendencies which it may develope in the future. Scheming, Ingenuity, and Reason perceive the bearings of many which co-operate, or tend to produce a certain result—the exterior organs, therefore, give more ingenious views and greater philosophical ability, for the comprehension of complex relations.

The most exterior and elevated range—Ideality, Marvelousness, Spirituality, and Imagination, give a degree of expansion which may render us visionary when in excess. The broad forehead has more genius, originality, and eccentricity than the narrow, and it is generally broad foreheads which originate systems of philosophy and science. Gall and Harvey, Bacon and Kepler, Laplace and Cuvier, required broad foreheads for their profound thoughts.

Practical Application.—A large organ of Foresight indicates a man of deep intuitive wisdom, who foresees the future. He readily anticipates your aims or objects, foresees the result of any enterprise, and chooses the wisest course in any emergency. He is, therefore, eminently calculated to be a leader.

Large Sagacity qualifies for the display of intellect in reference to passing events, giving a power of penetration which it is difficult to deceive.

Large Judgment indicates a comprehensive and critical view of any subject brought before us—differing from the conceptions of Sagacity, in embracing a more comprehensive reference to the past or to illustrative knowledge.

Large Wit indicates still greater ability to investigate a subject in a shrewd and thorough manner, going back to first principles and surveying an extensive range of facts. The analytical shrewdness of this organ, enables it to arrive at results which are startling and brilliant, because unexpected. The greater portion of the organ has merely a reasoning character, but its upper portion which blends with the organ of Mirthfulness, is the source of those shrewd and smile-provoking expressions which justify the title of Wit in its common acceptation.

Large Reason indicates the highest degree of comprehensiveness of thought, embracing in its range of probabilities and *possibilities*, as suggested by Imagination, its neighboring organ, as well as *facts* supplied by the organ of Memory. Reason, supplied by the organ of Memory, with the accumulations of systematic knowledge, and prompted by the active suggestions of Imagination, continually tends to enlarge the sphere of thought, by recognizing in that which is known, the evidence of what is yet unknown. The power of passing accurately from the known to the unknown by a strictly logical process, peculiarly belongs

to this organ. Unlike the organ of Foresight, it does not at a glance perceive a remote or future result, but by an elaborate survey of all which has a bearing upon the future, determines the probability of any result. In like manner it reasons back to the causes of existing states. In determining the truth or falsehood of any proposition the faculty of Reason is the highest power known, and the organ is so situated as to avail itself of all the resources of learning (in Memory) Imagination, Invention and other intellectual powers, while it maintains a peculiar co-operative relation with the region of Sanity. Reasoning capacities may be displayed when the organ of Reason is moderate or small, as learning may be displayed when the organ of Memory is but moderate, yet the reasoning in such cases will not be profound, or in all cases logically precise.

Large Scheming or Planning, indicates a power higher than mechanical invention, and similar to Imagination, with which it connects, co-operating with the organ of Foresight it combines a diversity of means to accomplish its results. It may be occupied, either in "castle building," or in great and beneficent enterprises requiring the highest wisdom.

Ingenuity, intermediate between Reason and Scheming, displays its power chiefly in philosophical doctrines, systems of philosophy, paradoxes and brilliant turns of thought similar to those of Wit. It differs from Reasoning by its more ingenious character, in which it bears a strong resemblance to Wit and to Scheming. Ingenuity connects above with Vivacity and Versatility—functions which give a mental brilliancy very similar to the faculty of Mirthfulness, located by Gall and Spurzheim in this region.

LECT. XXV.—NATURE OF MEMORY AND THE REFLECTIVE FACULTIES.

Memory is surely a distinct mode of mental action and has therefore a just claim to a distint organic apparatus. This claim is rejected by the Gallian System of Phrenology, on the ground that Memory is not a faculty capable of producing a distinct class of ideas, but is merely a mode of action of our perceptive or knowing organs, a repetition of their ordinary action in the absence of the objects by which their action is first excited. According to this plausible view, Memory is not a distinct faculty, but merely an attribute or essential mode of action of the idea-forming faculties. To this very rational view I could not directly object; but perhaps by looking deeper into this subject we may obtain a more comprehensive view.

I will admit that Memory is merely a mode of action of the knowing organs—that it consists merely of the repetition of their conceptions according to the laws of association. But the European phrenologists have admitted an organ of Comparison, and I cannot perceive that comparison has any higher claims to a distinct organ than Memory. Each organ, it is true, *recollects* or repeats its previous conceptions, but does not each organ also *compare* its impressions at every moment? Can the organ of Form recognize and distinguish two individuals in any other way than by comparing their forms and discovering that they are different? How can we affirm that a certain color is red except by mentally comparing the color with that which we conceive to be red? How can we perceive different colors in the spectrum or rainbow, without an act of comparison among these colors, to perceive their contrasts and distinctions? How can we perceive that one man is larger than another but by a comparison of their magnitudes? Indeed, how could we exercise the organ of Size at all without *comparisons?* When I perceive that a man is six feet high, is not my perception a comparative idea—an idea that his height is six times that of the measure called a foot? Can I possibly perceive the magnitude of a multitude of objects such as we find in crowded streets of a city without innumerable comparisons between them or perceptions of their *relative* dimensions? In short, is not *comparison* as much as memory an essential mode of action of each of our perceptive organs—Form, Size, Locality, Weight, Color, Order, Number?

If then we reject Memory because it is a mere mode of action, we must for the same reason reject Comparison, from our list of faculties and organs.

But in truth the reason for the rejection of these organs is not sufficient. If any capacity arises from a peculiar mode of action of certain organs, it does not follow that those organs alone are concerned in its production. The art of fighting is merely a peculiar mode of exercising the muscular system, but it does not depend solely on the muscular organs; on the contrary, organs of Combativeness are superadded to induce us to use the muscular system in that particular manner. The calculation of areas, triangles, etc., is merely a peculiar exercise of the organs of Form and Size, but it is not limited to those organs. The organ of Calculation gives us the disposition and capacity to use the faculties of Form and Size in geometrical investigations, instead of using them merely in simple perception as they are used by animals, which have them perhaps in equal developement. The labors of the painter are exercises of Form, Size, and Color, but the organ of Invention or Construction is also requisite to induce him to exercise those organs in an artistic manner in producing a certain effect by the combination of forms and colors. The vigorous and continued exercise of our intellectual powers would enable us to

attain eminence in scientific pursuits, but to enable and induce us thus to exert these powers requires not only the intellectual organs themselves but also the organ of Firmness. In short it is an established and indispensable doctrine of Phrenology that when any organ is to display conspicuously a certain mode of action, there must be a cerebral organ to give rise to the propensity and capacity to exert itself in that manner.

Thus it is that without the organ of Memory there would be perceptions by the knowing organs but not repetitions of their impressions or a capacity to repeat impressions which occurred many years ago. To produce this tendency or capacity is the function of the organ of Memory.

The act of memory itself is simply the repetition of conceptions which had previously been entertained by the mind. This repetition is not an arbitrary or accidental effort of the mind, but arises entirely from the laws of association. When I think of the city of New York I immediately recollect certain scenes and incidents witnessed in that city. In this case a certain locality forms a part of my conception of the city and also forms a part of the conception of certain incidents connected with that locality. Whenever that locality occurs to the mind the entire mass of conceptions of which it forms a part is revived with more or less distinctness. In this manner, incidents, persons, opinions, scenes, etc., are brought to the mind, and as each of these incidents, persons, opinions, etc., constitute a portion of other classes of associated ideas they also are revived, and thus the train of thought continues, forming a series of recollections.

If in this manner we recall a number of ideas which are associated merely by an identity of locality, (as when I think of circumstances connected with a city) or by an identity or succession of time, (as when I review chronology and history), or by an identity of person, (as in biography) this mode of mental exertion is called memory. Memory, therefore, appears to be the power of repeating thoroughly and correctly any previous conception of the mind whenever any portion of that conception has been repeated. In other words, memory is a spontaneous activity of the intellectual organs, which perfects or completes every idea of which any portion has been conceived. It is the function of the organ of Memory to give this intensity to our conceptions, which completely revives the entire chain of which a single link has been conceived. Memory is thus a power of association—a power which brings in all parts a complex conception.

When this activity exists in a much higher degree, not only are the ideas fully developed of which we have had a partial conception, but even a glimpse of any object, or of some of its features recognized in other objects is sufficient to awaken the entire conception. Thus when an orator denounces his enemies with unusual power, the force and splendor of his eloquence awaken in

the mind the recollection of other objects in which force and splendor exist—we think of flashes of lightning or of the Philippic of Demosthenes, and state that his eloquence reminds us of them.

Thus by a more intense effort of the intellect we have comparison instead of simple memory. Comparison and memory thus appear to differ mainly in their degrees of energy. Comparison being the power of holding any object, relation, or quality before the mind, and recalling all the objects, scenes, etc., in which that quality, relation or object may exist. From these considerations it is obvious that Memory and Comparison are connected with different degrees of cerebral energy. A steady energy of action produces that revival of impressions which constitutes Memory, while a more intense and more actively excited condition produces the manifestation of Comparison by reviving the entire trains of ideas of which a single fragment has been conceived. Memory, therefore, is favored by the development of those regions of the brain which give energy, application, and concentration, (the superior posterior region)—while Comparison is favored by the lateral region which gives excitability and activity or copiousness of manifestation. We also observe that in the forehead Memory is displayed when the front lobe is prominent (which developes the organ of Memory and its associates), while comparisons and figurative illustrations arise from the breadth of the forehead which developes the region of Ideality and literary power. A retentive memory we know has an intimate connection with firmness and stability of character, while copiousness of thought and illustration are connected with general cerebral activity.

Simple perception thus appears to be the lowest grade of mental energy, in which our faculties passively receive the impressions of surrounding objects. Memory is an internal effort, of which we are conscious, which gives us a train of thought, independent of the presence of the external object. Comparison is a still greater effort which carries us still farther from mere perception. As Memory acts upon the perceptive organs, producing a more extensive range of thought, so do the reflective organs act upon Memory and produce a still higher range of meditation.

Reasoning is also a process similar to memory, but requiring a more energetic exertion of the intellect than even comparison. In exercising Memory, we simply repeat a series of ideas connected together by the identity of some object, act or attribute which constitutes a comparison of each; in exercising the power of comparison, we repeat a series of ideas connected by the identity, not merely of a simple object, but of some condition, relation, quality, or other peculiarity that pervades them all, and we especially recognize the identity. Comparison, therefore, depends *mainly* upon a perception of conditions, relations, or qualities which it recognizes with facility, and recalls from every situ-

ation in which they may be found. Thus, when we say "he looked like a rogue;" "he is as rich as Crœsus," we perceive a condition or expression in the countenance which recalls the rogue in whom we have previously seen it—and we recognize in the other a condition of wealth which reminds us of Crœsus in whom a similar condition of wealth existed. In reasoning we conceive a positive proposition—a declaration that something exists or is true, and we seek to prove this proposition, by recognizing its existence in other propositions, which we know to be true. In other words, a certain proposition being stated, as for example, "honesty is the best policy," we endeavor with this proposition in our minds, to recall all the known facts in which this identical proposition is contained; we form a conception of an honest character, exerting a beneficent influence upon one's success in life (which is the proposition) and retaining this conception in the mind, make such exertion to energize our thinking faculties as to recall all the instances in which we have seen this identical proposition existing as a fact—as in the lives of individuals and history of nations, or in the inevitable operation of honesty upon ourselves and others. In other words, this fragment of knowledge being given, we exert ourselves to establish it firmly by connecting with it the scenes or facts of which it forms a part. Reason, therefore, is but a still more vigorous form of Memory, sustaining the same relation to propositions or affirmations that comparison does to qualities and conditions.

There is another process of reason and comparison in which the condition or proposition is not so fixedly retained before the mind. When our efforts upon a proposition do not recall the facts in which it may be found established, we frequently yield our minds to the current of simple association or memory, carefully reviewing our conceptions as they pass, to detect something analogous to, or identical with the proposition that we seek to establish. In the same manner the poet to whom a simile has not readily occured, follows for a while the most convenient associations of ideas, keeping himself on the alert to detect the analogous condition or relation of which he is in quest.

The imperfect reasoner fancies that he has obtained a proof (or identical proposition in something known) when he has really only found an analogy; but the perfect reasoner seeks an identity, and can not be deceived. Reasoning, therefore, depends upon the perception of *identity*. He who can determine positively, whether two propositions are or are not identical, is an accurate reasoner. But the copiousness or facility of reasoning depends, as above shown, upon the intensity or activity of the intellect, recalling every idea connected with the proposition under investigation.

Comparison, in like manner, depends for its correct performance upon a perception of limited identities—identities of condition or equality, not of absolute propositions concerning specific

objects. For its copiousness or facility it depends upon the intensity or power of the recollective effort; but the effort required for the purpose of comparison, is generally less than that required for reason, as identical conditions are more easily found than identical facts.

I have thus far spoken of comparison as a discovery of analogy. But in a more accurate sense this term should be used to signify the investigation, both of analogy and of difference. Perceptions of analogy and difference are as necessarily associated together as perceptions of light and shadow, or equality any inequality.

We are now prepared to classify philosophically our intellectual faculties and their organs:

1. Simple perception, in which the smallest amount of cerebral energy is requisite, but which requires an incessant variation of objects, belongs to the basis of the front lobe, where by position, it is associated with the animal organs which give restless activity, without the capacity for vigorous cerebral action or profound reflection.

2. Recollection or memory is a form of mental action less restless, more prolonged, and accompanied by greater cerebral energy; it requires the assistance of those superior posterior organs, which diminish restlessness, and give our excitement an upward tendency, transferring its seat from the brow to the middle range of the forehead.

3. Comparison or perception of analogous relations of similarity or difference, arises from a more active and excited state of the intellectual organs, which is sustained by the lateral portions of the brain, and which is manifested by the organs giving breadth to the front lobe. The tendency to comparison, which results in classification, system, invention, composition, and literary illustration, belongs to the entire external intellectual range of contemplative organs.

4. The term *reflective* is really more appropriate to the meditative organs just mentioned, than to the upper range of the forehead, since the products of the mathematical, inventive, literary and artistic powers are really the results of extensive and prolonged reflection.

5. The *superior organs* of the forehead lying above the organ of Memory, have the same superiority over Memory, that Memory has over the perceptive organs: *i. e.* the mental action is more vigorous and prolonged, more quiet and concentrated, and the range of ideas evolved far more extensive.

The true relations of the three horizontal groups of intellectual organs appear to be as follows:

1. All that exists at the *present moment* is perceived by the lower range of intellectual organs.

2. As the present becomes the past, it belongs with the progress of transition or series of phenomena, to the organ of Memory.

3. As present existences and their relations with past events and conditions constitute the entire source of human knowledge, excepting that which is future, it is obvious that this remaining sphere of knowledge belongs to the *superior group* of the forehead. Its principal function is to guide man in his course of life, by giving him that forecast which animals possess in a very inferior degree. To arrive at this knowledge of the future, requires a perception of the inherent nature and tendencies of things as they now exist, and a clear understanding of *causation*. The superior organs then discover the relation of *cause and effect*, and by means of this relation they trace the future from the past, and the past from the present. For causation is the sole link by which the present is connected to the past and to the future. The superior organs, therefore, are the source of comprehensiveness of mind, as they enable us to grasp the past and future, in connexion with the present, and to perceive those relations by which all results are produced. Their function is to *comprehend*, or give a *comprehensive* mind, and *comprehension* would, therefore, be a more appropriate name for their function than the old name, reflection.

The difference of function in the comprehensive organs corresponds mathematically with their locations. On the median line, they give a clear insight into nature, and recognize readily the the numerous characteristics and *tendencies* of whatever is brought before us; while in the phenomena of nature they recognize the influence of extensively operating causes. This region, therefore, gives an excellent practical judgment, with a comprehensive, bnt not very thorough or critical philosophy.

The exterior region of the superior organs makes a more extensive comparison, and more critical survey of the facts. It has less facility in recognizing at once the numerous results arising from present conditions, but it has greater power of bringing together, from ampler knowledge, those various resources and tendencies which may accomplish any given result, or of discovering in any existing result or condition the numerous influences concerned in its production. The former would tend to recognize a deity or central agency in the universe, while the latter would trace the conditions of nature to these innumerable causes. The interior portion gives the readiest practical guidance in life, but the exterior produces the most wonderful results, and the highest developement of philosophy and wisdom. The most exterior organ, Scheming, which gives the highest power of philosophical combination for the accomplishment of any result, co-operates with the interior organ of Foresight, and becomes the highest guiding power for society.

LECT. XXVI.—PRESCIENCE, FORESIGHT, PRESENTIMENT, PREVOYANCE.

The power of foreseeing the future according to the dictates of Reason, belongs to all, and is the most important faculty of the master minds that rule the world. But there is a more remarkable faculty produced by the combination of Foresight with the intuitive and spiritual powers, which enables us to see the future distinctly, and realize it as we do the present. This power is often displayed in reference to matters of importance—especially in reference to death. All who are familiar with miscellaneous literature, or who have even had an extensive practical knowledge of life in its most interesting scenes, can recall examples of this wonderful power—instances in which a strong presentiment of death at a certain time has filled the mind, and in which this presentiment has been fulfilled with perfect accuracy. Even now while I am writing, an example is occurring among the "Cherokee Indians,* and it is but a short time since the death of a young naval officer illustrated the truth of his presentiment.

As presentiment arises from a high degree of power or activity in the intuitive organs, it is to be expected that it will generally be found to occur in connexion with clairvoyance, sympathy and spiritual vision. Consequently the foresight will often be connected with a distinct perception of distant places—with a distinct consciousness of the condition of distant friends, and spiritual commuuion with the dead. It is to be expected, also, that it will be displayed under exalted and true religious excitement —under the influence of benevolent actions—in the state of trance—in deep reveries—in dreams and sleep-walking; for the organs of these phenomena are closely connected with the region of Prescience. Such we find to be the tact. The subjects of animal magnetism, often utter truthful predictions in reference to themselves and others—dreams have often been prophetic—religious excitements or trance, have often originated true predictions—the sympathies and affections of friends have often called forth prophetic knowledge in reference to each other, and meditation alone has often been the source of presentiment.

"An Indian Prophetess.—The Cherokee Advocate says, a young girl of the Creek nation recently fell into a trance, and has since been prophecying to the tribe. She says that while in this inanimate state she held communion with invisible spirits, who learned her a song, which she sings with great beauty and effect. She has predicted one or two deaths which have come to pass, and told from her own feelings of a murder, at the very same time it was committed at a distance of several miles from her home. She has also purchased her burial clothes, foretold at what time her death would take place, and certain signs which would then be seen, and from which the world could judge of the sincerity of her professions and the truth of her revelations.

"People from all sections are flocking to see her. There are many who consider her case a remarkable one, and who, believing in her inspiration, have become alarmed and forsaken the error of their ways."

Disease, which connects through Sensibility with Somnolence, is rather favorable to extraordinary mental manifestations. Very interesting phenomena are, therefore, often furnished by persons of feeble and morbid constitutions. We cannot fail to find examples of Prescience, if we look among those of active, clear intellects, of deep meditation, strong affections, enthusiasm, refinement, and acute sensibility, in whom the brain predominates over the inferior apparatus.

The son of the famous Capt. Riley, communicated to me (in '45) the following account of his father's remarkable prevision of death:

Capt. Riley having settled in Willshire, Ohio, was engaged during the winter of 1826–7 in making a lock round a dam which he had erected on ——— river. He was struck with a sudden and violent pain through the head, from ear to ear—so violent that he exclaimed he was shot, and fell; but in a few minutes was restored. He was again struck down in the same manner, and appeared to be in some danger from this attack. On the 13th of March about 10 o'clock in the morning, he apparently drew his last breath in the arms of Judge Wolcott. As his wife brought some wine to restore him, Judge W. told her it was too late, but as she knew that he had in his early life been once given out to die in a similar manner, she said that he was not dead, and gave him the wine while Judge W. held his head. He recovered from his trance, and told them that he seemed to have left his body and this world, entering a higher region and beholding spiritual beings, one of whom came to him and told him that he was to return to earth—was not to die for thirteen years, and would yet visit France and Africa. After this revelation he fell asleep. It was regarded as the wanderings of delirium, and it was supposed that when he awoke he would renew the topic, but he never again alluded to it, nor was it ever mentioned to him by any of his family, although it became to them a matter of painful interest and of an occasional conversation or letter.

Capt. R. had no idea at this time of going to sea, yet this was fulfilled, and he visited France on account of a painful affection of the bladder, which he contracted on a voyage. He underwent the care of the most celebrated surgeons of this country, and of Lallemand of France without relief. He was also induced to visit Africa on account of being at Gibralter, within four days' sail of Capt. Willshire, his deliverer (at Mogadore). There he was cured by the medicine of a negro woman. Finally, he went to sea March 4, 1840, on a voyage to St. Domingo, much against the wishes of his family, who feared he would not return alive, and when nine days out, breathed his last, as quietly as if he had fallen asleep, on the morning of the 13th of March, about ten o'clock—thirteen years from the prevision,—in its strict fulfillment. His son regarded his parting with him at New York

as a farewell, and it appeared that a similar impression rested on the mind of the Captain, as he was seen by his son taking a prolonged farewell of a gentleman when about to embark, and it was afterwards learned that he expressed to him the thought that he would not return.

Rev. Mr. P———, of Mississippi, informed me (in '46) that he had frequent illustrations of presentiment in his wife.

He stated that his wife being on one occasion a little unwell, they had taken a ride and made a visit to a neighbor. While there some oppressive influence suddenly came over her and made her quite sick at the time. On their return home the idea that their gin house would probably be burned arose to her mind with such force as to lead her to suggest it to him and ask with great earnestness what he would do in that case. As the loss of his cotton crop would be apt to embarrass him seriously, she was anxious to know what he could do if deprived of it, as she feared he would be. He endeavored to mitigate her fears, but in vain. She repeated the question and expressed her apprehensions. There had been nothing to excite her apprehensions, and as there was no reason that either of them knew, to expect such a catastrophe, and none were suggested by her, he disregarded her warnings, and endeavored to relieve her mind, but in vain. The same apprehension still weighed upon her and at night kept her so excited that she could not go to sleep. She sat up in the arm chair, and whenever she looked at the gin house the conviction that it would be burnt was undiminished. About daybreak she fell into a doze and the cry of fire was heard. Instantly she called to her husband that the gin house was on fire, and as soon as he could go to see, it was discovered to be in flames, having been set on fire by incendiaries.

This lady, although not at all impressible, had frequent displays of clairvoyance and sympathy in her dreams. Her neighbor, Judge ———, to whom she looked up with filial affection and reverence (a man of active mind and strong presentiments), was the object of her active sympathy. In his attacks of cholic, etc., she would have a most vivid consciousness of his condition and sufferings--and even on an occasion of high social enjoyment she perceived in a dream at the time the manner in which he was engaged.

A volume might be filled with recorded and authentic examples of predictions, but the aversion of scientific men to this class of facts has been such that an immense number of interesting examples have been lost. When they are referred to at all it is in a careless or contemptuous manner.

Brewster, in his life of the great astronomer Tycho Brahe, says:

"When he lived at Uraniburg, he maintained an idiot of the name of Lep, who lay at his feet whenever he sat down to dinner, and whom he fed with his own hand. Persuaded that his

mind when moved was capable of foretelling future events, Tycho carefully marked every thing he said. Lest it should be supposed that this was done to no purpose, Longomontanus relates, that when any person in the island was sick, Lep never, when interrogated, failed *to predict whether the patient would live or die.* It is stated, also, in the letters of Wormius, both to Gassendi and Peyter, that when Tycho was absent and his pupils became very noisy and merry in consequence of not expecting him soon home, the idiot, who was present, exclaimed, "*Juncher xaa laudit,*" "Your master has arrived." On another occasion when Tycho had sent two of his pupils to Copenhagen on business, and had fixed the day of their return, Lep surprised him on that day while he was at dinner, by exclaiming, "Behold your pupils are bathing in the sea." Tycho suspecting that they were shipwrecked, sent some persons to the observatory to look for their boat. The messenger brought back word that he saw some persons wet on the shore and in distress, with a boat upset at a great distance. These stories have been given by Gassendi, and may be viewed as specimens of the superstition of the age."

The most definite, wonderful and well-authenticated prediction on record, is that of M. Cazotte, who at a dinner party in Paris in 1788, predicted the French revolution, and the fate of many persons who were present.

What is the philosophy of those wonderful powers?

Mentality is that power which is the subtlest and most expansive in the human constitution—which in consequence of its expansive subtlety is at once brought into comprehensive relations with every thing around. In proportion as our faculties are intellectual they are thus diffusive—in proportion as they are unintellectual, they act more exclusively upon self and are less capable of radiation.

The intellectual organs have, in different degrees, this power of grasping the exterior world. The region of the purest mentality on the median line is not limited by those formula of observation, recollection, and reasoning, which are necessary with the more exterior organs, but grasp intuitively, or instantaneously the truth. The highest mental power is irrespective of the conditions of time, as well as of place. As the highest powers are located on the median line, or internal aspect of the front lobe, it follows that their developement is greatly favored by the firm, serene, religious and benevolent sentiments, while ill-temper, avarice, selfishness and combativeness are calculated to contract the range and power of the truth-revealing intellect.

These are benignant arrangements, which render evil influences self-limited in operation, and give to the benevolent faculties a diffusive and progressive power.

The diffusive and receptive power of our subtlest intellect, renders it competent to receive impressions from the minds of others, and even from that mysterious sphere of mental power, the spir-

it-world. Although all intellectual power is capable of perversion, the tendency of this class of powers is essentially and necessarily toward the elevation of mankind, and the introduction of new truth. The highest intuitive or spiritual power, which is from its nature in close alliance with the moral organs, may be regarded as the centre of our being and the legitimate guide of our lives.

LECT. XXVII.—ORGANS OF INTUITION.

A great number of well attested facts in the history of mankind demonstrate the existence of powers in the human mind, which transcend the ordinary processes of sensation, perception, and reasoning.

The existence of such powers has been demonstrated more clearly and made more familiar by the experiments of magnetizers, which have proved the existence of *clairvoyance*, *prevoyance*, and mental sympathy, as powers common to the human race in the sleep-waking condition. There are thousands of wonderful facts of the classes of dreams, visions, presentiments, sympathies, impressions, etc., which, if they had been collected, would have rendered this a rich and thrillingly interesting department of anthropology, but which have been superciliously neglected because our learned men could not explain them and would not encounter the ridicule which always assails the wonderful.

We need no longer hesitate in the belief of these well attested wonders, for we have found their causes and therefore need not be astonished at the effects.

The wonderful powers of humanity lie at the junction of the spiritual and material. There physiology blends with psychology, earth with heaven—there man is connected with God and the universe—the limited and gross with the limitless and immaterial.

This junction we have discovered! Mind does not connect with the whole body in mass directly, but communicates with it through the brain; it communicates not with the whole brain in mass directly, but with a particular central portion from which it irradiates the whole. As the brain is to the body, so is this region to the whole brain—the source of its mental life—the sun which illuminates the whole. Thus the spiritual nature illuminates the brain and the brain the body.

We arrive at this fact by perceiving that the functions of the organs as they approach this central spot become more purely intellectual, and as they recede from it become more void of mentality, until at the farthest point they descend to a mere vegetative torpor.

If we excite and develope the functions of this most intellectual and spiritual region, man becomes a more perfectly spiritual being. When we excite these organs in a subject he manifests in proportion to their excitement a refined elevation of thought, and becomes a being of more unlimited mentality. He carries on an intercourse with others by direct mental contact, independent of eye and ear, knows their thoughts, their emotions, their sensations and physiological conditions. He observes distant places and perceives distant events, as a fire, a death, etc., at the instant they occur. At the same time he has such a knowledge of the past and the future, independent of reason, that it seems necessary only to direct his mind to any subject to have it distinctly known. These wonderful powers cannot be expressed by any more fitting name than INTUITION, under which we may include all exercises of pure mentality.

In our craniography, which is based upon experiment, the region of Intuition is located on the median line of the forehead, extending from the root of the nose to the region of Foresight. The lowest portion is the region of physical clairvoyance, the highest portion is the region of *prevoyance* or prescience. Immediately above the region of physical is that of mental clairvoyance, interior to the region of Phenomena. In this we find the power of recognizing mental conditions or mental action—the power of thought-reading. When these powers are exercised in the somnambulic condition, the lower organ capacitates for the description of places or persons—the middle for the perception of character, design or emotion, and the upper for prediction. The power of tracing the past history of an individual or event is located near the organ of Consciousness, which is on the level of Memory. This mental exercise in reference to self sometimes developes a vague sentiment of preëxistence. The individual consciousness may be traced back to the commencement of life, but beyond that there is nothing more than a vague notion. Although the individual consciousness may be thus limited, we can see no reason why the intuitive faculty should not ascend the line of ancestry even up to remote antiquity.

If these wonderful powers exist, as I think I have demonstrated, in the whole human race, why not at once make use of them and let in upon humanity the light of science, and of unclouded truth? The ordinary sphere of Intuition is a familiar affair. It enlightens our perception and judgment—it enables us from the visual image on the retina to perceive external existences, and gives to the reflective faculties their *insight* and truth. It gives us the power of penetrating the countenance and knowing the character at a glance—of anticipating coming events and forming true opinions, for which we perceive no definite foundation. It gives social tact, and a high capacity for correct and successful action in all emergencies. It is the source of presentiment and prediction—

the channel of spiritual impressions, of the inspiration of religion and the inspiration of genius. Phrenology has heretofore been defective in the recognition of these transcendent powers. These higher manifestations have been assigned to the department of Marvelousness, or regarded as delusive.

We now perceive how little intellectual developement is necessary to intelligent action. If the occiput be narrow and Intuition full, no deficiency of the other intellectual organs can produce idiocy or anything like it. We need no longer be surprised at the high degree of intelligence which may be manifested by small heads.

Intuition supplies a defect in our mental philosophy. Reason alone does not authorize us to predict the future from the past. In doing this--in believing that a stone will fall, or the sun will rise to-morrow, we proceed upon the undemonstrable assumption that the future will be the same as the past. We *know* nothing of the future, we cannot logically infer a single effect; but we *believe* or trust in the continuance of the external world and its laws, and we act on that belief—the product of Intuition. Logically, the existence of the external world remains unproven, and transcendentalists may deny it, as we are conscious only of impressions and ideas--not of the things which they represent. Intuition supplies the defect, and renders us certain of the objective reality of that which we see.

The wonderful perceptions and knowledge furnished by our intuitive powers, need not be regarded as arbitrary unintelligible occurrences. Their *modus operandi*, I believe, may be explained by the following considerations.

Every cause tends to infinite diffusion or continuation of its action or effect. Every impulse in any given direction tends to eternal progression in that direction. Hence when an impulse is in existence, the motion by which it is displayed must continue in the same object or be transfused to other objects by which it may be arrested. In case these other objects should have precisely opposite motions, the two opposite impulses would arrest and neutralize or destroy each other. This is the only case in which a motion can cease to exist or be destroyed, *i.e.* when it is destroyed by union with an opposite motion. With this exception, every motion or impulse is eternal under the present laws of nature, and is in continual progress in a manner corresponding to the character of the medium in which it exists. And perhaps if we examine the exception, we will find that it is more apparent than real. That perfect union of opposite impulses resulting in rest probably never occurs. In collisions there is a reaction from elasticity and continuation in the ultimate particles of the motion or force which previously occupied the whole masses of the bodies. Hence we may assert that motion has the same imperishable existence as matter.

Every particle in motion has a continual tendency to impart the same motion to all other particles, whether they be situated laterally, before or behind its position. Consequently every particle in motion has a continual tendency to impart its motion to the whole universe. In other words, every motion at any given point is the source of a motor influence which diffuses itself towards the utmost conceivable limits of the universe. For, however trivial may be the amount at any one spot, when it has become extensively diffused, we can no more suppose that its dispersion or division has destroyed the motion, than we could suppose matter to become annihilated by its divisibility. Hence all motions being diffusive and no motion ever lost, it follows that every particle of matter is affected by all the movements or occurrences of the universe, and, that perfect sense which could recognize the infinitely or indefinitely small action or motion of atoms must be competent to feel in them the traces of everything that occurs in the world, and thereby to know all that transpires as certainly as our grosser faculties could recognize the explosion of a pistol or the concussion of the earth from a falling stone.

This being predicable of ponderable matter, the fullness of this explanation is increased by the fact that caloric, electricity, magnetism and light, or their bases, and other imponderables or their bases (*i. e.* the subtle medium in which they exist) are diffused everywhere and form the media of a vast variety of motions or subtle phenomena, and consequently are media through which the subtlest conceivable phenomena may be rendered apparent or make their impressions upon our subtlest senses.

In thos higher media (beyond any that have been recognized) of which I believe there may be an infinite series, it is probable that the phenomena of life and mind are as diffusive as those of matter, and therefore that the requisite subtlety of perception would almost give omniscience. What possible progress can the human mind make in this direction? Where is its limit of knowledge? If that limit could be assigned to the man of the present century with his present imperfect brain, where will it be when we have improved his cerebral structure by those physical and moral influences which Neurology indicates?

The time is coming, when at every spot upon the habitable globe we may enjoy an all-comprehensive and all-sympathetic intelligence of all that exists upon its surface. The approach of this era of universal intelligence will, I trust, be accompanied by an elevation of sentiment and benevolence which will establish universal harmony and brotherhood.

LECT. XXVIII.—PSYCHOMETRY.

The power of measuring mental manifestations, and mental powers, is of great practical value. Craniology aimed to obtain this power by studying the forms of the head produced by organic developement—this was the only attempt worth mentioning, and was extremely defective as a test of actual power. The impressibility which feels the influence of another's constitution, and the intuitive intellect which appreciates its force, give us the power of appreciating the actual capacity of organs and the intensity of their action at different times.

A convenient method of estimating the power of the faculties of any individual, is for the impressible person to touch successively the various organs which are to be examined, taking care to touch antagonistic organs so as to keep himself well balanced. Another method is to examine the whole together, by touching the intuitive organs of the forehead, through which a knowledge of the whole may be obtained. The organ of Consciousness yields a conception of the entire consciousness of the individual, and by touching that point, one of delicate intuitive sympathies may even determine the very thoughts at the moment.

But, it is practicable to investigate the character and faculties of those who are absent as well as of the present, the dead as well as the living—we may thus challenge the records of history and determine correctly the characters of those who have figured conspicuously before mankind. This power is derived from the fact that in the act of writing, the mental influence of the writer is in some way imparted to the writing, and may be afterwards recognized by an impressible person who comes in contact with it. To demonstrate this, let the impressible person sit at perfect ease, and if not in a very clear and susceptible mental condition, let the intuitive organs and the impressible region be excited by a light touch of the fingers, or rather by a close approximation and withdrawal.

If we would investigate the character of an absent individual, a specimen of his writing should be selected and placed between the hands of the subject, which are kept at rest, in contact with the writing. Contact, however, is not indispensable. I have often enveloped a letter in blank paper, so that it could not be seen or touched by the subject, and although this impedes the experiment, it does not necessarily prevent its success. The subject should keep himself in a condition of repose, and watch his most delicate impressions, carefully reporting *every thing*, no matter how trivial or accidental it may appear. He at first perceives a slight warmth in the hands, especially if the writer be a person

of ardent temperament, or perhaps some other slight indescribable sensation, appropriate to the character of the letter. The sensation felt, gradually progresses up the arm. It is recognized along its course until it reaches the body. Soon a peculiar influence is recognized upon the brain. If the letter possesses a strongly marked character, or was written under some strong feeling (and no other should be used for the first experiment), the subject will feel the same traits of character, or the same state of feeling, and although they may at first appear too subtle or slight to be real, he may soon learn to recognize their reality with the utmost confidence. The power of perceiving these impressions belongs to many persons, and the principal difficulty in its display arises from the fact that the subject does not always place himself in a sufficiently passive recipient condition, and that he looks for some strong irresistible impression, regarding the impressions which he actually receives as merely trivial or accidental states of mind which are not worth mentioning. Hence, it is often necessary, at first, to question him closely, until he learns to investigate his own consciousness and report his observations fully. A letter of no marked character or state of feeling would not be correctly described unless by one who had been practised in the investigation—but one written under violent grief, anger, bodily suffering, fear, mirth, love, etc., would easily be felt. Sometimes the effect of a letter may be produced on the subject, but so gradually, that he will not perceive it, or will ascribe the effect to his own thoughts—to sitting still, or to any plausible cause. In this case, by substituting another of very distinct or opposite character, he will be made to recognize the difference. The descriptions which he gives at first appear to him to be mere guess-work, unless the letter be one of very strong character. I have one that has frequently produced tears in the first experiment, though made upon persons quite incredulous.

The description of character by the subject will at first require a systematic cross-examination to bring it out, but after a little practice he will require few if any questions to draw him out.

Holding the letter between the hands is a slower method of procedure than necessary; hence, I generally apply it on the centre of the forehead, where its influence will reach without delay the perceptive powers. It is necessary that it should be applied lightly, without pressure, which would tend to arrest the mental action and produce an unpleasant effect.

Thus prepared, the operator should direct the attention of the subject, by judicious questions, to the matters most important to be investigated, or at least propose such questions as may give a systematic form to the description. The questions should be merely suggestive and not in the slightest degree leading. After a few examinations in this way, the subject will be enabled to describe character without the assistance of questions. Yet, it

is best to have a certain general form of questions, thus: 1. What is the leading impression or predominant influence? 2. What do you say of the intellectual powers? 3. What of the moral faculties? 4. What of the energies and impulses? 5. What of the sphere of life and pursuits to which he was inclined, and those which he actually pursued? 6. What of his relations to society and reputation? 7. What were the principal faults and principal merits of the character?

The fullness of the description will be in proportion to the powers of the subject; in some cases he will merely catch the predominant emotion of the letter, without perceiving the general aspect of the character—but generally the character also will be perceived. Some will even be able to state the external relations of the individual, as, for example, the specific office that he holds, saying that he was judge of court, that he was a general, or that he was a President of the United States; his reputation and position in society are often described, and sometimes the outlines of his life are sketched. Those of high powers will even sketch the future course of his life, or if he is deceased, recognize him as he is, and speak of his present condition in the world of spiritual life.

The investigations are not limited to mental phenomena. The physiological and pathological conditions may thus be described with accuracy. The letter of a distant patient may be the means of an accurate investigation of this condition. We should be cautious in this matter, and not request impressible persons to describe the characters or constitutions of persons in bad health, or having any serious infirmity, without some urgent reason, for we may thus inflict serious injury upon their health. They acquire headaches, neuralgias, rheumatic pains, temporary paralysis, etc., etc., from contact with morbid specimens, and although the effect may not at once be dangerous, a repetition of such experiments would produce serious and permanent injury.

The impression produced by any autograph, may be removed by dispersive passes from the part by which it was touched, as the forehead or the hand. Thus we get rid of a disagreeable impression, and prepare for another experiment. When the autograph has been held some time in the hand, its influence having penetrated the system, should be withdrawn from the arm and even from the head.

The mental and physiological influence imparted to writing, appears to be imperishable, as the oldest specimens which I have investigated gave their impressions with a distinctness and force, little, if any, impaired by time. Old manuscripts requiring an antiquary to decipher their strange old pennmanship, were easily interpreted by the psychometric power. The decomposition and dispersion of the substance of the manuscript, appears to diminish or destroy its psychometric impression.

The property of retaining the impress of mind is not limited to writing. Drawings, paintings—every thing upon which human contact, thought and volition have been expended, may become linked with that thought and life so as to recall them to the mind of another when in contact. A drawing or painting will give not only a conception of the artist, but his conception of the subject, enabling us thus to describe both in touching the canvass unseen. This discovery in its application to the arts, and to history will open a mine of interesting knowledge. It has also, important practical bearings. It will enable us better to honor virtue and detect vice and crime. No criminal act, or even criminal passion, can escape the detection of Psychometry, when its powers are properly brought forth.

This startling fact will have an immense moral influence. When the principles of Neurology are recognized and acted upon by governments, crime will be checked by the *certainty of detection*. Few will dare to rush upon certain punishment. For the sure detection of guilt by psychometry (no matter how secret the act), will nullify all concealment, and the prompt detection and arrest of the criminal by means of clairvoyance, assisted by the magnetic telegraph, will render punishment so prompt and sure, as to prevent all great crimes which are not the result of an ungovernable impulse.

All men will find additional incentives to virtue in the fact, that their lives will be passed as it were in sunlight, and that they are continually leaving behind a permanent and perfect record of their lives and thoughts.

The influence of Psychometry will be highly valuable, also, in the selection from candidates for appointments to important offices, and in the judicious arrangement of matrimonial unions.

LECT. XXIX.—CRANIOLOGICAL PSYCHOMETRY.

The same susceptibility which is competent to detect mental influences attached to paper is equally competent to discover the mental influences operating in the living brain. Perhaps one-tenth of the entire human race are capable of becoming conscious of the functions of the brain, by simply placing their hands upon the different regions of the head, and patiently awaiting the mental and physical impressions which arise. These impressions imparted at first to the fingers in contact, gradually pervade the whole person, and impress the mind with a consciousness of the influence which is operating. The arm is perceived to be strengthened or weakened according to the physiological character of the organ touched, and the same effect is gradually diffused

through the person, while the corresponding mental processes are going on, and the emotions of the subject are modified.

The knowledge which we gain of the action of the brain in this manner is as positive as that which we obtain of the heat and light of a lamp by the exercise of our senses; and it is not a little remarkable that the world should have been groping in the dark so many centuries for a knowledge of the functions of the brain and the laws of the human constitution, when of all subjects of scientific investigation there are none so easy of access, so full of demonstrable certainty, and so widely spread before the race of man in the most temptingly fascinating form. The labors of Gall and Spurzheim and their followers were unnecessary—the truth which lay just at hand required no long and tedious exploration for its discovery. The toils of anatomists and comparative physiologists have in vain been applied to the elucidation of mysteries beyond their reach, while vivisectors and pathologists have still continued the hopeless labors of Sysiphus, rolling up the heavy mass of observation and experiment to surmount no difficulty and reveal no new truth.

Even mesmeric operators, although possessing the key to the constitution of man, have used it only to display some of its more beautiful relations, without any proper systematic effort to learn its deep interior structure. And finally when I have announced the possession of the key and the opening of the inner chambers —when I have shown how the simplest processes of enquiry reveal the whole interior man—when I have proved my assertions by public teaching and demonstration, challenging the strictest scrutiny, the profound and stolid apathy which I have witnessed, and the signal absence alike of that honest love of truth which leads to investigation, and of that moral courage which never hesitates, waiting for the multitude, have deeply impressed me with a sense of the necessity of a revolution in education and in public sentiment which shall render the leaders of mankind candid, honest, and fearless in the pursuit of truth. For ten years past, I have almost suspended the labor of endeavoring to introduce knowledge for which the mass of mankind have no desire and to which their leaders entertain a decided aversion. After ten years of almost suspended animation in my anthropological pursuits, I now renew by the publication of this work the demand that this New World of science shall no longer be shunned and left unknown to mankind.

The entire system of cerebral and corporeal functions lies exposed to our observation—nothing is necessary but to place the hand in contact with any part which we wish to explore, and passively scrutinize the impressions which it yields. Almost any one may cultivate his sensibilities sufficiently to perceive these impressions and recognize a difference in the effects of the different regions of the brain and body. For some years I did not perceive

any very decided effects upon myself, but during eight or nine years past I have enjoyed frequent personal demonstrations of the transmitted influence of the brain. For example, while placing my fingers upon the forehead of Mrs. J. (a lady of highly cultivated poetical mind,) for the purpose of preparing her intuitive faculties for a psychometric experiment, I perceived a sudden flash of intellectual brightness and clearness imparted to my own perceptive powers—giving me a consciousness of that intellectual brilliancy or lucidity displayed in her writings and in the mild spiritual radiance of her eye. At the same time I perceived a few minutes later that certain rheumatic pains in the shoulder had been transmitted, which being entirely foreign to my own constitution, were referred to her and corresponded to a rheumatic affection from which she had suffered considerably. In experimenting upon the basilar organs of an impressible subject through the neck and occipito-basilar region, I have several times found that as the excitement progressed my own perceptive and reflective powers were manifestly diminished, until after an hour or two spent in that way, I would find myself incapable of clearly understanding what I was about, of drawing philosophical inferences from the experiments, and of conducting my investigations to any satisfactory result.

When placing my fingers upon the pulmonic region of the brain of a very impressible subject, I have recognized very clearly its characteristic effect upon my own lungs, and indeed my first very clear conception of the functions of that region was derived from my own sensations.

From touching the regions of Health and Vitality I have many times received the most marked and palpable benefit in the increase of vital force, the removal of obstructions, etc., the regularity, clearness, and perfection of all the bodily functions, giving a feeling of perfect and vigorous health, delightful to enjoy.

When exciting the moral organs I have often felt the characteristic genial, calm, and elevating influences of those organs, and on one occasion after contact with the upper part of the head of a Swedenborgian clergyman, I experienced a strange elevation and expansion of the spiritual sentiments.

When attempting to debilitate the muscular system by exciting the region of Relaxation I have frequently found a portion of the influence transmitted to myself and observed my hand and arm to become more tremulous and weak. An experiment of that kind upon several members of my class in 1846, produced effects so unpleasant and debilitating, that I afterwards discontinued the practice of illustrating the science by such experiments.

Persons who have a good psychometric capacity recognize almost instantly the impression from the organ which they touch, and are enabled to determine not only its characteristic tendency, but its power and cultivation in the individual, and its peculiar

temperament and habits. The painful or pleasant impressions to which any organ has been subjected are stamped upon its organization and may be detected by craniological psychometry. If the psychometer be excessively impressible, he may be carried away by the force of the impression which he receives, and, losing his mental balance, may be unable to determine correctly the exact significance of his impressions. In such cases it will be necessary for him to understand the cerebral antagonisms, and by exploring antagonistic organs in conjunction to preserve his equipoise.

When it is desirable to determine the aggregate character, without exploration of individual organs, a complete impression may be obtained from the organ of Consciousness in the centre of the forehead and the space between it and the nose. A general impression may also be obtained from the body by exploring the localities along the median line of the chest from the summit of the sternum to the epigastrium. The inner surface of the hand may also answer a similar purpose, as a general impression of the person may be obtained from it, especially for physiological objects.

Craniological Psychometry is vastly superior to mere cranioscopy as a means of exploring the true character, mental, physiological, and pathological. What a pity the illustrious Gall did not avail himself of human impressibility, and thus at once introduce to the world an accurate science enforced by decisive demonstration! However it may be that a more strenuous resistance would have been made against this higher developement of truth than was made against Craniology.

Minute explorations of the brain may be made by using conducting media instead of the fingers. Thus through a small metallic rod or a pencil case, the influence of the smallest portions of the surface of the brain may be obtained, and a minute survey of all the convolutions accomplished. We may thus map out upon the external surface of the living head the boundaries of the convolutions of the brain.

By using a transferable medium, Craniological Psychometry may be made an admirable demonstration of the organic functions. Thus by placing a small slip of paper, metal, or other suitable media upon any organ until it has become charged with the aura of that organ, it becomes capable of yielding the psychometer the same impression which he would have derived from direct contact with it, and by this method we escape any fallacy which might arise from his knowing the locality of the organ and following his imagination. Such experiments constitute a perfect demonstration, and as Craniological Psychometry must henceforth be the basis of a true Anthropology, it is important to render its demonstrations thus decisive.

LECT. XXX.—MORAL REGION—INTELLECTUAL VIRTUES, OR SENTIMENTAL INTELLECT.

The organs of IDEALITY, MARVELOUSNESS, SPIRITUALITY, IMAGINATION, PLIABILITY (with *Versatility* and *Vivacity*,) ADMIRATION, MIRTHFULNESS, IMITATION, POLITENESS, FAITH, SINCERITY, EXPRESSION, SYMPATHY, AND LIBERALITY, constitute the intermediate ground between Intelligence and Virtue, and might with propriety be assigned to either department.

The region of intellectual virtues has been divided into the truthful, social, and ideal departments—TRUTHFULNESS is the name given to Expression, Sincerity and Faith; SOCIABILITY is the name given to Mirthfulness, Pliability, Imitation, Politeness, Friendship, and Admiration; and the ideal region consists of Imagination, Spirituality, Marvelousness, and Ideality.

LIBERALITY, the anterior portion of Benevolence, produces less emotion than its middle and posterior portions. It is the source of the generous desire to give, and produces a free, open disposition. It gives to the mind an expansive character, and is opposed to avarice, bigotry, sectarianism, clannishness, selfishness, and all contracted modes of thought.

SYMPATHY, which is next exterior to Liberality, produces a facility in conceiving the ideas or entering into the feelings of others, and is thus both benevolent and intelligent. It gives to the eye a soft, moist appearance, and is the principal cause of shedding tears. It seems to hold a physiological relation to the lachrymal gland, as I have excited it and brought moisture to the eyes, even when the subject was unconscious of any distinct mental influence.

The organ of EXPRESSION is the source of a disposition to be communicative—a desire to convey our ideas to others, and in connexion with sympathy produces a strong desire for mental communion. It is one of the chief causes of an open speaking countenance.

This communicative impulse changes posteriorly into a stronger emotion, which makes us not only communicative but thoroughly frank, candid, and sincere. This we call SINCERITY. Posterior to Sincerity, we find a still more benevolent and religious faculty, which we call FAITH. This is the source of confidence in persons—of a belief in their truth and goodness. It gives a necessary support to Benevolence, Friendship, and Philanthropy. It prevents suspicion or jealousy, and keeps up our pleasant relations with society—makes us reluctant to accredit any thing evil of another, and enables us vastly to enlarge the circle of our knowledge by enjoying the entire benefit of the knowledge

possessed by others. Deprived of this faculty, man would be reduced to the circle of his own experience and observation; but with it, history, science, and progressive discovery are all within his grasp. The three organs, Expression, Sincerity, and Faith, have been grouped togother under the common title of Truthfulness, because their aggregate tendency is to truth—to giving fully and freely the truth to others, and receiving it as freely from them. The meagre cultivation of these faculties in the more influential classes of society constitutes one of the great causes of the slow progress of new truths. Men are not thoroughly sincere—are not lovers of truth, and do not know how to attach a proper value to truth in others; hence they do not discriminate between faithful reporters of truth as it is in nature, and the ostentatious seekers of fame, the narrow-minded theorists, and cunning charlatans by whom they are deluded. It has often been to me a matter of surprise that intelligent persons should be so reckless of the truth in reference to the most important statements which could be laid before them, when those statements had no direct bearing upon their selfish interests. Important propositions are decided in the most frivolous and wayward manner. The source of information is not scrutinized, the capacity and sincerity of the witness are not examined or not regarded, definite information is not sought, and in this careless and profligate manner are questions of the greatest moment decided.

Exterior to Expression, we find the organ of Mirthfulness, which is just above Wit, and vertically above the pupil of the eye. This is the source of the sentiment of the ludicrous, and of the laughter to which the humorous and ludicrous give rise. The act of laughter is a muscular act, dependent upon a portion of the respiratory organs, which may be reached by the outer angle of the mouth (see Physiological Lectures).

[I have known impressible persons, who were acquainted with the old phrenological localities, to be much surprised that they were enlivened by humorous emotions, and made to laugh, when I touched the true location of Mirthfulness instead of the position formerly assigned it.]

Imitation lies behind Mirthfulness, and exterior to Sincerity. It produces, as its name indicates, a facility in adopting the character and manners of others—in profiting by example, and in harmonizing with the fashions or institutions of society. In theatricals, in oratory, and in acquiring the manners of social intercourse, it gives a ready talent. As an element of character, it gives a tendency to assimilate to the society in which we are thrown.

The more posterior fibres which connect with Philanthropy, Hope, and Friendship, assume the character of Politeness—a faculty in which the interesting mannerism of Imitation is associated with the happy and kindly emotions of the organs behind it. The pleasant and elegant manners of refined society are due

to this organ, which is often cultivated at the expense of the neighboring region of Truthfulness. Politeness connects exteriorly with Friendship, Admiration, and Sentimentalism, which are intermediate between Imitation, Imagination, and Love.

Pliability. or facility of changing, yielding, and adapting our conduct to circumstances, or to persuasion, is found just above the organ of Reason. It produces a muscular as well as mental pliability. A distinguished physician informed me that when he had magnetized his niece into a state of muscular rigidity, he easily relaxed the arms by applying his forehead to the hand in such a manner that I perceived he touched with the organ of Pliability. Exteriorly, above Ingenuity, the pliable tendency becomes more intellectual or ingenious, and may be styled Versatility. This is the source of the readiness with which some individuals turn from one pursuit to another, and manifest a variety of talent, having the power of adapting themselves with great facility to different situations.

Vivacity, which is found above Ingenuity, is a faculty very similar to Mirthfulness, but less ludicrous in its conceptions. It produces a sprightly mind; connecting with Fancy or Imagination, and with Admiration, it produces a rather brilliant effect upon the character and manners.

Admiration, which connects with Sentimentalism, leads to general eulogy and approbation. Its expression is pleasing and brilliant. It is opposed to all censure or fault-finding, and deals in complimentary thoughts or expressions. It gives us a liberal and kind appreciation of all excellence of character, as well as of works of art and the beauties of nature.

Imagination, Marvelousness, and Ideality have a highly moral character, in consequence of the refinement and elevation of thought which they produce. They also produce a brilliant originality and expansiveness of mind which entitle them to a high rank as intellectual powers. Imagination give a creative power which acts in connexion with sentiment as well as thought. Posteriorly it blends with Love through the intermediate gradation of Sentimental affection, or Sentimentalism. Imagination is the chief source of fiction, and one of the chief sources of poetry. It is an essential element of a profound, original, and creative mind. It contributes materials to reason in the form of hypotheses, and enables us to embody the results of Reason or Scheming in a vivid conception.

Ideality is the source of refinement, delicacy, and copiousness of thought—of deep and subtle speculation—of generalization, abstraction, and dreamy reminiscence—more vague in its action than Reason, depending upon subtler analogies, and more remote relations of things, it arrives at results less demonstrable. It tends to mysticism, to dim allusions and to thoughts very far removed from matters of daily observation. In the lower portion its anterior fibres are literary, giving the power of Composition—

the posterior producing the senses of BEAUTY and PURITY, blend with the organ of MODESTY. The whole together would produce a high order of literary power and refined taste.

MARVELOUSNESS, which lies between Ideality and Imagination, is the source of a love or capacity for the wonderful and supernatural. Whilst the wonderful and supernatural exist, it must be considered an essential element of a well-balanced mind. It leads us to seek new truth, to recognize rare and wonderful phenomena, to study the Divine relations of man, and the wonderful powers of his soul and body. As there are departments of knowledge which are less accessible to ordinary observation, and therefore less known, or, in other words, more extraordinary, our views would be limited indeed, if we were unable to appreciate these departments of truth. Could we attain a perfect knowledge of man, and of the universe, we should no longer need the faculty, as there would be nothing wonderful or mysterious to be examined. Our forehead might then be formed as the ancient sculptors formed the forehead of Jove, narrow and projecting—this would be a proper form for divine knowledge, not for divine creation. The form of humanity requires greater breadth of developement of the lateral organs for our progress in the new and wonderful.

[Subsequent reflection requires an amendment of these suggestions. Although Marvelousness, Ideality, and Invention are especially necessary in the progressive condition of man to make him familiar with the mysteries of nature, and to lead him on in the progress of art and philosophy, they do not cease to be necessary when art and philosophy have been developed; on the contrary, they are still necessary to prevent our retrogression to barbarism. The common conception of Divinity involves an immense endowment and exercise of these faculties beyond human conception.]

In the posterior margin of Marvelousness, Ideality, and Imagination, we have the organ of SPIRITUALITY, which leads to the contemplation of mind or soul apart from matter, and under the highest excitement of which we recognize spiritual beings or believe that we hold intercourse with them. On the side of Imagination, this connects with the organ of SPECTRAL ILLUSION, the results of which are entirely fanciful and extravagant. This spectral imagination is the source of superstitious illusions. SPIRITUALITY is the source of more rational and connected visions. There are many spiritualists in the world, and many to whom this organ gives a strong confidence in their enjoyment of communion with their departed friends and with other spiritual beings.

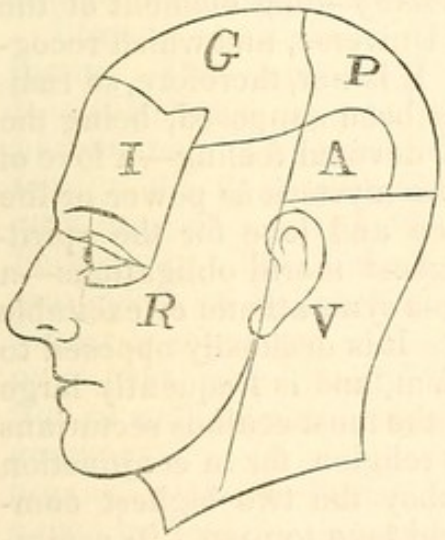
[Since my discovery of the organ of spiritual intercourse, and since the above was written, communication with the spirit-world has been rendered familiar by sounds, movements, and communications through mesmerized subjects and mediums.]

LECT. XXXI.—ORGANS OF VIRTUE OR GOODNESS.

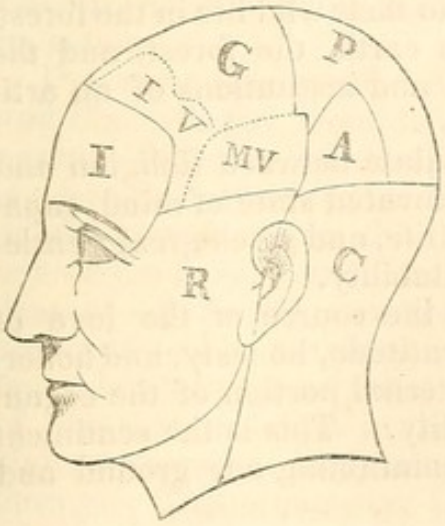
For the superior functions I prefer the term VIRTUE or GOODNESS to MORALITY; the latter has too cold and uninteresting a meaning. According to common usage, it refers rather to puritanical restraint than to positive excellence of character. The coronal organs make a good, warm-hearted, fascinating, lovely, substantial, and noble character. In addition to the intellectual virtues of the last lecture, we may recognize BENEVOLENCE, RELIGION, PATIENCE, INTEGRITY or CONSCIENTIOUSNESS, PHILANTHROPY, HOPE, LOVE, FRIENDSHIP, and PATRIOTISM.

To these may be added the MINOR VIRTUES—CAUTIOUSNESS, SUBLIMITY, REVERENCE, and MODESTY, which occupy the side of the head, (M. V.) and which while they check the selfish passions and energies, coöperate efficiently with the moral and intellectual organs.

In the absolute division of the head into six great regions, the minor virtues are divided between the adjacent regions above and below—the upper portion being given to the region of Goodness and the lower portion to the region of Debility or Relaxation. The upper portion is the efficient coöperator of the moral organs, while the lower portion diminishes the moral force of character, producing a diffident, submissive, and servile disposition. The intellectual virtues are divided—Ideality and Imagination being assigned to the intellectual department and the rest to the region of virtue.



By adopting minor sub-divisions, we may illustrate more fully the natural grouping of the organs—the truthful, social, sentimental, ideal, spiritual, and fanciful regions being classed as intellectual virtues, (I.V.) intermediates between pure virtue and pure intelligence. Strictly speaking, the organ of Ideality should be divided in the middle—the anterior portion being assigned to the intellect, and the posterior portion, containing ideas of *purity* and *beauty*, being classed with the



intellectual virtues. As the semi-virtuous region thus merges into the intellectual and feeble regions, it also connects with the energies—the anterior portion of the energetic organs being really minor virtues, or virtuous energies.

Benevolence is sufficiently defined by its name. The functions of this organ are more intense in its posterior than its anterior portion; hence the former may be called Devotedness, being an entirely disinterested feeling, producing much self-sacrifice or devotion to a good object. Further back, the benevolent sentiment becoming still stronger, produces Philanthropy, a love of the whole human race, a feeling closely connected with enthusiasm and moral heroism, producing great moral elevation of character —it is a firmer or more energetic, less yielding, less sympathetic feeling than Benevolence, being intermediate between Benevolence and Integrity or Justice.

Religion is the appropriate name of the sagittal organ which has been rather inappropriately called Veneration. Gall's ideas of its function, when he called it Theosophy, were better than those of his followers. It appears to be (if such an expression may be allowed) a *sentiment of universality*—that element of the mind which delights in Nature or the Universe, and which recognizes in creation the creative power. It is not, therefore, so radically distinct from Benevolence as has been supposed, being the widest expansion of the benevolent or devoted feeling—a love of all—of the boundless universe and the mysterious power or life which we recognize in it—a reverence and love for the spirit-world, the Divine power, and the highest moral obligations—a feeling necessarily more serene and less sympathetic or excitable than that which relates to man alone. It is decidedly opposed to all narrowness, bigotry, or sectarianism, and is frequently large in those who avoid sects, and small in the most zealous sectarians —nevertheless, it is the source of true religion, for in conjunction with philanthropy it enables us to obey the two highest commands of Christianity—love to God and love to man. Its aspiration is to universal harmony. Its large developement in the American Indians is probably owing to their wild life in the forest, sustaining their daily relations to the earth, the forest, and the sky, instead of the walls, machinery, and institutions of an artificial society.

Patience or Serenity is the intermediate between Religion and Firmness. It produces a calm and elevated state of mind, capable of resisting all the annoyances of life, and gives great gentleness of temper and control of our Irritability.

Integrity or Conscientiousness is the source of the love of justice, of fidelity to obligations, of gratitude, honesty, and honor. The sense of honor belongs to the internal portion of the organ, connecting with Firmness and Mortality. This is the sentiment which leads us to sacrifice life in maintaining our ground and

discharging our duty. It is a sense of obligation connected with high courage and disregard of life, rather than with the Industry, Tranquility, and Self-control which connect with the exterior portions of the organ.

Conscientiousness or Integrity is connected laterally with Love, Reverence, Tranquility, and Energy, at which junction arises the sentiment of PATRIOTISM. Under this name I have included the LOVE OF HOME, (which has been called Inhabitiveness,) the LOVE OF OUR COUNTRY, both soil and people, and the disposition to uphold its institutions and prosperity. The Love of Home, which produces an inhabitive, domestic disposition, lies in the inferior portion of the organ, connecting with Tranquility and Cautiousness. The regard for the government or institutions is located between Justice and Reverence, and the regard for the people connects with the general sentiment of Love. Patriotism or Love of Country is a moral faculty but not of the highest grade; in point of energy, it is nearly equal to the sense of Justice, being stronger than Love, Friendship, and Benevolence, which exert a rather subduing influence.

LOVE, if not the noblest, is the most pleasing of all our sentiments. The name fully expresses the character of this organ. It is subdivided into the parental, filial, conjugal, and social departments. The parental is connected with Hope and with Integrity, the filial with Gratitude and Reverence, the conjugal with Imagination and Modesty, the social with Friendship and Politeness. The difference between Love and the less personal sentiments of Philanthropy, Religion, and Justice, is that the former is connected with a greater amount of personal deference or respect, with Ideality, Spirituality, Imagination, and Admiration as well as with Integrity, which insures fidelity to duties and gagements. It is thus connected by the juxtaposition of the organs, while the former less personal sentiments are less influenced by Imagination and Modesty, and more closely connected with the impartial intellect and with Serenity or Patience. Hence Love is more excitable and fanciful, but less uniform and calm in its action.

The name HOPE has been retained for the organ between Love and Philanthropy, from deference to the old nomenclature. Yet perhaps the word which would most nearly express its functions is HAPPINESS. We find that there are various degrees of happiness or pleasure attending the excitement of different organs, those nearer the base of the brain are less and less pleasant as we descend—those more remote from the base are more and more pleasant. The maximum of unpleasantness or unhappiness is found beneath the occipital and middle lobes, while the maximum of pleasure is found in the middle of the upper surface—the highest degree of happiness is found between Love and Philanthropy. This organ may be called Hope, because it makes the

future appear entirely pleasant. But it lends its own bright happy influence to the present and past as well as to the future. It leads us to think well of mankind (both friends and enemies), to be pleased with nature and with Fate, to rely upon Providence, and ever to see in the far future enough of happiness to compensate for present ills. It points to a spiritual existence and gives us firm assurance of Immortality. It makes death even a pleasing prospect.

To the gentle influence of this organ is assigned the task of severing the ties that bind us to life. Its posterior portion bears the name of MORTALITY, because its tendency is not only to extinguish the desire for animal life, but to extinguish the life itself. Its habitual influence is to lower or tranquilize the animal powers —diminishing the energy of circulation, digestion, muscularity, etc. A more exalted manifestation produces extacy or trance, and its absolute predominance arresting the animal forces entirely produces death. Hence great cultivation of the intellect and higher sentiments, or great excitement of the affections and highest benevolent faculties tends to produce a delicate or frail constitution and is very injurious to children in whom the animal forces should be developed before the highest faculties. The most perfect lovoliness is too apt to be associated with physical frailty.

MORTALITY greatly elevates the character—giving a heroic disregard of death—subduing the animal passions and giving the entire ascendency to the intellectual and moral faculties. Its strong excitement diminishes the action of the heart and produces a feeling of sinking of the vital powers, failing of the senses and impending death. Its influence explains many cases of sudden death, and the sinking of the vital powers which sometimes occurs without apparent cause. It explains, too, cases like that of Col. Townshend, who could voluntarily suspend the action of his heart and lie apparently dead. The fact that delicate females swoon when their emotions are powerfully excited, rather than when their basilar passions are disturbed, is owing to the location of this organ. We should be cautious in experimenting upon the brain not to excite too forcibly this region.

FRIENDSHIP, the truly benevolent, sympathetic, and confiding feeling, which seeks another's welfare and which has no taint of selfishness in its composition, lies immediately anterior to Love n company with its natural associates, Admiration or Esteem, mitation, Politeness, Faith and Hope. With this location we an understand why Friendship contributes so greatly to the culivation of all the finer feelings and why, especially it produces ot only pleasant manners in social intercourse but sympathetic mitation and warm devotedness. The location of such a sentinent in the occiput, in connection with organs of hostility and ontention, as arranged by the Gallian system, would be entirely ontrary to the laws of cerebral association.

LECT. XXXII.—REGION OF POWER, ENERGY, AND HEALTH.

The energetic faculties are located at the upper and posterior part of the head between the virtuous and the selfish or vicious tendencies in such a position as to coöperate with either. The virtuous and intellectual organs have a spiritual or psychological character, while the vicious organs are decidedly physiological, or tend especially to physical effects. The energetic are so situated as to produce the requisite developement and combination of the physical, moral, and mental powers for the best efficiency.

The organ of HEALTH is situated at a central point among the different classes of organs, which produces a proper balance between the intellectual and unintellectual powers, and which rightly evolves the sentiments and passions, giving a decided ascendency to the former, and also giving a more decided and complete predominance of the invigorating or tonic elements of the constitution over the enfeebling or relaxing. The character produced by the organ of Health is firm, hardy, energetic, efficient, upright, steady, and disposed to practice the stern or manly virtues, rather than milder ones. It has not a great deal of Ideality, Fancy, Modesty, Reverence, Fear, or Sentimental Love, Sympathy or Mirth, and has a great deal more of Justice, Honesty, Philanthropy, Patriotism, and love of home. These qualities it combines with Caution, Restraint, Ambition, Pride, Vigilance, Hardihood, and Firmness. In short it produces a character in which the strength, self-possession, and self-control are sure to lead the individual in a healthy course of life, unless he should be tempted by his conscious health and vigor to encounter too great exposure.

Near the most prominent point of the parietal bone, on the conspicuous ridge which it presents between the lateral and superior organs, is the organ of SANITY: from this point running toward the median line, we trace the organs of Playfulness, Energy, Industry, Temperance and Firmness.

The organ of PLAYFULNESS is the source of physical and mental activity, animation and gaiety, which are entirely distinct from Mirthfulness, being independent of the sense of the ludicrous. It has more vigor and serves to prevent depression of spirits or melancholy, as Mirth prevents Moroseness. Mirthfulness without Playfulness seldom produces much gaiety of manner. The social, pleasant, humorous sentiment which belongs to the organ of Mirthfulness, does not prevent one from becoming melancholy. A joyous activity and lively interest in every thing is produced by Playfulness.

ENERGY is the source of resolute and efficient exertion. It gives strength to the muscles and force to the mind, producing not only

a strong will, but a continuous activity and efficiency—a disposition to exert our powers without any relaxation.

Industry and Application are found at the internal portion of this organ, and nearly in connexion with Temperance. They are simply a steadier and calmer form of Energy.

Temperance, the antagonist of Alimentiveness, gives us control of the appetite, with an unlimited power of abstinence, and arrests the action of the stomach—it tends to sustain our Fortitude, Health, Hardihood, Firmness, Industry, and Energy, which belong to its neighboring organs.

Hardihood, situated behind Industry and Temperance, is the antagonist of physical sensibility, and of both mental and physical sensitiveness. It gives wonderful powers of endurance and insensibility to pain. It diminishes the power of all external agents over the constitution, increases our energy and health, and enables us to resist the depressing influence of wounds, blows, malaria, poisons, medicines, surgical operations, etc. It also enables us to resist nervauric experiments, and to repel the influence of mind or manner in another—in other words, it renders us less impressible.

Firmness presents in its anterior portion the character of Fortitude or Moral Courage—in its exterior portion connecting with Integrity it becomes Perseverance, and in its posterior portion Intrepidity or Courage, the antagonist of Fear. The posterior internal portion upon the median line produces Decision of character. Thus the anterior portion of this organ coöperates rather with the coronal organs, and the posterior portion with the occipital. The functions of the middle of the occiput, extending downwards from Firmness, Hardihood, and Health, may be indicated by the general term Ambition. They are all impulsive and very efficient elements of the character. They differ from the energies already mentioned in being less disinterested, less amiable, more active, authoritative and egotistic. The upper portion of this region manifests self-complacency, or Dignity, Pride, and an honorable virtuous ambition—the middle manifests more self-confidence and boldness of action, more general and less elevated ambition and vanity, greater aversion to restraint or Love of Liberty, and greater desire to control others, or Love of Power. The lower portion manifests Arrogance, and becomes more harsh, domineering and reckless, more combative and tyrannical—thus it blends with the criminal region in Combativeness and Hatred. For convenience in classification, we may separate the range along the median line, which gives us *Pride* or *Self-Esteem*, *Self-Confidence* and *Love of Power*—leaving the term Ambition confined to the next exterior range. This Ambition is exhibited in the highest portion of the organ, as Moral Ambition, leading to great enterprises for human welfare, and giving the desire to achieve an honorable position by noble means. The middle

portion gives a general ambition, emulation, desire to excel and to acquire reputation and influence. The lower portion is bold and overbearing, aims to conquer, and may be called the military or criminal ambition, although it may be equally active in civic life. The LOVE OF LIBERTY belongs to the middle region of Ambition, and VANITY to its lower half.

Exteriorly, the functions assume a ruder character, giving a fondness for physical rather than mental action and display. This region of COARSENESS (parallel to Ambition and farther from the median line) impels to bodily labor, active business, hunting, athletic sports, agricultural and pastoral, or savage life, and produces an aversion to luxury or refinement, study, art, science, literature or philosophy, and to every thing spiritual, wonderful, or supernatural. The latter aversion belongs to the lowest portion of Coarseness (where it blends with crime) and is called INFIDELITY or SKEPTICISM.

The organs nearer the median line are of a more refined character, and more favorable to intellectual action. The narrow and elongated occiput is therefore a more respectable form than that which is broad or round—the latter being inclined to triumph by physical force, and the former by force of character. Woman being less muscular, more refined, and less accustomed to the coarse pursuits of life, has generally rather less rotundity and greater narrowness or sharpness of the occiput than man.

The outer margin of the Region of Power, near the centre of the parietal bone, presents us the organs of Cautiousness, Sanity, Manliness, and Restraint. The upper portion of Cautiousness may be considered one of our sustaining powers, but the functions of its lower portion are more anxious, depressing, and debilitating. The upper region may be included in the region of the minor virtues.

RESTRAINT gives a power of self-control and suppresses our excitability, thus sustaining our Firmness and restraining excesses. If too large, however, it tends to produce a stiff, cold, and negative character.

SANITY, the antagonist of Insanity and Idiocy, is an indispensable power for sustaining the mental energy and correctness of thought. Its predominant developement indicates that the individual will never yield to the deranging influences of feverish excitement, passion, or misfortunes, but will preserve a sound mind under all circumstances.

Concentration or *Concentrativeness* is an attribute of the region of Sanity, which might be noted as a distinct division of that organ if necessary.

MANLINESS, lying just behind Sanity (occupying but a small space), is the antagonist of Childishness, and tends to develope the mature adult character. Manliness implies soundness of mind and self-control, hence it is appropriately situated between

Sanity and Restraint. Its predominant developement indicates an early manhood or maturity of character.

Behind Hardihood, at the upper margin of Coarseness, we find the organ of Vigilance (the antagonist of Somnolence), which produces an alert, active state of mind, incapable of abstraction, and attentive to surrounding objects. Its connexion with Hardihood shows why we become almost unconscious of pain or of physical injuries when intent upon any interesting transaction in which we may be engaged.

Classification.—The organs of Firmness, Temperance, Industry, Energy, Playfulness, Sanity and Health, which are adjacent to the region of Goodness, might well be classed among the minor virtues or the *virtuous energies*.

The regions of Pride or Self-Esteem, Self-Confidence, Love of Power, Ambition, Hardihood, and Coarseness, may be regarded as the *selfish energies*.

Arrogance and Skepticism, or Infidelity, may be appropriately assigned to the criminal region, to which I would refer for their description.

LECT. XXXIII.—REGION OF ANIMALITY.

In the brain of man I find a region peculiarly difficult to describe or comprehend—a region which has resisted more than all the rest, my efforts to obtain a satisfactory and philosophic comprehension of its nature. This is the region antagonistic to the intellectual, and consequently in its own nature entirely unintellectual. Hence (in accordance with the great philosophical law that every organ carries its own tendencies into every sphere of its influence) this region makes a sturdy resistance to the jurisdiction of our intellectual powers.

It is true I have been able to excite this region of the brain like all others, and to note the result—but the results had not that clear and satisfactory character, or those intelligible relations which belonged to the other organs.

It was difficult to conceive what could be the nature of organs antagonistic to the intellectual, as the opposite of intelligence is simply ignorance—the opposite of reason is absurdity—the opposite of wisdom is folly—the opposite of memory is vacuity or imbecility. But to give such names to a group of organs—to name them negatively as organs of ignorance—organs of the absence of something supplied by their intellectual antagonists, would be entirely unphilosophical, as every organ is the organ of a positive function—not of a mere negation or absence of something else. It is true that ignorance and imbecility are among the effects of these organs, and that I have often referred to them

as the organs of ignorance, yet they possess a positive as well as a negative character. But the principal positive manifestation that I could obtain from the ignorant region was *Adhesiveness* and this did not appear at the first glance to be the antagonist of any intellectual function. The word Adhesiveness would seem to contrast with Repulsiveness rather than with intellect, and it was no easy matter to discern the antagonism of intellect and adhesion, or the identity of Adhesiveness and ignorance or imbecility. Nevertheless this dark and vacant region, so void of ideas, would not give me any better positive response, and after trying over and over again to obtain more satisfactory results, I was compelled to yield and digest the facts as well as I could in the cauldron of philosophy.

After nine years suspense and postponement, no satisfactory mode of grouping, considering, or naming this region occurred, as no word in our language could serve as an adequate representative of its character, competent to convey a clear idea of its positive and negative relations. The expression which I have finally adopted for this region of darkness, viz.: ANIMALITY, has the merit of indicating distinctly that its functions relate not to the manifestation of intellect, but to the support of the functions of animal life, which proceed independently of intellectual developement, and to which intellectual action is decidedly unfavorable. This region is tributary to what physiologists call organic life, (that which is independent of our consciousness or will), and in its psychological bearings it sustains those elements of character which are antagonistic to the free and correct action of the intellect.

Adhesiveness or the concentration of attachment to special objects, from which we are unwilling to part, is radically opposite to intellectual action which embraces everything and is confined to nothing. The former dissipates—the latter concentrates our energies to self. The former seeks additional knowledge and opinions—the latter adheres with the blind tenacity of habit and the stubbornness of bigotry or superstition to traditionary ideas.

The intellectual organs are most powerfully excited by *novel objects*. The continuance of any impression exhausts the sensitive and perceptive powers which take cognizance of it until it is no longer recognized. If the eye could be held pefectly still, the optic nerve would become perfectly paralyzed by the exhaustion of its sensibility. If we continue the use of any medicinal substance without intermission, the sensibility becomes diminished to such an extent, that doses which would previously have been poisonous may be taken with impunity; but if we then substitute a poison of a different character, a formidable effect is produced, in consequence of the novelty of the impression. In like manner, if any particular opinion or doctrine is presented with unvarying monotony in a public discourse, unrelieved by illustration of any

kind, the hearers become stupefied or drowsy. Thus it appears to be true of our whole sensitive and intellectual apparatus, that uniformity or monotony diminishes its activity, and that change is essential to thought.

Hence the intellectual organs desire a continual succession of new objects, new events, new facts, new principles, new philosophy, new truth of every species—while, on the other hand, their antagonists dislike every new doctrine or developement of truth and every change of surrounding objects. The anti-intellectual organs prefer to remain among accustomed scenes, to meet the same faces, to sustain the same social relations, and to render the monotony of life as perfect as possible. Hence their tendency is essentially *adhesive*, and contributes to maintain the stability of society, opinions, institutions, and modes of life.

The existence of organs antagonistic to the intellectual enables us to exert a controlling power over the latter, restraining their activity and compelling them to confine themselves to a single object of attention, instead of following their natural inclination for variety. Hence they are of material benefit to the student and artist, enabling them to persevere in monotonous labors from which the intellectual faculties recoil. Those who are accustomed to the excitement and mental activity of a stirring life become dull and drowsy when they attempt to confine themselves to reading or writing, in which the perceptive faculties are limited to a narrow range of objects. Their predominant perceptive organs are benumbed by fixation upon a single object, and mental torpor is a necessary consequence. In persons of literary habits, although a similar soporific influence is felt, it is counteracted by the intellectual activity of the organs of Language, Memory, and Reflection, which are continually supplied with new impressions from the language of the author or from their own meditation in the act of writing.

When the subject of our study, labor, or investigation becomes intellectually barren in consequence of our having learned all that is perceptible, the intellectual organs desire a change to escape the benumbing monotony of familiar conceptions. Here the anti-intellectual organs come to our assistance and enable us to endure the monotony which would otherwise be insupportable. Not only in darkness and sleep, but in the monotonous course of daily labor does the unintellectual region find its sphere of action. Its function appears to be to sustain the organic life and muscular action, which proceed independently of consciousness. The anti-intellectual region, therefore, must coöperate directly with those basilar organs which control nutrition, muscular action, digestion, secretion, circulation, etc.

Their connexion with nutrition and digestion is shown in the fact that after a hearty meal we become dull and sleepy, and that during that portion of our life when we grow most rapidly and

digest most vigorously, we also sleep sounder, longer, and more frequently.

Their connexion with muscular action is shown in the fact that we become quiet when we meditate—that profound thought requires some degree of tranquility, and that the intellect is sustained in steady healthy action by the organs of the tranquil region on the parietal bone.

Their connexion with the secretions is illustrated by the fact that the secretions are controlled by the ganglionic or unconscious nerves, and that they go on as well during sleep as during wakefulness.

Their relations to the muscular system we further show in the unconsciousness which occurs during epileptic fits, and in the close connexion of coma and convulsions in morbid states of the brain.

The psychological tendency of the anti-intellectual organs appears to be attraction or adhesion. This coincides with their physiological influence in nutrition and muscularity, the former of which consists of attracting and retaining foreign substances to become parts of our body, and the latter of an attraction or contraction among the particles of muscular substance.

The tendency of the anti-intellectual organs, therefore, would be to the nourishment of whatever portion of the body or brain should have the ascendancy.

If the attractive tendency of the anti-intellectual region operates physiologically, it must of course favor the reception of food by the mouth, its digestion and deposit in the tissues, and the absorption of oxygen and nitrogen by the lungs, but as this attractive tendency would not favor the discharge of carbonic acid, this absorption of oxygen would not animate so much as usual, in consequence of the accumulation of carbonic acid. (Sleep, we know, is the period of growth, but not of excitement or action.)

This tendency to absorption by the lungs corresponds with the fact that the corporeal location of the unintellectual organs is upon the lower posterior portion of the thorax, where occur the most minute ramifications of the air tubes, and in which the absorption of oxygen chiefly occurs.

The position of the unintellectual organs indicates that they excite and sustain all our desires and blind impulses which enslave the judgment. We know accordingly that the bodily organs which this unintellectual region sustains—the digestive, muscular, reproductive and sensitive apparatus—are the sources of our strong desires and ruling passions.

The necessity of the anti-intellectual organs, and the general character of their functions, may be perceived by reference to the extreme effects of the intellectual organs which are counteracted by their antagonists. The unrestrained action of the intellect (especially of Consciousness, its central organ) produces excessive wakefulness. This exhausts and destroys the vital powers,

bringing on premature old age and death, if it should not develope Disease or Insanity. The brain is an anti-vital organ, and its excessive action, produced by the intellectual organs, under which we cannot sleep, exhausts the whole vital force. The exercise of Consciousness and Reflection is accompanied by Sensibility and Relaxation; hence purely intellectual action soon becomes morbific, as it excites the regions of the brain adjacent to the organ of Disease, and at the same time maintains too much activity of the brain at the expense of the body. These excesses or evils are necessarily counteracted by the anti-intellectual group, which sustains its immediate neighbors in action, and thus cools, tranquilizes, hardens, and invigorates the constitution. Thus the generation of heat and waste of the tissues are diminished, the excretions are less active, the nervous excitement and restlessness subside, the muscular system recovers tone, the healthy stamina of the constitution is restored.

The position of the unintellectual region—on the one side, Hardihood, Health, Energy, Playfulness, Restraint, Sanity, Coldness; on the other, practical working Energy or Coarseness, Combativeness, Secretiveness, Acquisitiveness, Destructiveness and Vitality—shows that it is designed to give support to the whole constitution, and although during its extreme action its neighboring organs are paralyzed (in sleep) its general tendency is in some respects such as would be expressed by their character in combination.

Hence the great importance of sleep to those engaged in intellectual pursuits and to those whose minds are disordered. Those engaged in physical labor do not have so much concentrated action of the front lobe, and hence do not require so much of its antagonist to restore them.

Occasionally we see persons in whom the unintellectual region is moderate and who do not require much sleep or suffer much from its loss. In such cases, the vital power is greater, and the energies are competent to resist the drain upon them which is made by the intellectual organs. Those whose pursuits require them to lose much sleep should have a large developement of the superior and inferior occipital organs, to give the requisite tone and endurance to the constitution.

The mental characteristics of the unintellectual region may be gathered from its position. Starting from cold insensibility and rigid restraint, it connects with organs of a stirring, practical, muscular activity, with stubborn Combativeness, Secretiveness, Acquisitiveness, Selfishness, and Violence; it may therefore be regarded as a steady, collected, and general impulse—an earnestness to attain and retain its objects—giving a feeling of interest and eagerness which under stronger excitement would become a blind and powerful impulse or desire.

To these effects the intellectual organs are opposed, they fee

no anxiety or eagerness for anything, and having no selfish aims or objects.

The unintellectual adhesive region gives a healthy concentration and limitation to our feelings—maintaining our active and exclusive interest in the things about us, connected with ourselves, our friends, and our families. Within this circle the feelings may be intense, but as all beyond is excluded, there is less waste and exhaustion, and our moral force is not dissipated and lost.

The unintellectual region, therefore, coöperates strongly with the Love of Home and with all the various contracted and clannish feelings. It is the source of the common aversion to intellectual progress, and in conjunction with Combativeness and Arrogance produces the most intolerant bigotry.

We find one of its impulses (when acting normally, not excessively) to be Adhesiveness or attachment. This is entirely different from Friendship and Love, being merely a gregarious or adhesive impulse as applied to persons, which is decidedly selfish in its tendency. It gives a blind partiality, which makes us go with our friends and our party right or wrong, and renders us incapable of candid, dispassionate investigation of their merits. This party spirit or clannishness comes very appropriately from the neighborhood of Stubbornness, Secretiveness, Selfishness, and Acquisitiveness, for it gives a feeling towards our friends much more akin to the sense of property than to benevolence.

This Adhesiveness desires to attract, possess, and control all with whom we come into contact—to attract, notice, to be remembered, to be sought and visited, to enjoy a local notoriety, and live in the eye of the public, and to be the special object of interest and attention in company. Hence it produces in the adhesive person apparent cordiality of manners, frequent invitations to visit him, a great horror of being forgotten or neglected by fashionable society. He is prolific in suggesting little presents, mementoes, and unnecessary acts of civility—begs to receive letters, and writes many which contain nothing but idle gossip, personalities, and professions. He shuns all philosophic or elevated subjects of thought, but is very fond of local news, of which he has enough to entertain company ; and sometimes he rises to the dignity of admiring paintings, or taking delight in natural scenery, and even the less philosophical portions of natural science. He is a great sight-seer, and never realizes any new truth until it is brought to his own neighborhood and placed in a visible shape. His *beau ideal* of the pursuit of knowledge is to travel and see illustrious persons and remarkable places, though he understands them less after his return than an intellectual man who has remained at home. He is the invariable opponent of men of profound intellects (because he cannot comprehend them) until they have attained success, when he is very desirous of securing their notice and getting into their society. He praises

men of established reputation, runs with the multitude after the lion of the hour, and enlists among the followers of distinguished men of past times, for whose opinions or influence he fights resolutely against more enlightened men of the present day whom he will not comprehend, and believes that they aim at the subversion of every thing that is true.

In his religious and philosophical faith he is irresistibly attracted to the largest multitude, the most ancient association, the most wealthy and powerful organization. In religion he is a sectarian, blindly devoted to the enlargement or defence of his sect, deprecating the discussion of principles as fanaticism, but scrupulously careful of appearances, forms, and ceremonies. In politics he seeks to be with the majority, and takes great delight in mingling with the people or electioneering to secure his objects. He adheres strictly to party discipline without regard to abstract principles, and regards as eccentric, crazy, and unbalanced characters all who follow principle, and separate from parties when they go wrong. In professional life, he follows closely the dicta of colleges and societies, and looks with decided hostility upon all who deviate from orthodoxy in medicine, religion, or philosophy. In science he has great veneration for collections of shells and stones, for naturalists and mathematicians, linguists, musicians, and artists. Men of mere physical research and learning he considers preëminently great. Philosophy he ignores, and the highest departments of science he considers non-entities. Even when he has been astonished out of his infidelity by seeing demonstrations of a satisfactory character, he feels no interest and makes no farther progress in the philosophical direction. How very abundant are these adhesive characters in all classes of society! What a mob do they form around public celebrities, and how generally do they rule in public gatherings! How fully does this anti-intellectual influence explain the madness of armies and mobs, the blind and fierce bigotry of sects, the partizan strife and absurdities of legislative bodies, and the entire frivolity and silliness which characterize fashionable social assemblies!

As an important practical deduction from the philosophy of the adhesive region, we may infer that the progress of truth will be greatly facilitated by the dissolution of parties and sects, which are of no utility except for the accomplishment of important objects by coöperative strength. The friends of human improvement should beware of appealing to party spirit or strengthening party ties.

In the upper portion of the animal region we find above Adhesiveness the region of Approbativeness—a region antagonistic apparently to the perceptive organs. The latter extend our knowledge throughout nature to a vast distance from self, and consequently diminish the importance of self, as in the sphere of our attention self becomes entirely minute and trivial, in com-

parison with the immensity of Nature. The perceptive organs, therefore, necessarily teach humility, modesty, and reverence in the most effectual manner, by fixing those sentiments in the mind as truths, and removing entirely the foundation of vanity. On the other hand, the antagonist of the perceptives, rendering us unconscious of the existence, the grandeur and importance of what is around us—confining our knowledge to the narrow sphere of our personal consciousness and the adjacent objects which we can control, gives us false ideas of our relative importance in the world, and induces us to pass by, with supercilious contempt, exterior objects which we neither understand nor consider worthy of notice. While Approbativeness thus renders us unconscious of that which should teach us humility, and fosters a false self-importance or vanity, its physical influence also is opposite to that of the intellectual organs, and imparts a self-possessed energy, similar to that of the neighboring organs of Health, Energy, Hardihood, and Restraint.

On the lateral region of the occiput, above and behind the ear, we find the region of the unintellectual organs or faculties. Their developement produces breadth, roundness, and fullness of this region. Their deficiency leaves it flat and narrow. The necessity for the existence of such organs arises from the fact that every organ requires a counterpoise to restrain its excessive action and to give it repose. The intellect must be arrested four, six, or eight hours daily to give us repose or sleep, and it is by means of these organs that this is accomplished. They enable us to sleep, to enjoy a life of intellectual monotony, and to continue by force of habit that which has been transmitted by our ancestry without enquiring into its propriety or truth. They enable us to act without reference to consequences, without any definite consciousness of what we are doing, and without recollecting afterward what we have done. Hence all violent exertion against difficulties is accompanied by blind, absent-minded impulse; for Energy and Combativeness lie above and below the region of Animality—hence they excite it and arrest the intellectual action. When struggling with our utmost force against our enemies we become blind to the consequences—we disregard death or defeat and rush upon our certain ruin. The position of these organs and their connexion with others show what faculties (beside Animality) are apt to mislead us and to hinder the proper exercise of intellect or narrow the mind. These are the neighboring organs, Coldness Restraint, Hardihood, Coarseness, Infidelity, Stubbornness, Moroseness, Secretiveness, Selfishness, Avarice. These organs deaden the intellect, and although they do not prevent cerebral action or deprive the brain of blood, they promote the impulses and check the intellect.

The power of concentrating and controlling the mind requires that we should be able to check the intellectual activity and to

dismiss the trains of thought which are called up by association. The multitudinous ideas which arise to an active mind would soon create so vast and diversified an amount of thought as to render any special investigation or examination of one subject entirely impracticable. Study or investigation, therefore, requires the power of dismissing these trains of thought, and this power of regulating intellectual action, so as to direct it to some practical result, is greatly assisted by the anti-intellectual organs. Hence the organs which enable us to play the student or observer are situated near the region of Animality, viz.: Vigilance, which makes an observer, Application at the posterior part of Industry, which enables us to confine the mind to our vocations, and the power of Concentration which (lying in the region of Sanity and Tranquility) enables us to keep the mind with quietness and in a sound, clear manner, fixed upon our subject of thought.

Experiments upon the Ignorant region, when fully carried out, produce mainly negative results.

Sleep is its most decisive manifestation—which is produced by the anterior portion of this region—the special antagonist of Consciousness. We find in the lower portion various species of stupidity—in the middle various states of childish and senile Imbecility, and in the upper portion various forms of mental confusion and insensibility when excited to excess. Coma, stupor, prolonged sleep, convulsions, etc., may perhaps be regarded as excessive manifestation of this region, for it has in its posterior part a decided tendency to muscular action, and may perhaps be regarded as the source of our unconscious movements. Additional investigation of this region is requisite.

The region of Imbecility which antagonizes Memory, presents in its posterior portion the Imbecility of childhood, and in the anterior portion the Imbecility of old age. Thus from the region of Coarseness or Barbarism to the organ Sleep or unconsciousness extends a range of organs singularly corresponding in their character to the whole range of human life from birth to death, death being represented by Sleep.

The ignorant being the antagonist of the intellectual region, it follows that when it is small the latter will be more active and powerful and will more decidedly control the character. Hence those in whom Animality is small, will manifest *ceteris paribus* greater activity and power in their intellectual organs, while large intellectual developement controlled by the occiput will fail to produce profound or philosophic thoughts, and be restricted to more familiar and practical subjects.

We may delineate as follows the antagonistic tendencies of the frontal and the occipito-lateral organs:

Wisdom, knowledge, and profundity of thought.	Ignorance, shallowness, and unwillingness to reason.
Impartiality, truthfulness, and meditation.	Eagerness, prejudice, and blind impulse.
Sensibility, excitability, and debility.	Stubborn, hardy energy, and ambition.
Love of new impressions, new truths, and changes.	Love of old impressions, aversion to change.
Clearness, accuracy, system.	Confusion, absurdity, passionate, and convulsive impulse.
Genius, originality, eccentricity.	Dogmatism, conservatism, habit. monotony, devotion to fashion.
Precocity, maturity, old age, exhaustion.	Stupidity, animality, muscular vitality.

LECT. XXXIV.—VIOLENT OR CRIMINAL REGION.

The organs of the occipital base of the brain being antagonistic to the virtuous organs of the superior surface, may be considered as ultimately criminal in their tendency, as they all tend either to acts of crime or to those things which sustain and foster crime.

The organ of Cunning or Baseness, the developement of which is indicated by the breadth at the cavity of the ear, produces, when predominant, a cunning, treacherous, dishonest, and infamous character—who prefers indirect, secret, and cowardly methods—who is very plausible, but destitute of truth, fidelity, stability, or any kind of honesty—who is capable of any meanness, but who is incapable of any kind of honorable conduct under temptation. In his pecuniary transactions, his friendships and domestic ties, he is faithless and despicable—in his revenge he would be an assassin or a poisoner. In manner he is smooth, cringing, feeble, and melancholy.

The organs posterior to Baseness produce greater strength of character, and a more respectable class of crimes. They are more violent and wicked as we descend; hence if we should draw a horizontal line from the upper edge of the meatus auditorius (cavity of the ear) around the occiput, this line would divide the criminal region into two portions—the upper of which (contained between the line just drawn and another drawn from the top of the external ear) might be considered of the same grade of character and violence as Combativeness, and the lower as of that grade which we have associated with the term Destructiveness.

In the upper half we have Irritability, Profligacy or Moral Recklessness, Secretiveness, Combativeness, Infidelity, and Arrogance, with Acquisitiveness and Selfishness in its anterior portion, near the top of the ear. In the lower portion we have Destructiveness or Felony, Desperation, Hatred, and Turbulence.

Irritability (the antagonist of Patience), immediately over the meatus auditorius, produces a state of irritation or annoyance, and in conjunction with the organs below and behind it, produces a very bad temper—alone it produces a very petulant, uneasy, impatient, dissatisfied, excitable, and troublesome disposition. Such a disposition finds annoyance everywhere, and is quite troublesome or provoking to those who are brought into contact with the individual. The other organs will determine the principal objects or causes of this irritability.

Profligacy or Recklessness, just posterior to Irritability, is the antagonist of Religion. It is the source of a general moral recklessness and disregard of right. Religion tends to guide our conduct by pure intelligence and virtue, based upon the loftiest views of Humanity and Divinity. Profligacy leads us to scorn all elevated, noble thoughts, and follow blindly every impulse of passion or desire—hence it produces dissipation, gambling, licentiousness, intemperance, etc., as its direct effect, and brings on quarrels, jealousies, frauds, falsehoods, robberies, and homicides. The action of one criminal organ necessarily induces more or less action of its neighbors—as for instance, Combativeness Acquisitiveness, or Irritability may induce one to lie, in whom the lying propensity is moderate, and who, aside from such excitement, is entirely truthful. Cursing and swearing, gambling, rowdyism, intoxication, licentiousness, obscenity, dissipation, etc., are among the effects of Profligacy. The special organ of Gambling, which I have demonstrated in this region, produces a love of rash, hazardous courses in the pursuit of wealth, which, if not displayed in what is commonly called gambling, displays itself in the hazardous career of commercial speculation. The gambling propensity may be recognized by the developement at the upper part of the mastoid process.

Acquisitiveness, the organ of the love of getting and keeping, extends along the top of the ear, being located farther back than Phrenologists have heretofore supposed. Its anterior portion is conservative, producing carefulness of property and frugality; its posterior portion leads to traffic, and the most posterior produces avarice.

Selfishness (the antagonist of Benevolence) extends below and behind Acquisitiveness. It produces a selfish regard for our own interests and disregard of others, accompanied by the most repulsive manners, unless controlled by its antagonists. Of these the higher intellectual organs destroy its offensiveness by teaching us that our self-interest is identified with the general interest of

humanity. The neighboring organ of Secretiveness seems to be provided by nature to conceal our selfish feelings.

Selfishness usually makes us reserved, covetous, and suspicious; but if Secretiveness and Acquisitiveness are small, it may be shown in seeking the gratification of Ambition or of appetite.

Secretiveness, the antagonist of Truthfulness, is an aggregate of Jealousy (the antagonist of Faith), Deceit (the antagonist of Candor or Sincerity), and the morose propensity to Reserve or concealment, which is the antagonist of Expression. These elements naturally connect with Combativeness, the hostile impulse. Hostility necessarily makes us reserved and jealous, as friendliness makes us communicative and confiding. Contention or self-interest usually diminishes our candor, as we observe in political strife and affairs of traffic or litigation. A secretive tendency is found in the middle of Cautiousness, but does not require a special notice. It is higher in its character and less morose and deceitful. The inferior portion of Secretiveness or Jealousy (antagonistic to Faith) is the natural associate of Combativeness and Selfishness. Thus selfish and vicious people are punished by their incapacity to recognize anything good in others.

Combativeness, the propensity to contend, resist, or overcome difficulties, renders us stern, insolent—harsh and repulsive in manners. It extends from Secretiveness to within an inch and a half or two inches of the median line. It is the antagonist of the entire region of Sociability, and violent opposition is its aggregate tendency. The upper portion is less vehement, and has a stern, stubborn, morose, gloomy character. This is the real source of obstinacy. The stubborn portion is that which antagonizes Pliability—the gloomy portion is the antagonist of Mirthfulness. The lower portion of Combativeness is the source of more vehement or violent conduct, and is shown in society by quarrelling or fighting, and by those acts which tend to produce quarrels or fights. This portion connects with Felony, Desperation and Hatred. The middle portion produces active but less violent opposition. It is manifested in debate, in sarcasm, slander, litigation, party-spirit, and every species of strife. This portion being the special antagonist of Imitation and Admiration, produces opposition or contention, and Censoriousness, the abusive propensity.

Infidelity (commonly but incorrectly called Skepticism) lies between the combative, stupid, and domineering organs. Its tendency is to deny everything new, wonderful, profound, spiritual, or extraordinary, without reason, and to treat with stupid stubbornness, ridicule, and denunciation, or violence, every attempt to penetrate the wonders of Nature or the depths of philosophy. Its tendency is unjust and slanderous towards individuals as well as that of Combativeness—but is even more adverse to human improvement and the general elevation of society, as it is hostile to important truths. The term Infidelity is popularly applied to

a disbelief in the national system of religion—whether Mohammedan or Christian : but this application of the term is incorrect, for Infidelity is a trait of character—a lack of faith—a disposition to disbelieve and deny ; but the disbelief of any prevalent system of religion, whether Christian, Mohammedan, or Pagan, may be owing, not to Infidelity or lack of faith, but to the fact that the faith which is abundant attaches itself to some other doctrine. Thus among the Mohammedans the man whom they call an infidel is a believer in christianity—among christians he may be a believer in some form of transcendental philosophy or some marvelous theory of the universe.

The true Infidel, or man void of faith, discards everything new, wonderful, and spiritual, limits himself to the ideas of his five senses, and to a rigid materialism, and believing every man to have his price—regarding human virtue as a fable—looks upon all the movements of society as fraught with humbug and knavery. The greater portion of dishonest, selfish, arrogant, domineering people have a liberal share of Infidelity. Those who are lacking in sincerity are not disposed to trust in the truthfulness of others. Those who are lacking in originality and expansiveness of thought cannot readily receive new and strange truths. Hence, notwithstanding the gullibility produced by ignorance, there is at all times a great deal of Infidelity in society. A lack of faith in humanity is produced by the organ of Jealousy—a lack of faith in the highest material and spiritual truths is produced by a narrow and dogmatic Infidelity. There is a certain degree of odium justly attached to the term Infidelity, for it is one of the unjust, illiberal, harsh, domineering traits of character. It is frequently found among those who consider themselves entirely free from any such tendency, and is at the present time one of the most prevalent vices of society. Skepticism, as the word etymologically implies, is merely a careful observation and scrutiny, such as would be prompted by the organ of Cautiousness, and does not lead, like Infidelity, to dogmatic denials, bigotry, and intolerance.

In all races and creeds, religious oppressors and persecutors are generally infidels. They adhere to the religion or superstition of their ancestors in consequence of Adhesiveness and ignorance ; but they refuse to believe any improvement in their superstition, or to tolerate any new and wonderful revelations in positive science, unless assured that the new truths cannot possibly disturb the old errors which they cherish.

The region of Arrogance and Tyranny, just above the occipital knob, produces an assuming and dogmatic manner, and disposition to domineer over everything around us—treating our superiors with insolence, our equals with contempt, and our inferiors or dependants with severity. It is apt, like the selfish, secretive, combative region, to produce an unpopular character

—one who speaks contemptuously of others and of society in general. The lower portion of this region is tyrannical and severe. The upper portion is more disposed to be mild with inferiors.

Below this we find the region of Hatred, which, near the median line, is manifested in the form of cruelty. This is a violent impulse, which produces a very harsh and misanthropic character. The manners and appearance are gloomy and repulsive. The intellect is contracted and chiefly perceptive, the mind has but little of imagination and the social graces. The man is malignant, revengeful, gloomy, treacherous, misanthropic, and incapable of friendship and social or domestic happiness. He mars the happiness of all connected with him. He is restless, quarrelsome, and fierce, but shrinks from exposing his life, and gratifies his revenge in a dishonorable manner if an opportunity is afforded. The slighter manifestations of this organ are seen in our antipathies and prejudices. The normal influence of Hatred is shown in our opposition to evil and aversion to evil or degrading associates. It disqualifies us for associating with enemies or those whom we scorn.

Disgust, which belongs to this region, is located on each side of Amativeness.

Desperation, the antagonist of Hope, produces a fierce, gloomy, restless, miserable character—one who might rightly be called a wretch, or a desperado. It invigorates the vital powers, but diminishes the mental clearness and foresight. The stimulus, however, which it imparts to the vital forces, when predominant, is not of the kind to give a healthy, equable, and pleasant action, being too exciting and harsh.

The region of Destructiveness or Felony, upon the mastoid process, is the region whence originate those high crimes which profligate, base, and desperate men commit, such as robbery, piracy, arson, murder, etc. The region of Murder is nearly at the lower end of the mastoid process. The ordinary manifestation of the felonious region corresponds very nearly to what Phrenologists have heretofore described as Destructiveness.

Turbulence, below Desperation, Cunning, and Hatred, is the antagonist of Patriotism (including the Love of Home) and Tranquility. This organ connects anteriorly with Insanity, by the intermedium of rage or frenzy ; below it presents a restless, vagrant, or wandering disposition, the antagonist of Love of Home and Tranquility—thus producing a degraded, vagabond character—and below Insanity it connects with Rashness and Carelessness. Posteriorly in connects with the most degrading tendencies, ending in mere brutality, located low on the back of the neck.

LECT. XXXV.—REGION OF FEEBLENESS AND DISEASE.

The organs of the anterior half of the head are generally void of energy and impulse. They direct, check, and control the powers generated by the occipital half of the head, but they do not of themselves produce any decided force of character. Those which occupy the middle lobe, and are manifested in the temples and face, may be designated as the region of Debility and Disease, antagonistic to that of Power, Energy, and Health. They make a languid, inefficient, morbid, sensitive temperament, and, in their full display, destroy the powers of both mind and body, as they stimulate functions of an exhaustive character—giving the wasteful a predominance over the appropriative functions which sustain life. Servility, Fear, Sensibility, Disease, Relaxation, Melancholy or Sullenness, Mental Derangement, Carelessness, the Abdominal organs and Conductor organs constitute the principal divisions of this region.

The organ of Sensibility is as well entitled to rank in the intellectual as in the feeble department, and has been described in Lect. XX. Modesty and Reverence have equal claims to the regions of Virtue and of Feebleness and should be divided, assigning the lower portion to the latter, under the title of Servility.

Somnolence has some claims to the intellectual character, particularly in its anterior or dreaming portion. The Conductor organs also approximate the intellectual, and may be divided between the Intellectual and Feeble departments. The antagonist of Cautiousness might, in its posterior portion (Rashness), present some claims to a place in the violent or criminal department.

In the lower part of the temples the region of Servility destroys the proper manly self-respect, and produces a very servile dependent feeling, which connects with the cowardice resulting from Fear, and renders us fit for inferior stations or for slavery, and averse to any higher position. The connexion of this region with Impressibility explains the remarkable influence which those in high rank exert over the sentiments and habits of the community.

Fear, the antagonist region of Firmness, produces great excitability, timidity, and feebleness of character. The lower portion makes an irresolute, dejected, fretful, complaining disposition, void of Fortitude (sometimes displaying hypochondria)—the upper portion connecting with Cautiousness produces an *anxious indecisive* mind. The middle and upper portions produce the feeling of alarm or terror. A point just above the centre of Fear may be considered the centre of excitability. The general excitability of the character and temperament may be judged by

the breadth just in front of the upper margin of the ear. Above and before this locality, the excitement is rather emotional and moral; below and behind it the excitability belongs to the violent passions the organ being called Irritability.

The organ of Disease or Morbidity, which tends to produce a sensitive, sickly constitution, is indicated by breadth and prominence at the cheek bones. If it is predominant, the ordinary incidents of life will be sufficient to produce severe disease—if defective, the constitution will have great power of resisting morbific impressions, and we will be incapable of any very intense form of disease.

The Abdominal Organs preside over the functions of the alimentary canal, etc. They contribute, therefore, nothing to our energies. They extend from the cheek bone near the ear, along the lower jaw to within nearly two inches of the chin. The organ of Alimentiveness in front of the cavity of the ear, near the glenoid cavity which receives the jaw bone, presents the subdivisions of Thirst, Hunger, and Love of Stimulus, the sources of gluttony and drunkenness, which are the true manifestations of this organ when excited to entire predominance. The drunkard, therefore, is indicated by the posterior portion of the organ nearer to the ear, just in front of the meatus or cavity. The position of this organ indicates the destructive and debasing effect of giving predominance to our appetites, as their organs are connected with Baseness behind and with Disease in front, thereby indicating the destruction of the constitution and of the moral character. The Love of Stimulus is not confined to alcohol, but seeks condiments, tobacco, opium, and other stimulants. As Hunger produces a depression which is only relieved by food—the Love of Stimulus produces a depression which is relieved by powerful stimuli, which it enables us to bear without being excessively affected. In proportion to the developement of the Love of Stimulus is the danger of acquiring an intemperate thirst for alcoholic stimulants unless it should be controlled by an adequate developement of the regions of Temperance, Restraint and Firmness.

Between Disease and Hunger, we find the sense of Fatigue, just below the sense of Pain. This Fatigue connects below with Indolence, and that with general Relaxation, located between the cheek bone and lower part of the ear. The upper posterior part of Relaxation manifests that peculiar form of relaxation and excitement which is produced by alcoholic drinks, and may be called Intoxication. By means of this organ an impressible person may be made to stagger, and to manifest the effects usually produced by alcoholic drinks.

Relaxation, the antagonist of Energy, produces a disposition to resign all active occupations, and a physical as well as mental disability to make exertion—hence it is the organ by means of which we diminish or destroy the muscular strength of the oppo-

site side of the body or (by operating on both sides) of the whole body. The predominance of Relaxation over Energy destroys the efficiency of character.

Indolence, the antagonist of Industry, produces a sluggish inactivity of body and mind. It is by no means a mere absence of impulse, but is as positive and decided a state as industry itself.

Melancholy or Sullenness, which we find at the lower angle of the jaw, is the antagonist of Playfulness. It produces a very gloomy character, void of energy, application and interest in life; its tendency is suicidal—Suicide being produced by its posterior part, just behind the jaw near the end of the mastoid process.

Below Melancholy we find Mental Derangement, lying below the jaw and upon the carotid artery and jugular vein, the developement of which is shown by the depth of the lower jaw and breadth or fullness of the adjacent part of the neck. Its posterior portion is more intense or exciting, and manifests the more violent forms of Insanity; anteriorly it degenerates to Idiocy and Childishness. These indications are quite useful in application to character. A broad, deep developement of the region of Insanity indicates, especially if Sanity be small, a tendency to become deranged, which will be manifested by delirium in every high fever, and perhaps under the influence of strong drink or of passion. The anterior part of the organ being developed, the same causes would produce fatuity. The most extreme anterior portion under the chin (above the Adam's apple of the wind pipe) produces a state of torpor or mental lethargy similar to sleep. Childishness, the antagonist of Manliness, may be excited, even in the adult, to the extent of completely reproducing the boyish character.

The region of Hysterical excitement is between the organs of Ardor and Torpor under the chin.

The region of Idiocy and Insanity connects below with Carelessness and Rashness which are indicated by the prominence and breadth of the anterior part of the neck.

The region of cerebral derangement extends on the median line under the base of the cranium, and reappears on the back of the neck a little below the cranium. This locality is highly important for counter-irritation, cupping, etc., in head-ache and cerebral disorders.

Carelessness, adjacent to Idiocy, and Rashness, a little farther back, connecting with Anger and Turbulence are the antagonists of Cautiousness. Reckless waste, destruction, folly, and dissipation, and crimes of hasty impulse or negligence are their tendency. Cautious, prudent, economical men of well governed passions seldom have a large developement of the anterior part of the neck.

The tendency of the Conductor Organs to excessive manifestation or action, and the general nervous excitability or activity which they produce, entitle them to a place in the region of Debility as they thus tend to exhaust the vital force.

LECT. XXXVI.—NEUTRAL REGIONS.

Whatever mode of grouping the cerebral organs may be adopted, the dividing lines are somewhat arbitrary, as there appears to be but little difference between the functions of the adjacent fibres which are separated by the line.

When the brain is divided into two regions of Good and Evil, the dividing line runs through a group of organs of neutral character, not tending decidedly either to moral good or to moral evil, such as Sensibility, Humility, the lower portion of Cautiousness, Restraint, etc.

When we would separate the regions of Intelligence, Virtue, and Power from those of Animality, Crime, and Debility, there are several intermediate organs which appear to belong naturally to two or more of those divisions rather than to one alone.

Thus Modesty and Reverence, while closely connected with the strictly moral organs, assume in their lower portion a depressing humility, running into the region of Sensibility and Debility, and antagonistic to the power and energy of the Ambitious region

Sublimity and Cautiousness have a highly moral character, but are located farther back, and connected therefore with the occipital energetic organs. They excite and energize the whole brain, but especially the occipital, intellectual and coronal organs.

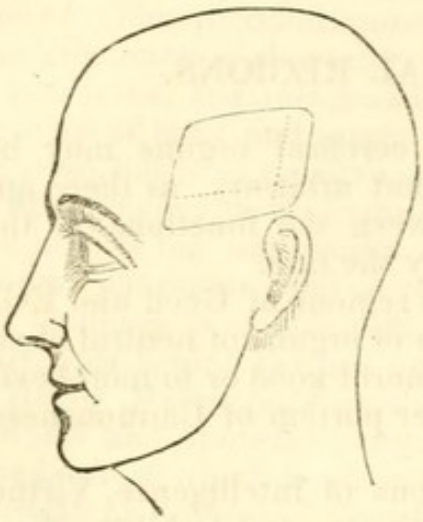
Coldness lies between the regions of Power, Animality, Crime, and the neutral organs; consequently its manifestations are calculated to sustain our selfish energies, but have a somewhat negative and unintellectual character; as it can not be very clearly assigned to either of the six great regions, it may appropriately be classed among the neutral organs.

The neutral region, therefore, may be defined as the space occupied by Modesty, Reverence, Sublimity, Cautiousness, and Coldness—a region which, if subjected to partition, might be annexed to the neighboring departments as follows: the upper portion of Modesty, Reverence, and Sublimity may be annexed to the moral organs, as the region of the minor virtues. The lowest portion of the same organs and the lower margin of Cautiousness may be annexed to the region of Debility. The upper portion of Cautiousness * and Coldness may be annexed to the region of Energy—while the lowest portion of Coldness may be annexed to the region of Crime. To describe the organs of this region—

Modesty is the sentiment which produces a refined aversion to everything indelicate, presumptuous, or arrogant, and which leads us to surrender rather than to assert our rights, and to seek a

* The upper portion of Caution belongs about equally to the moral and the energetic regions.

situation of privacy or retirement, shunning the public gaze and everything of a discordant nature It is the antagonist of Ambition and Vanity. Modesty is the source of blushing and bashfulness as well as a refined deference to the feelings and wishes of others. The lower portion of the organ blends with the mental sensitiveness which connects with Sensibility. Anteriorly its manifestations run into those of Purity—superiorly into effeminacy. The organ of Purity, intermediate between Ideality and Modesty, may be connected with the former as the antagonist of Coarseness, but properly belongs to the neutral region. This organ is the source of the sentiment which seeks the pure and shuns grossness or impurity. It is shocked by exhibitions of obscenity or vulgarity and gives the feeling of horror for gross and revolting offences. It is generally much more cultivated in the female than the male. The manifestations of Purity are sometimes confounded with those of its basilar counterfeits, *Fastidiousness* and *Disgust*, which lead to an affectation of refinement, a prudery of manners and language which are essentially vulgar, and a tenacious maintenance of puritanic restraints as well as a fierce denunciation of the trivial errors of generous, impulsive and amiable characters.



Reverence, in its upper portion, manifests a high and affectionate regard for the best and noblest characters, as well as for the institutions and opinions of society. Its middle and lower portions produce a respect for things less noble—for rank, power, and wealth—a disposition to honor the powerful rather than the meritorious. Its lowest portion produces an abject sense of our own inferiority and unworthiness in comparison with others, and manifests itself as Humility and Servility. Reverence is essential to the dignity and good order of society. The respect of man for man, the submission to law or authority, and the surrender of our arrogant, domineering propensities, depend upon Reverence. It contributes much to sustain the activity of the brain, especially in the moral organs. The upper portion of Reverence coöperates with Religion ; the lower portion produces an obsequious worldly character, and gives an abject superstitious sentiment which is often mistaken for religion.

Sublimity is the source of an elevated excitement, producing a magnanimous character and a lofty tone of thought. In conjunction with Reverence it coöperates with the organ of Religion in its upper portion. The lower portion of Sublimity produces a more intense and exhilerating excitement, such as we derive from

the grand and terrible operations of nature. It is connected posteriorly with Anxiety and Fear—anteriorly with the lower forms of Reverence. The lofty mental influence of Sublimity, like that of its coöperative organ Religion, is highly favorable to inspiration or the influx of ideas from the highest spiritual sources. Sublimity, however, is actually promotive of *atmospheric* inspiration, and gives a very free, pleasant respiratory influence to the lungs. It is marked upon the physiological diagram as the pulmonary region. In accordance with this fact, we know that in elevated situations, which excite Sublimity, there is a greater freedom and pleasantness of respiration The upper portion of Sublimity has a very calm, contemplative influence, and blends with the organ of Tranquility. The upper portion also originates a feeling of lightness, and a portion is marked as the organ of Levity or lightness. This is a feeling which suggests the idea of soaring, which makes us disregard the influence of gravity, and which produces lightness of carriage as exhibited in dancing and other light graceful movements.

The function of Tranquility is expressed by its name—it is the antagonist of the region of Restlessness and Turbulence. It produces physical and mental quietness and coöperates with Patience.

The organ of Cautiousness in its upper portion connects with Tranquility and Sanity. Its tendency is to be calmly prudent in all things. Lower down it becomes more excitable, apprehensive, easily alarmed, anxious and indecisive, running into Fear. The region of Anxiety produces a depressing, disagreeable influence, tending to bring on debility, exhaustion, and premature old age. A secretive tendency exists in the middle of Cautiousness, but this is merely a cautious impulse to seek safety, distinct from the stern, jealous, and deceptive functions of the organ of Secretiveness.

Coldness, the antagonist of Ardor, diminishes our spontaneous activity and copiousness of manifestation. Its effect is therefore sedative to the brain, although it may be favorable to the contractility of the muscular system, and therefore has a somewhat tonic or invigorating character. It coöperates with Pride and the group of selfish hostile organs, all of which produce coolness or coldness of manners and sentiment. Ardor or warmth (according to the established usages of language) is connected with kindly emotions, such as friendship and love, or with zeal, resolution, and passion, while coldness is associated with selfishness, indifference, and self-possessed quietness. These things are explained by the relative positions and connections of the organs of Ardor and Coldness. Coldness coöperates with its neighbors, Acquisitiveness, Cautiousness, Animality, and Restraint, thus increasing the stiffness and repulsive selfishness of the manners.

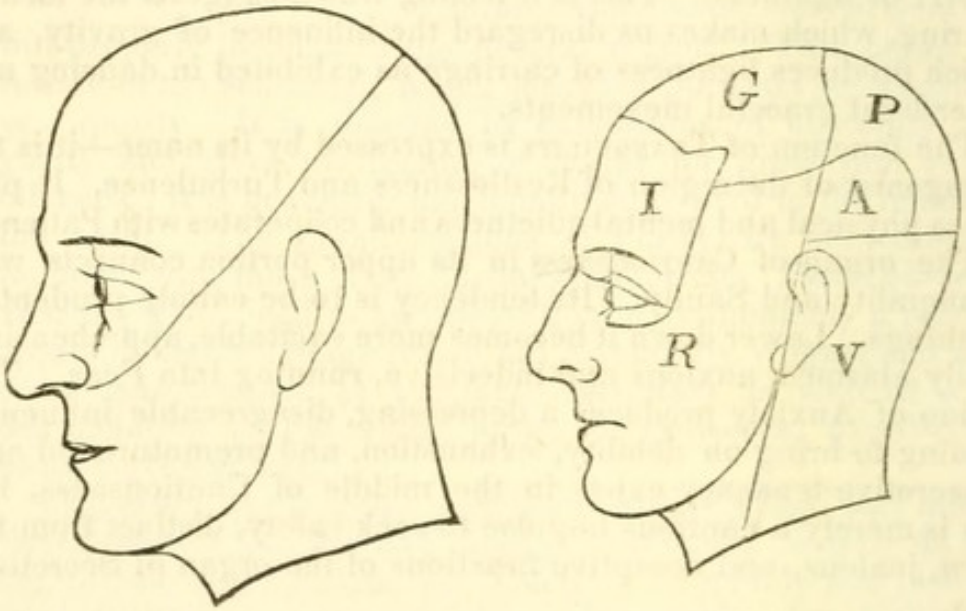
Physiologically, Coldness tranquilizes nervous sensibility and excitement, but in excess it tends to produce a chill or rigor, in

which it coöperates with fear. Its tendency is anti-inflammatory but congestive.

In addition to these five organs, the organ of Restraint, although classed with the energetic group, might with almost equal propriety be assigned to the neutral region.

LECT. XXXVII.—ANTAGONISM OF ORGANS.

The brain may be divided into two great antagonistic regions of good and evil tendency by a dividing line extending from the face to the crown, thus



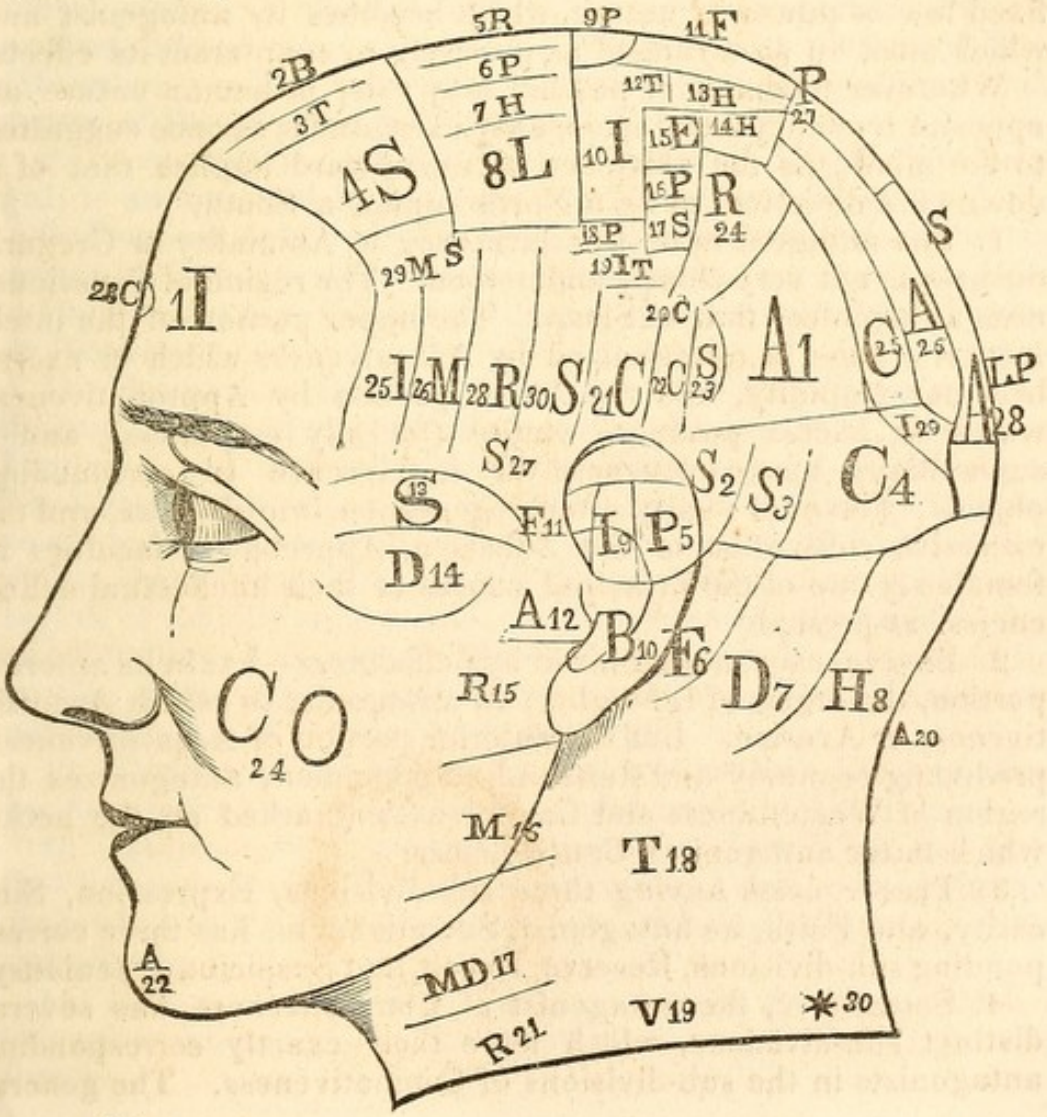
or into the antagonistic regions

Intellect. - - -	Animality.
Goodness. - - -	Crime, or Violence.
Power. - - -	Feebleness or Relaxation.

The antagonisms of special organs may be arranged as follows:

1. Intellect - - - - -	Animality or Gregariousness.
2. Benevolence - - -	Selfishness.
3. Truthfulness - - -	Secretiveness.
4. Sociability - - -	Combativeness.
5. Religion - - - -	Profligacy.
6. Philanthropy - - -	Felony or Destructiveness.
7. Hope - - - - -	Desperation.
8. Love - - - - -	Hatred.
9. Patience - - - -	Irritability.
10. Integrity - - - -	Baseness or Cunning.
11. Firmness - - - -	Fear.
12. Temperance - - -	Alimentiveness.

13. Hardihood- - - - Sensibility.
14. Health - - - - - Disease.
15. Energy - - - - - Relaxation.
16. Playfulness - - - Melancholy.
17. Sanity - - - - - Mental Derangement.
18. Patriotism - - - - Turbulence.
19. Inhabitiveness, Tranquility - Vagrancy, Restlessness.
20. Chastity - - - - Amativeness.
21. Cautiousness - - - Recklessness.
22. Coldness - - - - Ardor.
23. Sleep - - - - Consciousness.
24. Restraint - - - Conductor Organs.
25. Coarseness - - . Ideality.
26. Ambition - - - Modesty.
27. Pride - - - - Servility.
28. {Self-confidence, Love of Power, Arrogance} Reverence.
29. Infidelity, - - - Marvelousness, Spirituality.
30. Sublimity - - - *



The doctrine of antagonism is a simple and almost self-evident truth, the recognition of which at once simplifies most remarkably cerebral science.

Every movement or act produces a peculiar state or result, which result would continue permanently unless destroyed by a counteracting force. For example, when the arm is bent by its flexor muscles, that position would continue until an adequate mechanical force has overcome it. Therefore extensor muscles are indispensable to restore its straightness, and these two classes of muscles are about equally important and well developed.

It is not necessary that the opposing forces should be equal, for one may be much more important than the other—the latter being introduced chiefly as an antagonist to restore the parts *in statu quo*. In cerebral antagonisms the antagonistic organs are sometimes nearly equal in power; in other cases one of them appears to be little more than a mere restorer from the effects of action, like the elasticity of a willow twig which brings it back when gently bent. It is evident that every organ, then, requires its antagonist, unless it is so arranged as to operate against some fixed law or power in nature, which becomes its antagonist and which must be so arranged as precisely to counteract its effects.

Whatever tendency or passion may exist in human nature, an opposite tendency must necessarily exist, and is at once suggested to the mind; as the existence of an upward implies that of a downward direction, or as a North implies a South.

1. The antagonism of the Intellect to Animality or Gregariousness is not very clearly understood. The region of Consciousness antagonizes that of Sleep. The upper portion of the intellectual organs is antagonized by Adhesiveness which in excess becomes stupidity, and the lower portion by Approbativeness which in excess produces vanity (literally emptiness), and a supercilious unconsciousness or indifference to surrounding objects. Personal vanity often degenerates into silliness, and the excessive cultivation of the Adhesive, Approbative faculties in females is one of the principal causes of their intellectual deficiencies, at present.

2. Benevolence, antagonized by Selfishness—has in its anterior portion, the organ of Liberality, an antagonist to selfish Acquisitiveness or Avarice. But the anterior portion of Acquisitiveness, producing economy and financial management, antagonizes the region of Wastefulness and Carelessness (marked on the neck), which latter antagonizes Cautiousness.

3. Truthfulness having three sub-divisions, Expression, Sincerity, and Faith, its antagonist, Secretiveness, has three corresponding sub-divisions, Reserve, Deceit, and Suspicion or Jealousy.

4. Sociability, the antagonist of Combativeness, has several distinct sub-divisions, which have their exactly corresponding antagonists in the sub-divisions of Combativeness. The general

or aggregate tendency of Combativeness is hostile opposition. The tendency to contend or oppose belongs especially to the middle portion of the organ, the special antagonist of Imitation. The lower portion, antagonizing Politeness and Friendship, has a decidedly hostile character. This hostile and quarrelling character, in the posterior portion of the organ, ascends into a spirit of Censoriousness or scornful depreciation, above which is located Stubbornness or Sternness (the antagonist of Pliability,) adjacent to which at the upper anterior margin lies Moroseness, the antagonist of Mirthfulness, an organ which under circumstances eliciting sympathetic feelings exhibits itself in the form of grief.

5. Religion antagonizes the region of Moral Recklessness or Profligacy.

6. Philanthropy antagonizes a still more violent impulse to felonious offences, which may be called Destructiveness, as it leads, among other acts, to the destruction of life by murder.

7. Hope or happiness antagonizes Desperation, the one producing quiet and content from the fullness of enjoyment—the other producing misery and gloom with desperate struggles against difficulties or opposition. The posterior portion of Hope (Mortality) tending to arrest all physical life is antagonized in the region of Desperation by Vitality.

8. Love, with its sub-divisions of Parental, Filial, and Conjugal, is antagonized by the region of Hatred and Disgust.

9. Patience or serenity of temper antagonizes Irritability, the source of ill-temper and restless fretfulness.

10. Integrity or Conscientiousness is antagonized by Cunning or Baseness.

11. Firmness antagonizes the region of Fear, (for which it is difficult to find an appropriate name). The several portions of Firmness and their special antagonists may be distinguished. Thus, the posterior portion, Decision, on the median line, corresponds to Indecision at the upper posterior part of Fear. Intrepidity, lying farther forward and exteriorly, antagonizes the region of timidity and terror which, lying near the middle, gives name to the whole organ. Fortitude, lying in the most anterior portion of the organ, antagonizes the region of complaining and petulance, which borders on Irritability.

12. Temperance, or abstinence and self-control, is antagonized by Alimentiveness, which leads to gluttony and Drunkenness.

13. Hardihood antagonizes the organ of Sensibility, and gives that firmness of organization which endures and resists pain, and diminishes to the utmost our capacity of being affected by external objects.

14. Health antagonizes Disease, and the group to which it belongs sustains a steady invigoration and regulation of the vital forces.

15. Energy, impelling to the efficient and constant exertion of our powers in an industrious and zealous manner, antagonizes the region of Relaxation, the source of languor and indolence.

16. Playfulness, the source of superfluous energy and gaiety, antagonizes the region of Melancholy or gloomy depression.

17. Sanity, the source of a calm and steady mental action, antagonizes the region of Mental Derangement. The portion of the latter producing Childishness is antagonized by a sub-division producing Manliness.

18. Patriotism, or Love of Country, antagonizes the turbulent and treacherous spirit which would prostrate its institutions and destroy its peace and prosperity—Turbulence.

19. Inhabitiveness, or Love of Home, and Tranquility, with which it is closely connected, lie at the upper part of Sublimity and Cautiousness, and antagonize the wandering restless region; marked in the neck as the region of Vagrancy.

20. Chastity antagonizes Amativeness.

21. Cautiousness antagonizes the reckless region manifested through the anterior part of the neck—(anteriorly Carelessness, posteriorly Rashness) adjacent to Mental Derangement.

22. Coldness or Refrigeration, antagonizes Ardor or Calorification.

23. Sleep, which produces an unconscious state, is the antagonist of Consciousness, the intellectual source of wakefulness.

24. Restraint, which suppresses manifestation, and gives the power of self-control, is antagonized by the Conductor Organs, which produce spontaneous excitability and display of the feelings.

25. Coarseness, which leads to muscular but unintellectual pursuits, and destroys the taste for refinement, is antagonized by Ideality, which leads to a refined, quiet, intellectual life. The somnolence of the lower portion of Ideality is antagonized by the vigilant character of the upper portion of Coarseness.

26. Ambition, which gives enterprise, activity, boldness, and love of display, antagonizes Modesty, which gives a disposition to seek a private humble sphere, and unfits one for public life and egotistic enterprise.

27. Self-Esteem, or Pride, antagonizes the lower region of the temples which produces Humility or Servility.

28. Arrogance, Love of Power, and Self-Confidence antagonize the region of Reverence and upper part of Modesty.

29. Infidelity, which closes the mind against the wonderful, new, and Spiritual, is antagonized by Marvelousness and Spirituality.

30. Sublimity antagonizes a basilar organ marked upon the neck *, which belongs to the rudimental conditions of *embryonic developement*.

LECT. XXXVIII.—REACTION OF ANTAGONISTIC ORGANS.

Do our organs all lead us to the sphere in which they will best display themselves and increase their developement? Or do they tend to reach a sphere in which they will be checked and their excesses regulated?

Does Fear prompt us to a career in which our fears will be strongly excited and displayed? No—it seeks safety, while the organ of Intrepidity places us in situations which excite our fear. Thus unchecked Firmness rushes on until its antagonist Fear is called out for a check—and uncontrolled Fear drives us away from danger, until a perfect security renews our steadiness and self-possession. Thus every organ drives us on, until its antagonist is roused and checks our career. Caution and Fear impel us to seek secure positions and surround ourselves with protecting forces, until our pride and courage are roused to prevent farther retreat. Pride and Firmness impel us to take conspicuous positions and pursue bold courses until Fear is roused and forbids our going farther. The natural action of Alimentiveness is hunger, as that of Fear is alarm, but their desires are to appease these excitements—one desires food, the other security. Hence, as Fear leads us to seek power and safety, until their possession tranquilizes fear and arouses our firmness and courage—so Alimentiveness seeks food and stimulus, until their nourishing effect has soothed Alimentiveness and aroused our Energy and Temperance, etc., which again become active. These again by abstinence and laborious exertion, soon place us in a condition which compels our Alimentiveness to be again active.

Pride leads us to aspire to lofty position, until our Humility is pained and induces us to shrink back to an humbler career. Humility leads us to a lower sphere of society and pursuits, until Pride is roused by a consciousness of superiority. If Pride be greatly predominant we may rise very high—or if Humility be predominent we may sink very low—before we shall be checked by the antagonist organ.

Acquisitiveness and Selfishness lead us to accumulate, as Alimentiveness leads to eating, until from the repletion of wealth our Benevolence is roused. Benevolence goes on to give until Acquisitiveness becomes hungry for means and poverty checks us.

Hatred indulges in malicious injury, until, the object of Hate being crushed and prostrate, compassion and kindness are roused by its helplessness. Love is exercised upon the cherished object until it encounters qualities which can not be loved, and

which excite aversion, hostility, and disgust. Lovers under the excitement of strong affections go great lengths—love and admire even where personal deformity or unamiable qualities exist. To the lover the person of his mistress is sacred—every portion of her body is lovely, no matter how repulsive it may be to others. But the raptures of lovers do not excite the sympathy of cold spectators, in whom the organ of Love is less developed and active—on the contrary, they excite disgust and aversion. If the lover himself be not very strongly developed in the organs of affection, he soon encounters something, in the way of unamiable selfish characteristics, petulance, ignorance, or personal defects, which checks the progress of his affection and rouses the opposite faculties. Parents who have a good deal of parental love are warmly attached to children who are wayward and disagreeable, but strangers, having less affection for them, their love soon reaches its limits, and a reaction of severity and dislike commences to which the loving parent is not liable, but which often occurs in the step father or step mother.

When the object of our anger has been crushed by misfortunes or by our violence, our hostility is appeased, and love and compassion are aroused, unless our hostility be so intense and predominant as to require continual suffering. In a rightly balanced human being, the sight of suffering and misfortune promptly arouses the organs of love and kindness.

The lowest range of occipital organs desires to see mankind crushed, degraded and wretched, imprisoned, tortured, and murdered. Despotism, war, and pestilence are to these organs the natural and appropriate destiny of man. If they are small, a very slight amount of human suffering is too much for them, and rouses a philanthropic struggle against these misfortunes and the severe legal punishments and atrocious crimes of society.

The range of philanthropic organs struggle with devoted love for the elevation of mankind, but unless they are largely developed they soon attain their limits, and the selfishness, ignorance, and brutality of mankind checking philanthropy, arouse a hostile and scornful spirit. How many are there who would be actively benevolent, but for the stern and selfish feelings roused in them by the discordant life of society. A greater amount of philanthropy struggles on against every discouragement and seeks to redeem the lowest outcasts of society, who are regarded by the multitude as fit only for extermination.

The combative and arrogant region tyrannizes over its victims, reducing them to passive submission, poverty, and helpless inferiority. When victims are thus reduced to slavery, and manifest an entire submissiveness, the domineering organs are pacified, and benevolence and sociability are enabled to renew their kindly offices. Hence the kindness of lords and masters towards servants and dependents, which ceases when they rebel. Thus, too,

the cat becomes playful and indulgent to the mouse when it is entirely subdued and within its power.

The social faculties yield until our good nature is exhausted, and the consciousness of our own rights being encroached upon rouses to resistance. Our liberality gives until the consciousness of poverty and want rouses our own Acquisitiveness, and when that has been satisfied, Liberality resumes its sway. Thus we alternately obey opposite impulses, each organ carrying us farther in proportion to its own organic power, and yielding at a certain point to the reflux produced by its antagonist.

The tendency of every organ, therefore, is to manifest itself, and by its extreme action to irritate and rouse its antagonist. This important law will assist us greatly in the study of man.

Health and Disease rouse each other in this alternate manner. The over action of the region of Health must rouse Disease, as that of Firmness rouses Fear, by the situation in which it places us. How is this?—there is an apparent contradiction in the production of Disease by Health—but it is obvious that as Firmness places us in situations which it requires great Firmness to endure, and which are calculated to arouse Fear, so Health may lead us to a course of life which requires great Health to endure it. The associates of Health are Hardihood and Energy, which, when acting unrestrained, lead us into destructive exposure and excessive labor, which exhaust and injure us, or bring on disease, unless the organs of Hardihood, Health, and Energy are large enough to withstand the trials to which they subject the constitution. When the healthy group runs into these excesses, it is checked by pain, fatigue, and debility, which are the first stages of disordered health, and if this does not check their activity, disease ensues. Thus are the excesses of Health productive of Disease.

On the other hand, can it be said that the excesses of Disease are productive of Health? Disease leads us to discontinue exertion, to seek repose, to shun unpleasant irritations, and allow the organs to restore themselves by repose. It demands quietude and a protection of those delicate sensibilities, which it engenders, from all rudeness. It demands knowledge, skill, and profound philosophy, for it brings into play those organs which originate philosophy, science, and art. In other words, Disease demands and promotes the healing art. It demands specific therapeutic agents—it requires minute doses for exalted susceptibilities—it requires genial agencies—air, water, and nervaura, and, as it compels us to rest in quiet meditation, it assists us to master philosophy and the mysteries of nature. When we have thus removed the irritations productive of disease, and placed the proper soothing influences about us, the demands of that organ are gratified and it ceases to act, leaving Health in undisturbed predominance.

Hence the faculty of Disease may be considered (externally) as a demand for harmonious or sanative physical conditions. Internally it would appear that the legitimate function of Disease is, in addition to promoting the action of the contemplative intellect, to increase our sensibilities—to restore the predominance of the cerebral over the corporeal functions, and put a check to those extreme acts of Hardihood which would destroy the body if they were not arrested, or which at least would deaden the sensibilities of the nervous system, and diminish the refinement, Ideality, and intellectual activity, reducing us to barbarism, free from nervous sensibility and nervous complaints; but free also from the luxuries and refinements, the literature and arts of civilization.

Disease may, therefore, be regarded as an effort of Nature for the restoration of the nervous sensibilities, the contemplative intellect, and the sympathies, physiological and moral. It is a consequence of irritations of the nervous system by the course its antagonists adopt—an irritation which rouses it into excessive though unpleasant activity, in which condition it overrules our vitality and establishes a feeble, disorderly, painful action of the organs corresponding to the character of the impression upon itself. In other words, Disease is a necessary consequence of nervous endowment which receives disorderly or injurious impressions, and is thereby irritated and roused to such an extent as to impart its derangement to the whole system. [It may be remarked, in illustration of this position, that the capacity for inflammation (according to Macartney) diminishes as we descend in the animal scale, (being very slight below the class of Mammalia) and disappearing among cold-blooded animals.]

From the foregoing considerations it appears that every organ in its legitimate exercise, checks or regulates its antagonist, but in its extreme exertion compresses and overpowers it, and thus generates a reactive force, just as a piston confined in a cylinder may be propelled by the power of steam admitted on one side until the vapor on its opposite side is so compressed as to generate a powerful reaction. The more intense the propelling force in any one direction, the more vigorous the reaction which checks it.

The fact that antagonistic organs thus become mutual irritative stimulants, assists in explaining much of the philosopy of mind. For example, the excesses of the organ of Sanity are the causes of mental derangement, as the excesses of Industry are the cause of the succeeding indolence and relaxation. How is this? Sanity is the region of mental concentration—the region which cooperates with Firmness and Restraint, compelling the intellect to vigorous exertion upon a specific subject, maintaining a prolonged attention and resisting all disturbing excitements. Sanity, like Firmness, qualifies one to go through scenes of passionate excitement without being alarmed, agitated, or confused. It is well known that continued, intense study and exposure to excessive mental excitement are great causes of insanity.

The law of antagonistic reaction, studied in detail, explains many interesting phenomena of human character—showing how the reformed profligate becomes a religious zealot, and how the fresh convert of a revival is liable to relapse to profligacy; how the spendthrift becomes avaricious, and the generous man, after sacrificing his own interest, becomes cautious and acquisitive; how the disappointed lover becomes misanthropic, and the repentent murderer a pious philanthropist; how the credulous dupe, after being deceived, becomes a hardened sceptic, and the stubborn disbeliever, convinced of his errors, becomes a fanatical believer; how the depressed and degraded are roused to assert their manhood, and the ruler of a nation surrenders his power surfeited by its possession and desiring only humble privacy; how betrayed friendship and confidence are followed by confirmed jealousy and misanthropy, intense study by dissipation, frivolous gaiety by pensive thought, prolonged abstinence by gluttonous intemperance, etc.

LECT. XXXIX.—CRANIOSCOPY—PRACTICAL APPLICATION OF PHRENOLOGY.

The vast number of distinct organs and functions belonging to the brain, and the apparent complexity of cerebral science, are somewhat discouraging to students who wish to enjoy the practical benefit of this knowledge; and especially to those who have a slight familiarity with the meagre and limited details of the Gallian system, and who have found some difficulty in becoming skilful in the application even of that system. But I can assure them that the difficulty and mystery in the present case, are more imaginary than real. So far from finding the new Anthropological system more difficult of application than the Gallian theory, we shall find it actually easier of comprehension and application, to all clear and philosophical minds. An intellect which looks only to details, and can not grasp general principles, is not well gifted for appreciating or applying the Anthropological system; but those who prefer the study of principles to the arbitrary memory of details, will find the plan of the human constitution remarkably in accordance with their own modes of thought.

Let us now proceed to the consideration of those laws and principles which simplify cerebral science, and render Cranioscopy an art of easy attainment, when properly taught.

The first great simplifying law to be noticed, is the law of antagonism. Every organ has an antagonist, exactly opposite to itself in its fundamental character, its course of conduct, its

pathognomic line, or mathematical tendency, and its position in the brain. Hence, if we know the position of one organ, we may calculate by the law of antagonism, the position of another organ of diametrically opposite function ; and whenever we have learned the position and functions of one half of the organs of the brain, we know by the law of antagonism the positions and the functions of the other half.

The relative positions of antagonistic organs are not always such as we might conjecture, from a superficial examination. For example, an organ in the most prominent part of the forehead, will not antagonize an organ at the most prominent part of the occiput, which is diametrically opposite in its position in the head. Nor will an organ above the ears on the right side, antagonize another organ lying above the ears on the opposite side. We can not calculate these antagonisms on the whole head, but must recollect that the head consists of two distinct and complete hemispheres, each containing all the organs, and, consequently, that antagonisms must be located on the opposite sides of the same hemisphere. We must, therefore, in imagination, reduce the entire brain to a single hemisphere, around which we must calculate the antagonisms of organs, as well as we can, considering the irregular elongated shape of the hemisphere. As a general rule, the anterior organs antagonize the posterior, the superior or coronal organs antagonize the inferior or basilar, and organs which approach the median line antagonize the organs which are farther removed from it.

When we have ascertained any two locations, which are in direct antagonism, we may readily trace other antagonisms from them, by observing the rule that, as one position moves forward its antagonist must move backward—as one goes upward, its antagonist must go downward—and so on through all changes of position, the antagonistic organs keeping at the greatest distance from each other, like the opposite extremities of a bar revolving around its middle. If, for example, we find upon our map or bust, the organ of Benevolence antagonistic to that of Selfishness, and move from Benevolence backward to the organ of Religion, the antagonist of the latter must be found by going forward from Selfishness to Profligacy. If from Religion we move backward to Patience, the antagonist of the latter will be found by moving from Profligacy to Irritability. When from Patience we move backward again to Firmness, the antagonism moves forward to Fear. When from Firmness we descend the occiput, through the range of Pride, Self-Confidence, Love of Power, and Arrogance to Hatred, the antagonism is found ascending on the side of the head from Fear, through Servility and Reverence to Love. The various portions of the temporal organs correspond to and antagonize various portions of the occipital organs ; then, as we run from the upper portion of Reverence, through Love, to Philan-

thropy and Religion, running toward the median line, we find the antagonistic group, running from the median line, in the basilar region of Hatred, Desperation, Felony, and Profligacy. Thus, throughout the entire brain, we may trace an exact arrangement of antagonisms; but in many cases, the positions of the organs, in accordance with the law of antagonisms, would not be readily intelligible to one who was not acquainted with the anatomy of the brain, or who did not understand how the organs upon the face and neck are located upon the concealed basiiar surface of the brain.

While the doctrine of antagonism thus relieves us of one half of our labor in Cranioscopy, the doctrine of affinity and coöperation among the organs, is equally instructive and satisfactory. Whenever we know the function of any organ, we know that functions of a similar or congenial character will be found in its neighborhood, and that any neighboring organ has a similarity in character, greater in proportion as it is nearer. Hence, if we know correctly the functions of any two locations upon the brain, we can very nearly determine the function of an intermediate organ, since it must possess an intermediate character, capable of blending with each of its neighbors; and when we know the functions of a group of organs, lying in a circle, we can determine almost positively, the functions of the organ lying in the center of that circle, since its functions must be central as well as its position, and in harmony with those lying around it. In other words, it must be very similar to the result which would be produced by the communion and blending of the entire group. Whenever, therefore, in the study of cerebral science, we wish to know what portion of the brain contains the organ of any particular faculty, we may be guided to the locality by looking among the organs with which we are acquainted, for those to which it is most nearly allied, and with which it must necessarily coöperate.

I think it may be safely affirmed, that no faculty is located in the brain in such a manner as to violate these harmonious principles. There are, it is true, additional explanations to be given of the peculiar relations of neighboring organs, but the additional principles involved, are not incompatible with the harmonious law which is now stated. In carrying out this law, we may readily infer that any organ will express the general character or tendency of the group to which it is central, and consequently, that we may describe around each organ a sphere of coöperative organs, as large as we please, those more remote having less and and less affinity, until we have reached the margin of its hemisphere, and entered into the circle of those of an opposite hemisphere, coöperating with its antagonist. The brain may thus be divided between any two antagonistic organs, into two hemispheres;—one coöperatiug with each antagonist, as the opposite hemispheres of Health and Disease, of good and evil, etc. And

when we would determine the position of any unlocated faculty, we might determine in which of any two opposite hemispheres it should be placed, by inquiring into its affinity with the opposite organs;—whether, for example, from its moral character, it should go into the hemisphere of Philanthropy, or into that of Felony—into that of Serenity or into that of Irritability—into that of Indolence or into that of Energy—into that of Intellect, or into that of Animality. If, then, we should retain in our memories but half of the positive locations of organs, we might still be able, from the localities which we recollected, to determine the positions or the locations of the various organs which we had not learned.

A little practice in determining the locations of faculties, upon general principles, will remove our doubts of the facility with which Cranioscopy may be practiced. We observe that the organ of Philanthropy, lying in the upper central region of the head, is surrounded by a group of organs which partake of its generous and loving character, while its antagonist, Felony or Destructiveness, lying in the basis of the cranium, in the bottom of the middle lobe, is surrounded with a group of hostile and evil organs, in accordance with its own character; hence, we learn that the highest portions of the brain contain the highest elements of character, while the lowest or worst traits of character are found in the lowest organs. If then, we desire to know the location of any faculty, we should ascertain its moral character, and determine its latitude in the higher or lower regions of the brain, as it belongs to the group of good or evil. At the same time, to use the expressions of a geographical map, we must determine its longitude by the inquiry whether it contains the strength and force of character belonging to the occipital organs, or the delicacy and feebleness belonging to the frontal half of the head. If by these two questions, we can satisfactorily determine the cerebral latitude and longitude which it should occupy, a locality is ascertained.

Let us now take a head and bust, or a map, and discarding all previous ideas of Phrenology, determine the location of the various traits of human nature, in accordance with the general principles which have been just laid down. Let us, for example, inquire into the origin of the practice of slander. There can be no doubt as to the question whether it belongs to the hemisphere of good or evil—all consider it evil. Some may consider it a moderate evil,—others a crime of the deepest dye,—but general consent will place it not more than half way down in the evil hemisphere. This would give it a latitude about mid way between the meatus auditorius and the top of the ear. And if we run a horizontal line, upon this range, the locality of Slander upon that line, must be determined by the question, whether it is a practice marked by the feeble and yielding character of the frontal half of the

head, or by the violent and conquering energy of the occiput. As the slanderous act is not at all of the friendly, submissive, or passive character, we must place it in the occipital half; yet, as there is nothing very great. powerful, or triumphant in the character of a slanderer, we can not give the propensity in question a location very far back; about half way back from the ear to the median line, is as far as it could possibly go. This would place it in the Combative region, at the anterior edge of which, we find in Secretiveness, the region of Jealousy or Suspicion, which leads us to attribute base or unworthy motives and designs, and thus perpetrate a slanderous injustice. Farther back, in the organ of Combativeness, we find in its posterior portion, the region of Censoriousness, the antagonist of Admiration, which leads us to depreciate, find fault, abuse, and censure with slanderous malignity.

Again, we observe in persons of a refined education, and natural delicacy, a sudden flush whenever the sentiment of modesty is disturbed. From what portion of the brain comes this delicate sentiment which produces the blush? Does it belong to the good or the evil group? Certainly not evil; there is no harm in modesty, so nearly akin to innocence. Neither can we regard it as a virtue of the most elevated aud useful character; though it is certainly closely akin to virtue, and might occupy a humble position in the virtuous hemisphere, a little way above the line dividing the good and evil. In determining its longitude, we find that Modesty has no claims to a position in the occipital half of the head; on the contrary, it is a gentle and yielding influence, which impairs the force of character. It must, therefore, be decidedly in the front of the head, and yet it is not sufficiently intellectual to occupy a place in the forehead. We shall, therefore, be compelled to assign it a place in the temples, at the posterior margin of the intellectual organs, and high enough to communicate with the virtues of the coronal organs. Such is the position which the organ of Modesty actually occupies; and when we shall have developed the mathematical laws of the brain, (see Lectures on Pathognomy,) it will be perceived that there is no other position in which it could exert its peculiar influence upon the muscular system, upon the character, and upon the circulation in the face.

Let us now seek the source of the propensity for lying. This we would readily locate in the basilar region; and yet, as there are many greater crimes, it will not occupy the lowest position. The cavity of the ear is as low as it should be located; and its longitude antero-posteriorly, must be determined by its strength. As a trait of character, lying is decidedly feebler than slander, and is indicative of weakness rather than strength. At the same time it indicates a trivial amount of hostile energy, and does not indicate a passively submissive disposition. As it has, therefore,

no decided claims to a position either before or behind the ear, we shall not be surprised to find that it is located just at the ear, in the organ of Baseness.

Let us next inquire the source of sympathy. As an amiable trait of character, we at once recognize to claim to a position in the region of goodness, among the higher attributes of humanity; and in giving it a place among the virtues, we can not assign it to the neighborhood of the sterner qualities of firmness and justice, but will be required by its gentle and yielding nature, to place it as far forward as possible, while its coöoperative affinity to the intellect would indicate it as a neighbor of the intellectual organs. Accordingly we find that sympathy is located at the anterior edge of Benevolence, adjacent to the organ of Sagacity, and the group of pleasant social sentiments.

Where, in accordance with these principles, should we look for the love of money, or Acquisitiveness? As an element of character, it possesses some degree of strength, yet nothing of the heroic or commanding nature. The tradesman and the miser are often timid and feeble characters, except in a pecuniary way. The organ of Acquisitiveness, therefore, must be located close behind the vertical line, which divides the frontal and occipital halves, and as low as its moral character indicates. This would not place it among the decided crimes, as Acquisitiveness in itself produces nothing more than selfish and grasping avarice. The position in which we find it, is about an inch above the cavity of the ear, extending between the organs of Cautiousness and Selfishness.

Upon these principles, where can we locate the Love of Children? Being one of our most virtuous and amiable faculties, we shall be compelled to assign it a high position in the coronal region, with the other affections. In this region it will require an intermediate position corresponding to the organ of Love, as it is not sufficiently yielding to be brought forward with the organ of Sympathy, nor sufficiently stern to occupy the position of Integrity.

Thus, we perceive, by a very simple application of general principles, we may determine the latitude and longitude of any organ upon our map; and if we still have any doubts of its exact position, the calculation of its affinity to the neighboring organs, and its relations to antagonistic regions, will guide us correctly, and enable us to locate any organ within an inch or half an inch of its exact location, even if we have forgotten the special landmarks and subdivisions of our Craniological map.

LECT. XL.—SLEEP.

Sleep is a state of mental inactivity, and consequently of cerebral quietude. The cerebral circulation must, therefore, be in an inactive condition, the venous predominating over the arterial vessels in the cerebral convolutions. Sleep especially implies repose of the mental functions, and of all functions in proportion as they are conscious—in other words, it is a special suspension of consciousness. Hence we find that it belongs to an organ which is the exact antagonist of the organ of Consciousness. This organ produces, when excited, a perfect arrest of mentality. The repose thereby produced is consequently very restorative, and, in our experiments for the benefit of health, this is the species of sleep which should be given to the invalid who has been deprived of rest.

Before the discovery of this organ I had supposed the occipital organs to be entirely wakeful in their tendency, but having attempted to rouse a somnolent patient by operating upon the lateral occipital region, I was surprised to find her, contrary to my anticipations, becoming more sleepy. Theory led me to regard the frontal organs as those of sleep, on account of their reflective, quiet, sedative influence, which I supposed to abstract us from surrounding objects, and bring the system into a state of repose. Experiment showed, however, that this sleepy tendency was to be found only in the organs of Somnolence and Clairvoyance, by which an intellectual sleep or sleep-waking condition is produced. This condition apparently resembles sleep, but is accompanied by extraordinary mental powers.

The region of *Somnolence*, the connecting link of Ideality, Sensibility, and Music, produces a vague and delicate mental action of the inventive, speculative character. To this region belong the phenomena of reverie and abstraction, or absence of mind, day dreaming, and night dreaming. A large organ of Somnolence indicates a dreamer—one who will become absent minded if not well developed at Consciousness, and who may be liable to Somnambulism (sleep walking) or Somniloquence (sleep talking). The sleep produced by exciting the organ of Somnolence is not so profound or refreshing as the true sleep of the posterior organ—it is in truth sleep-waking, not sleep, yet may become sleep if the organ of Sleep is large or active. It is often desirable to produce sleep gently by the combinatiou of Somnolence and Sleep.

Patients in whom the organ of Sleep is too predominant are less fit for the experiments of animal magnetism, as they pass into the natural or torpid sleep, instead of the sleep-waking condition—whereas those who have large Somnolence and small Sleep may

develope, spontaneously, the phenomena of magnetic experiments, such as somnambulism, somniloquence, clairvoyance, prevoyance and sympathy. Such are the persons who in their dreams exercise physical clairvoyance, and become excited by occurrences taking place at that time at a great distance—a fact which is now incontestable. Sometimes they have prophetic dreams and clairvoyance in combination—a circumstance probably more common than we suppose. How else can we account for the fact that we so often experience in the midst of a conversation, or in any interesting and peculiar scene, a strange sense of familiarity—a sudden recollection that we have seen all this before—that we have heard these identical words from this very person—that we have witnessed the whole scene previously. Some experience this consciousness very vividly and not only recollect what has already transpired as having been previously in their memory, but even recollect the unfinished remainder of the scene which is just transpiring, and anticipate the words not yet uttered. * Those who are deficient in Somnolence have no mental activity during sleep —no insensible gradations between sleeping and waking—they pass from mental day to night with no twilight of the mind. They have no absence of mind from depth of thought, and indeed have not an adequate power of abstraction. Their intellect is continually cognizant of surrounding objects, and hence, if not supported by Firmness and Sanity, liable to sympathizing too much with the scene about them.

The antagonist of Somnolence, lying at the upper part of the occiput, is called from its functions, Vigilance ; it belongs to the group of healthy, hardy, coarse, energetic organs, and tends to render the eye hardy, the muscles firm, the character practical and rather averse to unprofitable reveries.

It appears that we have two organs concerned in producing sleep—Somnolence and Sleep ; but every organ which contributes to mental dullness and abstraction or bodily quietude, may in persons predisposed to sleep produce that effect. Hence an incautious or unphilosophical enquirer might easily mistake other organs for the true organ of Sleep. The organ of Tranquility produces so perfect a repose as to bring on sleep or at least sleep-waking in some cases. Restraint or a portion of it may do the same. The antagonist of Sublimity (developed through the lower part of the neck) may produce a similar result by means of mental inactivity. Indolence and Relaxation, which are closely connected with Alimentiveness, have also a drowsy tendency. The organ of Shade, at the inner canthus of the eye, is very apt to produce sleep or sleep-waking, as it disposes us to close the eyes, and calls up the mental associations connected with sleep. The organs of Clairvoyance and Spirituality are apt to produce the sleep-waking state, and the organ of Mortality—the greatest se-

* In one case, a gentleman of Mississippi had so much confidence in his recollection of the remainder of a scene just transpiring, as to make a wager upon it, which he won.

dative—may produce the death-like trance. Perhaps the organ most nearly resembling Sleep in its effects, is that of Torpor, at the anterior portion of Mental Derangement, (just above the larynx.)

The antagonists of the sleepy class of organs are favorable to wakefulness. Hence we have the following contrasts:

Somnolent Organs.	Wakeful Organs.
Sleep.	Consciousness.
Somnolence.	Vigilance.
Tranquility.	Restlessness.
Restraint.	Conductor Organs.
Patience.	Irritability.
Mortality.	Vitality.
Indolence and Relaxation.	Industry and Energy.

The external causes of sleep are all things which diminish the activity of Consciousness and its neighboring organs. Every thing occurring around us—every thing which has recently occurred, as during the day—every thing which excites anticipation or Foresight, every thing which addresses the psychological sense, (as the display of mind or feeling in others) and every act we perform (which involves the action of the Conductor Organs and of Foresight) go to sustain wakefulness, while stillness, monotony, absence of external objects and of recent events of importance, are the principal causes of sleep.

Other influential causes of sleep are found in the neighboring organs of Music, Ideality, and Sensibility, which are closely connected with Somnolence; hence quiet meditation, low or distant music, and gentle impressions upon the senses are apt to produce sleep.

LECT. XLI.—MENTAL MECHANISM.

In explaining the mysterious correlation of the mind with the brain and of the brain with the body, we are tempted to seek not only the channels of this relation or special organology, but the nature of the action which takes place in those channels. The following suggestions may contribute to the solution of this mystery.

Each organ diffuses its influence by direct radiation from its cranial locality, and this influence imparted to another constitution, produces the same effect in the one who receives it, which the organ regularly produces in the individual to whom it belongs. It operates not simply by goading a corresponding organ into increased action, and thus exhausting it, but actually imparts

additional power, and a power possessing all the peculiarities of its source. Thus an impressible person, when touching the organ of Alimentiveness in another, will receive a decided gastric stimulus, which will positively increase the amount of his digestion and render him very hungry. But at the same time he will receive the peculiar gastric power which belongs to the constitution with which he has been in contact. For example, he may receive, if the digestive organs are deranged, a state of dyspepsia or gastrodynia, from the experiment, but if they are healthy and vigorous, he will receive great additional vigor in his own digestion, and in either case he will receive an amount of gastro-nervous excitement foreign to his own constitution.

Similar remarks being applicable to all the organs, it may be inferred that each organ is the source of a mental and physiological influence or secretion which pervades the whole system, and in every part of the system operates as do our medicines, by means of its specific relation to the part. Thus the influence of the gastric organ, or Alimentiveness, when diffused through the system, produces (whether it originate in the individual's own brain or whether the influence be absorbed from another) an increased secretion of gastric juice in the stomach with some increase of the hepatic and abdominal action generally—but a great diminution of the power and activity of the muscular system, an enfeeblement of the intellectual energy, a congestive tendency of the circulation, and a decided diminution of the moral energies of the higher organs. The application of the gastric nervaura directly to any of the organs of these functions produces such effects locally before it has reached the stomach. Thus, when touching the organ of Alimentiveness, the hand and arm as they receive the influence become enfeebled before the influence has reached the stomach.

In like manner, the front lobe exercises a soft, refining, spiritual influence, debilitating to the muscular system, and variously influential to other portions of the constitution, but highly favorable to the nervous functions, and calculated to invigorate directly the external senses.

The basis of the occiput transmits an influence which directly energizes the muscular system, and which variously modifies all the vital functions, materially impairing the higher powers of the mental organs.

That the various cerebral organs do operate thus as centres for the emission of peculiar influences or peculiar species of Nervaura, and that the effect of each organ may thus be explained by its Nervauric emission is obvious at a glance. The fact that the Nervaura of another constitution will produce the same effects, is a pretty conclusive evidence that this nervaura is in reality the agent of our psychological action. Additional evidence, however, may be derived from the fact that the nervaura

of certain basilar organs is very analogous to galvanism, and that a galvanic current supplied from without will produce very similar effects to those of the basilar organs, as regards digestion, muscular action, etc.

If any additional evidence were needed that this is the true theory of psycho-cerebral action, it might be furnished by our experiments upon medicines. In these experiments it is shown that any substance, possessing a peculiar chemical constitution, possesses peculiar relations to the various vital processes of the human body, which relations do not require absolute contact in the interior of the body, as is commonly supposed, nor even contact at all, but may be demonstrated by merely placing a medicine in contact with the hands, while enveloped in any convenient medium. This enveloped medicine, then, becomes the source of a diffusive influence, as do the cerebral organs—an influence which in diffusion through the system will stimulate one set of organs, act as a sedative to others, and variously modify the remainder. In this respect the medicines remarkably correspond to the cerebral organs—some of them resembling in their effects the front lobe, and some the posterior, or the superior—generally, however, their effects resemble those of a combination of organs in peculiar proportions.

Medicines thus possessing specific properties act by virtue of these properties, and not by means of any fluid which they secrete. It would appear possible, however, that they may emit some imponderable portion of their substance. The cerebral organs, however, have definite channels for the transmission of their influence in particular nerves. Whether this is the case with respect to medicines we can not say.

These medical experiments demonstrate that an influential substance, sufficiently near to the human organism, will diffuse an influence through all parts and produce specific effects in each. Such facts alone might induce us to believe that the cerebral organs diffuse their special influence throughout the system, each producing specific effects and having an adaptation to particular parts, but each diffused in every part. Thus the temperament and vital action of each part are modified, or rather produced by the composite influence of the whole.

As these influences, like different medicines, have different degrees of energy and of diffusibility, it follows that the more potent will control the others, and that the more diffusible will exercise an instantaneous influence. The highest degrees of potency and diffusibility in conjunction will, of course, constitute the dominant power of the brain, which dominant power will be THE WILL of the individual.

The intellectual influence is the most instantaneously diffusive, but, lacking in energy, it can not control the influence of the coarser organs. If we start from the centre of the front lobe, in

various directions, we may find the point at which the intellect, by blending with the energies, may acquire the power of leading and controlling. In the direction of Benevolence, Sociability, Imagination, Love, Ideality, Reverence, Modesty, Disease, Sensibility, Fear, etc., it is obvious little is to be gained in the way of energy, those organs all producing a yielding tendency. Hence we are compelled to look to the remaining boundary between Disease and Benevolence, for the junction of intelligence and energy. Accordingly, in this region, nearer the basilar and internal aspect of the brain, (the regions of Rashness and Firmness) we find the Conductor Organs, which are the immediate organs of manifestation, by means of which our thoughts and designs are executed by the muscular system.

On the other hand, if we look among the impulses for the most intellectual by position, and consequently most subtly diffusive, we shall find the organ of Firmness entitled to the precedence, as best adapted to coöperate with the intellect. Hence when Firmness is sufficiently large to predominate over all others, the conduct is guided by the intellect—the intellectual will is supreme. But when Firmness is small, the intellectual will is overuled by various passions, and every trivial excitement misleads us from our predetermined course.

Finally, it becomes obvious, from the foregoing considerations, that Firmness, Impulsiveness (or Rashness), Ardor, the Conductor Organs, with the Perceptive and Intuitive, constitute the group which guides our acts or manifestations of Will. The organ of Ardor especially gives us the control of our limbs, by giving them mobility and energy, which energy, guided by the intellect, sustained by Firmness, and impelled by Impulsiveness or Turbulence, becomes the source of action.

The organ of Ardor, lying between Firmness, the Conductor Organs, and the organs of locomotive impulsiveness, appears to be an important centre of the volitional processes, while its antagonist, Coldness, produces a rigid, insensible, motionless condition in which the limbs refuse to obey the will, but yield to involuntary convulsive tendencies.

If then we seek the organs most immediately concerned in voluntary acts, we find the Conductor Organs, Ardor, Rashness, and Turbulence to be the most prompt and ready in manifestation, and to be also in intimate relations to the intellect which guides them. But in none of these are there the quiet collected energy, permanance of action, and power of self-control which belong to the faculty of will; on the contrary, they rush into action and speedily produce exhaustion by their violent activity. We must, therefore, look higher in the brain for an influence which may be sufficiently calm to restrain action, and at the same time sufficiently energetic to sustain and impel in an enduring manner, our physical and mental powers. By going a little higher

we reach the organ of Firmness, in the posterior part of which we find DECISION, or the power of willing and determining in a positive manner. The region of Firmness relieves the will power from all liability to be disturbed or alarmed by fears or excitements, or overawed by superiors, and, combining in itself the attributes of Energy and of Restraint, (its neighboring organs) it is able with equal ease, either to arrest every act or to bring all our energies into the most violent yet collected and controllable action.

This master organ of DECISION, or WILL, is guided every instant by the diffusive influence of the intellectual organs, but more particularly by the intuitive region, the subtle centre of instant communication with the whole. In this appreciative centre of our consciousness, all the impulses of the passional organs meet and struggle for mastery, and the predominant force or mixed result is communicated to the organ of Will, in connection with intellectual guidance.

The region of Consciousness and Intuition, being, from its very nature, continually cognizant of all that is passing in the brain, becomes necessarily the centre of communication and medium of reaction. The inaction of this region in sleep leaves our organs without mental impressions or mutual reaction, and consequently without action or passion.

The intuitive faculties, by their psychometric power, catch at once the impressions of another mind or will, and thus render the intercourse of two individuals, often a trial of strength between their wills, in which the weaker party gives way to a power superior to that of his own organs, unless he previously exerts his will to restrain his impressible organs and falls back upon his Hardihood and resisting energies, which exempt him from feeling the impression. Those who cultivate the timid, reverential, sensitive, and sympathetic faculties become habitually submissive to stronger wills, unless they discipline their faculties and acquire an energetic will to enable them to maintain independence.

To strengthen the organ of Will, the centre of our positive life and the most powerful source of human greatness, should be a leading object in self-developement or education.

LECT. XLII.—THE WILL.

Having explained the practical manifestation of will, as an emanation from the most subtle, diffusive, and energetic of the cerebral organs, * we may ask whether there is any special cerebral locality in which the entire function can be found concentrated?

* This sentence affords an excellent opportunity to any cavillers who desire to misrepresent the author's doctrine or attribute materialism.

The subtlety belongs to the intuitive department of the brain —the energy to the region of Power. We must look, therefore, to the most energetic portion of the Intuitive department—to the most subtle portion of the energetic region, or else to the intermediate ground in which Power and Subtlety blend. Such an intermediate region, combining these two qualities, appears probable.

Experiment shows that on the median line, in front, we have the faculties in the Intuitive region which are essential to will, viz.: the perception of the present and the future. Volition is necessarily perceptive—it arises from the perception of something to be accomplished, a motive or impulse to accomplish it, and power to act. Will, therefore, arises from intellectual action, but does not consist of intellection alone, which possesses the requisite diffusiveness, but not the requisite power. On the other hand, the region of Power has not sufficient intellectual subtlety of action for the common conception of will, although it is a dominant region, and manifests, in the organ of Decision, what may be regarded as the effective element of will. If by will we simply understand that energy of purpose which decides upon and carries out a course of action, Decision is the organ of will. But if we seek a more central power which decides intellectually as well as resolves, we should be compelled to seek this central soul power intermediately between Decision and the intuitive region.

The intellectual and affective elements of will approximate upon the median line, for the organs of Firmness, Decision, Intuition, etc., are near neighbors upon the internal surface of the hemispheres. And the adjacent organ of Religion opens this region to the influx of higher influences, as it is also open to the influx of selfish and passional influences from below. Between these localities, on the internal surface of the hemispheres, a band of fibres or convolution, demonstrated by Solly, which runs from the Intuitive toward the upper occipital region may probably be the region in which intelligence and firmness blend in the composite centre of our being.

The region of will, in the rightly constituted brain, has a predominant developement, and thus enables the individual to act from conscious design instead of unconscious impulse.

The absence of will is seen in the movements which follow decapitation, and in the convulsions which occur in comatose and irritated conditions of the brain, and in the benumbed and shivering condition produced by cold.

The location of will in the brain, between the regions of Firmness, Patience, Religion, Benevolence, Intuition, Ardor, the Conductor Organs, and the restless impulses, indicates that the involuntary impulses will be found between Indecision, Irritability, Profligacy, Acquisitiveness, Sleep, Restraint, and Caution and we know it to be true that convulsive movements do ar e

from cold, from irritation, from excessive passion, from coma, and from terror. Indecision and apprehension paralyze the power of will, and coldness destroys its power over the body.

The *modus operandi* of Volition may be this. The organ of Consciousness is in full communication with the whole brain. The subtle nature of the intuitive faculties enables them to embrace the whole system and to receive impressions from every region. In the organ of Consciousness, as in a convex mirror, we find a delicate concentrated image of the whole being of the individual. This concentrated image is indispensable to the sense of personal identity or individuality—were there no central power of this kind in which the sense of being might concentrate, man would be but a bundle of impulses—not a human being—a moral agent. The subtle Nervaura of the region of Intuition supplies a medium by means of which this concentration becomes possible. In cerebral operations it answers such a purpose as light in the external world, by which all objects are rendered visible, and sound, by which we become conscious of their movements and subtle oscillations. Consciousness thus not only receives impressions, but instantaneously transmits to the appropriate organs the influence which excites them.

The organ of Consciousness, thus receiving external objects and phenomena through the perceptive faculties,—and internal impulses from the cerebal action, presents to the organ of Volition the motives for its action.

Thus when I look up and behold an enemy pointing a rifle at my person, Foresight instantly suggests danger, Consciousness of danger rouses the organ of Fear, the intellect under the influence of Fear, suggests modes of escape with such intensity that all other ideas are excluded, and the idea of escaping, as the predominant idea, leads to the act; or in other words, the conductor organs, powerfully impressed with the predominant conception, (acting as a medium) transmit that impression to the appropriate muscles for its execution. In the same method we observe the imaginative mesmeric subject, under the influence of a command, performing the act commanded because it is impressed with irresistible energy upon the intellect, from which the conductor organs transmit to the muscles.

Whenever an organ is excited, with sufficient intensity, that organ (through the all-sympathetic, spiritual, intuitive power which belongs to Consciousness) compels the intellect to evolve thoughts in accordance with its own nature, and if its excitement be sufficiently strong, the conceptions which it produces supercede all others, and become the guide of volition. Thus large organs habitually govern, but under sufficiently intense excitement, one organ may become for the time the controlling power, filling the mind with its own images and excluding all others.

LECT. XLIII.—ON THE POWER OF THE WILL.

The organs of the human body are divided into voluntary and involuntary. According to the common views of Physiology, the Voluntary Power is limited to the brain and spinal marrow and their nerves. All portions of the body supplied mainly by the ganglionic nerves, (which are regarded as strictly involuntary in their action)—the heart and vascular system, the digestive organs, the liver, spleen, pancreas, kidneys, skin, and all secreting surfaces are supposed to be entirely independent of the will, and under the control of the ganglionic system alone. But if we examine the matter critically, we shall find that there is no such exact boundary as is commonly supposed between our voluntary and involuntary functions. For example, the act of breathing, when we attend to it, is strictly voluntary, but when our attention is withdrawn it proceeds, as in sleep, unconsciously through the influence of the spinal cord. Even when we are giving our entire attention to the subject, any powerful impression upon the lungs or larynx will cause an involuntary action of our respiratory muscles. A pinch of snuff, the irritation which causes a cough, or the tickling which produces laughter, may cause a convulsive action of the respiratory muscles entirely in opposition to our most determined efforts. Thus the respiratory function appears to be alternately voluntary and involuntary.

Our locomotive muscles are usually entirely voluntary; yet under the influence of violent fear we can not restrain their movement, and in certain morbid states, as in tetanus or under the influence of cholera, our muscles are spasmodically contracted against our will. Thus there is no portion of our constitution which is perfectly and at all times voluntary. Even our eye-lids over which we have so perfect a control, spasmodically close when any object is thrust suddenly towards them.

As our whole voluntary system is thus more or less liable to involuntary action, so the whole of our involuntary organs, as they are usually styled, are more or less liable to feel the influence of volition. Thus the heart, which usually proceeds entirely independent of our consciousness or will, is readily affected by our emotions; and, by means of various trains of thought which we can readily assume, we may voluntarily modify its motions. In the celebrated case of Colonel Townshend, this power was exercised to such an extent that he could completely arrest the action of the heart, and cause an apparently complete suspension of the circulation, whenever he chose. This experiment, which he performed in the presence of Dr. Cheyne, and from which in course of a few hours he gradually recovered,—demonstra the

power in the human constitution which might be cultivated until it should occupy a much more extensive sphere than the present.

The fact that such a power is not generally exercised does not disprove its existence. There are many who can not move the scalp or the muscles of the ear; and it is quite probable tha various voluntary powers of the human body which have declined and almost disappeared, for want of exercise, might be exercised and resumed by systematic cultivation.

In the mature and highly educated individual, the sphere of voluntary power is greatly increased. The organs which in the undisciplined man are often beyond control, become in the highly disciplined mind, sources of power, applicable to all the purposes of life. A man of undisciplined mind, on receiving insult or injury, falls at once into a violent state of excitement or rage, loses the power of rationally controlling his acts, and his muscular system is nearly thrown into convulsions by the uncontrollable excitement. The man of matured mind preserves his calmness, has no convulsive gestures, and performs no movements which are not guided by a systematic design to accomplish his purposes. The well trained actor brings his whole constitution into harmony with the passion he expresses, and rouses the action of his heart whenever necessary to a burst of passion.

In proportion as the mind is immature and undisciplined, the whole class of voluntary acts partake more or less of the involuntary character. The muscular system is restless, impulsive, and inclined to convulsion; the passions are tumultuous and easily played upon by a designing operator; and under the influence of these strong passions the actions are hurried and unconscious. As in the immature, the involuntary impulses encroach upon the sphere of the voluntary action, so, in the highest maturity and cultivation of man, the voluntary power encroaches upon the sphere of that which is usually quite involuntary.

Thus the Voluntary Power not only regulates the emotions and the passions as well as the muscular system, but even modifies to a great extent those functions which are controlled by the ganglionic system, and are therefore regarded as strictly involuntary. For example, the stomach and abdominal muscles in vomiting are in most persons entirely involuntary; yet there are many who have a perfect voluntary control of this operation, and are capable of vomiting at will, or entirely suppressing the act. The peristaltic action of the bowels is usually entirely beyond the control of will; yet I have known persons in whom there existed a partial voluntary control of the whole alimentary canal. There is good reason to believe that not only the heart, stomach, and alimentary canal, but the liver, kidneys, and all other internal organs may, with equal facility be brought into more or less subjection to the will; for we find that in a passive subject of mesmeric experiment, if the operator by will or by command, shall

direct his influence to any particular organ, painful or beneficial effects may be produced upon it with ease and certainty. The mesmeric patient under the control of a vigorous operator, is told that in a certain portion of his body he has an intense pain, or if he is in pain that he will wake up entirely free from pain. And this mental impresssion, in many cases, accomplishes the desired result. Thus it is clearly possible for the power of the mind to be brought to bear upon any portion of the human body; and, if this be possible, there is no reason why these voluntary powers should not be cultivated until they can be exercised with facility and precision.

The exercise of a voluntary control over our muscular system is not in the first instance spontaneous and instinctive. It is the result of a tedious education. The infant requires several years training before it acquires the perfect command of its muscles, which at first it is unable to use in any systematic manner. Why then may we not hope that the human race will ultimately become partially voluntary in all their functions? The infant is born almost destitute of voluntary power; slowly he acquires, and through a number of years he is engaged in perfecting the voluntary power over his muscular system. If highly educated, he not only attains a consummate skill in the use of his muscles, but often also a control of his emotions and passions. If still farther matured in his organs and his education, might he not, to some extent, obtain the power of controlling his circulation, and his digestive and secretory functions, and thus become almost entirely a voluntary being?

That such a goal may be attained is, I think, distinctly indicated by the effects of animal magnetism, as well as illustrated by comparative Physiology. The brain and spinal system alone are commonly considered as voluntary. Yet there is no sufficient reason why the ganglionic system should be excluded from the sphere of voluntarity. Although the voluntary power appears in man to be concentrated in the brain, we find that, in inferior animals of the vertebrated class, as the developement of the brain diminishes ,the voluntary power appears more and more intimately connected with the spinal cord. A serpent or turtle after the loss of its head appears to retain a great amount of distinct voluntary power. And in those classes of the animal kingdom in which no spinal cord exists, as insects and worms, we find that all the voluntary power has descended entirely from the cerebro-spinal into the ganglionic system. From this fact we may draw the inference that the ganglionic system in man is not entirely isolated from the sphere of the will.

As the nervous system of man is more than commensurate with the whole nervous developement of the animal kingdom, it is probable that in him the Power of Volition, although it has chosen its principal residence in the cerebral hemispheres, still

continues to maintain a connection with its original home in the ganglionic system,—which was developed prior to the brain, and which was the primitive seat of voluntary action. If this proposition be true, it follows that it is necessary only to cultivate our voluntary power until it has acquired the systematic control of the whole nervous system, and thus render every function of life in future generations, submissive to the jurisdiction of will.

Such is, in fact, the present tendency of the human race. The powers of the nervous system are increasing. Diseases of the nervous system heretofore unknown are becoming common. The control of the intellectual over the animal nature is becoming confirmed; and it is therefore not too much to anticipate that in the full maturity of the human race, the sphere of volition will be greatly extended. When such a condition shall have been attained, the prevention or removal of diseases will be proportionally simple—and so far as volition is concerned, as simple as the avoidance of any obstacle upon the public highway.

In the full developement of Man as he will be hereafter, the intuitive faculties will warn him of every deviation from health in its first incipiency, and if by his volitionary power, he can rectify the disorder at once, he will escape all serious attacks of disease by resisting their approach until he removes the causes.

An example of the power of the will, which is of very common occurrence, is familiar to physicians. A person in good health, but of active impressible mind, if convinced by his friends that he is really sick or at least in the preliminary stages of some formidable disease, will take to his bed and have a real attack. On the other hand, many an invalid has been assisted in recovery by convincing him that his disease was about to depart, and many of stronger minds have sustained themselves against prostrating diseases by their determination not to yield to the attack.

As the race is advancing the power of the brain is becoming more and more predominant over the organic functions, and if we do not find the will power in absolute ascendency in robust constitutions, we may at least expect its most wonderful displays among the more delicately organized persons, whose physical constitution is a passive dependent upon the brain.

LECT. XLIV.—RELATION OF MIND TO MATTER—PSYCHOLOGICAL CHEMISTRY.

The fact that a certain mental influence connected with writing remains permanently connected with it—that the thoughts and emotions of a writer who has been dead for centuries impart a

living influence, and appear still fresh and potent to one who touches the paper—indicates a permanence of mentality as enduring as that of matter.

Old manuscripts are still full of the mind and thoughts of the author, and serve as a link to connect us with the still living spirit of the writer. Does not this indicate that mental emanations are indestructible, and that the mind is linked forever to its past history. The autograph which leads us into communication with the present condition of any mind must be closely linked to that mind. The mind being inevitably connected with its own past history, the scenes of its life, it seems to follow that our good and evil deeds cling to us forever as a reward or punishment.

Yet is not this connexion between mind and the visible objects around us inconceivable and impossible? Can there be a psychological chemistry to explain the connexion between living mind and dead material objects? If the nature of this relation or connexion can be explained we attain thereby a solution of one of the greatest mysteries of our being.

The association between *mind* and *writing* goes far toward elucidating the mystery of human life. Mind has the power of uniting itself to matter by a proper process, and the nature of this process is deeply interesting. In the ordinary course of nature, substances composed of carbon, nitrogen, hydrogen, and oxygen, in peculiar combinations, become connected with the mind, far more intimately than in the union which occurs in the case of an autograph. Some of the elements of a grain of corn become in the course of a few days, so intimately connected with the mind as to be under its immediate control, and to be the direct organ of its manifestations. So intimate is the union, that certain material philosophers regard the organized compound produced by these farinaceous and other materials as the true and only source of mental phenomena.

In this case, the combination is effected, after a mechanical subdivision and preparation of the corn as food, by introducing its particles (slightly modified by the chemical action of the stomach) into the mass of our circulating fluids. These particles, passing rapidly through the brain and every other portion of the the system, receive the impress of every species of vital force that we possess. The chemical elaboration achieved by the stomach, by the lungs, by the various secreting organs and nutritive cells, renders the foreign matter which has thus been introduced similar in its character to the tissues of the body and fit to unite with them in the process of growth. They unite by a chemico-vital affinity, and the foreign material thus becomes an intimate part of that complex machine which is pervaded and affected in all its parts by mind. Perhaps it has become a part of the brain and the seat of the highest faculties of man.

In this process of vital union between mind and matter, what

are the essential steps? A slight change of the chemical constitution and texture of the foreign bodies is necessary, by which they shall be approximated in constitution to the tissues of the body. This slight change effected, the foreign particles are at once a part of the body; they constitute the blood, which is regarded by physiologists as a vital fluid, and which is not only susceptible of being greatly modified by the vital influence, but is capable of becoming a part of any of our nervous, muscular, or cerebral organs, in the most intimate relations to mind. It appears, then, that the combination between mind and matter requires merely a very slight change in the organization of the latter followed by bringing it in a convenient form into close proximity with the tissues which are already the seat of mind and life.

In other words, the only truly essential step necessary to combine mind and matter, is to bring them together without any circumstances to impede the union. Chemical changes, it is true, do generally take place, to prepare the matter for the union, but if it be already in the proper state of chemical combination, no such change is necessary and none occurs, the union is a simple effect of approximation. Water, albumen, and salt, and several other elements revealed by chemistry, exist in our food, and pass unchanged into the blood.

If, then, approximation is the sole cause of union between mind and matter (i. e. approximation of dead matter to that which has already combined with mentality) how near an approximation is requisite? Is contact with the brain necessary? It may be true that all the particles of the body by means of the circulation have passed through the brain, before being deposited in the tissues, but the phenomena of acephalous organizations and many other facts, demonstrate that this is not at all essential. The only contact requisite is with the living fluids, as in the general circulation, or in combination with tissues already formed.

But why is contact requisite at all? Evidently for the purpose that some peculiar influence may be imparted to the substances in contact, by the vital power. An influence exerted in contact, or a subtle fluid imparted is manifestly the sole agency by which the combination is effected between mind and matter.

Why, then, should absolute contact be requisite? May not this influence be exerted at an appreciable distance? May not the nervaura be transmitted by conducting substances? There is no obvious reason why the mental and physiological influences of a living being may not be exerted upon substances which are not in immediate contact with the person, as medicines enveloped and held in the hand may exert a powerful medicinal influence, and, if an influence can thus be exerted by external substances upon the person, and that active result which is usually believed to require contact, it would seem unreasonable to

doubt that the reaction of our psycho-physiological powers upon external objects would also transcend the limits of absolute contact. The processes of life do not require absolute contact in everything; the influence of the brain is felt at the extremities, and medicinal or mechanical impressions upon any part of the body immediately affect the brain. In this case, there is an organized medium, connecting the remote parts—a nervous and circulating apparatus; but, as no such organized medium exists between the body and the external medicines which do not touch it, such a medium can not be considered necessary to vital reaction.

Moreover, it can easily be proved by experiment that the nervaura is conducted with facility by a great variety of substances. In the act of writing, the nervaura is conveyed by the arm, hand, and pen, to the paper; the highest or subtlest species of mental emanation is probably independent of such channels, being fixed directly by the act of the mind.

There is a large field of psychological chemistry open before us. In experimenting with various substances I find that each substance in nature has a particular psychological affinity, and is best adapted to retaining the influence emitted from a particular region of the brain.

Psychological chemistry, when fully developed, will show what simple and what compound substances are adequate receptacles and sources of the various mental forces and faculties belonging to man.

The problem of the union between mind and matter will be fully solved by explaining their identities and affinities. In a piece of manuscript I find that the metallic elements are but adapted to retaining the aura of the basilar and occipital organs, while the superior organs establish their connection with the more volatile, gaseous elements.

Thus it is in the human body. The various psychological and physiological forces correspond intimately in character with those which belong to the elements of matter; and, in order to evolve any particular mental or physiological power, it is necessary that those substances should be in the body which possess that power or influence.

What the psychological powers of the various component elements of the human body are, I propose to exhibit in future publications.

LECT. XLV.—THE NERVAURA.

Two of the most difficult and important questions of Physiology and Psychology are these,—By what agency does the brain, with its nerves, control the muscular system and the viscera? And by what agency do the brain and nervous system of one individual operate directly on the brain and nerves of others, without the medium of speech, vision, or contact?

It is well known that an influence proceeds from the brain to the muscles, along the motor nerves; and, also, tnat a similar influence proceeds to the heart, lungs, stomach, and other viscera. In fact that such a nervous influence *proceeds* or *flows* from the brain or nerves, gives rise to the name "nervous fluid,"—an expression which simply means, among physiologists, that which flows through and from the nervous system. Persons of mechanical habits of thought suppose that the "nervous fluid" necessarily signifies a liquid, a gas, or some more attenuated form of matter, capable of flowing through the pores of the system; and idle disputes have been indulged in, as to the existence or non-existence of such a substance. I would suggest that the term "fluid" implies merely that which flows, without reference to its material or immaterial nature. And as all admit that a peculiar agent or influence of some sort proceeds from the brain through and from the nerves, producing various important effects, there can be no discussion as to the existence of such a nervous fluid. But whether this nervous fluid resembles any of the forms of ponderable matter—or whether it resembles any imponderable agent with which we are acquainted—is a legitimate subject of discussion.

It is a very eommon supposition that the nervous fluid resembles some sort of electricity or galvanism. This hypothesis is but an approximation to the truth. There is indeed a striking analogy between the nervous fluid and the imponderable agents; but there are also striking differences. It is the office of science, not to commingle or confound analogous substances or agents, but to discriminate as to the details of their variety.

The common conception that the material and the immaterial, or the material or the spiritual, are things of an essentially opposite nature, standing at an immeasurable distance apart, and that we find in nature but these two entities, matter and spirit, which are distinguished by the utter and total contrast of all their properties—is a very limited and inaccurate view. There is no chasm or gulf, nor even a clear dividing line, between the material and the spiritual.

As all the realms of nature are connected by gentle gradations, so are the extremes of dead Matter and living Spirit connected by

a long chain of gradations, which comprise all things that exist in all the departments of nature. In the block of stone, or in the bar of iron, we observe matter in its proper type, lifeless and motionless. It has then no active force and is only capable of being acted upon. In this form the properties that constitute matter exist in perfection. It has dimensions, solidity, and weight or attraction, accompanied by a definite form and an exact location. When the block of iron or of marble has been disintegrated and reduced to dust, its dimensions, solidity, form and locality still exist,—but not in so perfect and conspicuous a manner as before. If, by intense heat, solid substance is reduced to a liquid, its manifestation of solidity is thereby impaired; and if by greater heat it assumes the state of gas, its form, location, and dimensions become exceedingly indefinite. Its solidity or "incompressibility" still exists, but is more difficult of demonstration. In the most attenuated gas yet known to chemistry, hydrogen, all the material properties,—solidity, weight, dimensions, form and location,—have nearly disappeared from our senses, and require a philosophical experiment to demonstrate their existence. There are many emanations from bodies of a still rarer and more attenuated materiality than the gases, in which the obvious properties of matter have still more completely disappeared. The material emanations which constitute the odor of musk could not be demonstrated to have any of the properties of matter, without having an aparatus superior in delicacy to any yet invented. It is true that, in this extreme subtlety, when the properties of matter have disappeared from even scientific observation, we conclude, from theoretical considerations, that those properties still exist, though in a more latent manner, or in a degree inappreciable by our senses or our instruments. This conclusion we form, because we can trace the connection between the imponderable substances and those substances which are really and clearly ponderable, from which they originated.

But when imponderable substances can no longer be identified with ponderable substances, from which they have their source, we are compelled to admit a distinct class of imponderable agents. Whether these imponderable agents be identified or not with ponderable substances, we can not at present determine; and we are compelled to recognize agents from unknown sources, standing next in rank to the imponderable forms of matter, the sources of which have been ascertained. In these imponderable agents, substances, or emanation, we recognize the first class of substances above the positively material, in which all the properties of matter have partially disappeared and which, therefore, we can not confidently pronounce to be material, unless we can trace their connection with ponderable matter. This connection we may in some instances detect so far as to connect the apparent imponderable with ponderable matter—in other cases we observe

different degrees of connection between the imponderable and the ponderable—a connection which diminishes, until, in the highest forms of imponderable existence, it entirely disappears.

Having thus fairly left the realm of solid matter, we find ourselves in a region of imponderable agencies, manifesting important powers and properties, and related to ponderable matter by various degrees of connection and similarity. Of these agencies, Caloric, Electricity, Galvanism, Magnetism and Light have been carefully studied by natural philosophers, and are believed to be the only truly imponderable substances, if they are to be recognized as at all substantial. Their analogy to matter lies in their having a definite locality, a partially defined form, and a certain degree of solidity or power of mechanical action upon matter. If the term matter be restricted to those substances which possess, in perfection, all the material properties of form, size, locality, solidity and inertia, these imponderable agents are clearly not material; for their form and size can not be ascertained with precision, their locality is difficult to determine with accuracy, their solidity does not appear to occupy any given amount of space to the exclusion of other matter, and their inertia or momentum can scarcely be appreciated. It would be difficult to draw a line of distinction between that which is matter and that which is not—to say how much these properties of form, solidity and inertia may be reduced, before matter shall cease to be regarded as matter, and be pronounced unsubstantial.

Caloric, which partially occupies space, repels the particles of gross matter, and, in the latent form, remains in permanent combination with a definite form and quantity of matter, would seem to be decidedly material, although its material properties are very imperfectly defined. Electricity, though equally imperfect in its material characteristics, may be regarded as a form of matter, because it is capable of producing decided mechanical effects. Whether a substance like light, of indefinite form, size and locality, which produces no prompt and decided mechanical effects by its presence, should still be considered a species of matter, because it can act upon matter in the production of chemical and physiological changes, may well be discussed. Light is supposed to be the vibration of some subtle, etherial medium, and thus takes rank as a phenomenon of matter rather than a substance.

Whether the invisible nervaura of our bodies is to be considered material, depends upon the manner in which the definition of matter shall be applied. If every thing capable of acting upon organized matter, shall be considered material, then even thought and volition are either matter or mechanical movements of its particles. But as our consciousness instantly rejects the idea, that thought and sensation are either matter or a motion of any subtle form of matter, we are compelled to recognize them as entirely immaterial, and consequently incapable of acting upon matter,

except by intermediate agencies, which, having lost all the definite properties of matter, are closely approximated, in their essential nature, to spirit or mind. What or how numerous these intermediate agencies may be, we can not at present positively determine; but as we perceive in the constitution of man a very extensive gradation between purely intellectual action and that spasmodic energy of impulse which most nearly resembles an electric force, we may conclude that an ample intermediate agency exists to enable mind to act upon matter. The nature of this agency is to be determined by proper researches in the laws and nature of the Nervaura.

It is not probable that any single agent can be at the same time sufficiently material to act upon matter, and sufficiently spiritual to come into contact with mind. The agent in immediate contact with mind, must be far more subtilized than caloric or electricity. Mind is entirely destitute (so far as we know) of solidity, inertia, physical form and size, and definite locality. The only point of analogy to matter which remains, consists of its localization and connection with organic substance. Disembodied mind has no definite or permanent locality—indeed it has very little relation to any locality, and it is believed by many to be as independent of time as of space. It is probable that any medium through which mind can act, must be void of the properties of matter, and susceptible of a very indefinite form and location.

In the animal kingdom, we find that caloric and electricity are evolved by the action of living form. The galvanic and the magnetic forces, also, I believe to be evolved by the vital organs. The action of the brain and nerves upon the muscular system, is effected by an agency strikingly similar to the galvanic. This agency or fluid, which is evolved by the basilar portion of the brain, the spinal chord and the ganglionic system, is one of the lower species of nervous fluids. The nervous fluid or emanation, which may be most appropriately styled Nervaura, is essentially different in the different organs. While the Nervaura or influence of the basilar portion of the brain directly and powerfully stimulates the muscular system, that of the anterior region is incapable of producing muscular contraction, and tends to soothe or arrest it. The Nervaura of the basilar part of the middle lobe, in front of the ear, excites the digestive organs; that of the superior organs, adjacent to Firmness, diminishes the gastric activity. Thus every portion of the brain originates a distinct Nervaura, producing different and peculiar physiological effects, and producing also peculiar psychological results upon others. The influence of the basilar and occipital organs is chiefly expended upon the constitution of the individual; that of the anterior and superior organs is more diffusive. It is by means of their power that an individual operates upon a nation, and transmits his mental influence through succeeding centuries.

Whatever may be thought of the analogies between electricity

and matter, or between galvanism and animal magnetism, it would be difficult to indicate any of the properties of matter in pure thought, or in the agency by which the clairvoyant communication of individuals at a considerable distance is established. Thus, when an impressible individual touches the forehead of an intellectual person, he receives an influx of intellectual power, and perhaps a distinct form of thought or idea, which may be at the time in the mind of that person, is transferred to his own. When we consider such facts, and rigidly compare our internal consciousness and matter, no one would attempt to identify our conscious life with the unconscious stone. Yet, in the vast interval between our spiritual nature and the solid forms of inorganic matter, we have traced a regular gradation from solids to liquids, from liquids to gases, from gases to imponderable substances and agencies, from the imponderables to the various species of nervaura; and from the various lower forms of nervaura, coming from the basis of the brain to the higher forms of mental emanation, proceeding from the anterior superior portion of the brain. That which is imparted from these latter organs, is consciousness itself or thought; and when, therefore, we inquire whether imponderable agencies are matter or only phenomena, we reach the most difficult questions as to the essential nature of matter and spirit.

Whether caloric, light and electricity are really substances, or only motions, phenomena, or conditions of subtle media, is a question which, at present, can not be positively answered.* And whether in the nervaura we have a subtle medium capable of manifesting certain phenomena, whether thought itself and sensation are but phenomena of certain subtlest media, or whether they are substantialities, it is certain that in thought or consciousness we may recognize a spiritual reality, with as positive an existence as a block of marble.

It appears, then, that positive Material Existence and positive Spiritual Existence—however far apart they stand, and however striking the contrast of their properties—are connected by gradations of almost inconceivable delicacy; and, being thus connected by these fine gradations, we may conceive that, although they are so widely separated or contrasted at their extreme limits, each may yet act and reach upon the other; and that BOTH may be subjected to the same great system of laws, which each obeys in its own sphere.

The spiritual nature in man, if we do not discard the authentic reports of thousands of rational and conscientious observers, is capable of communing with spiritual nature *exterior to itself*, and of existing *apart from matter*—in other words, of perceiving directly the phenomena of a Spiritual World.

Man, standing mid-way in the universe, perceives beneath him the Lowest Form of Existence—Matter; and, above him, the

* It is generally agreed that light is an undulation of an ethereal medium.

Highest Form of which he can have any conception—SPIRIT. At the lower extremity, he perceives that which is utterly powerless and perfectly material; at the summit, he perceives that which is All-Powerful or Divine, and perfectly immaterial—unlimited by space, form, or locality. And in the gradation between the two, he perceives that, as we approximate the immaterial, we approximate power; but as we approximate the merely material, we approximate mere passive existence.

Solid matter has no change of phenomena. It merely exists. If it is put in motion or at rest, it continues in the same condition. Permanence is its law. Matter in a fluid form manifests more extraordinary, active powers, and presents phenomena, which are the subject of chemical science. It is only in consequence of the existence of fluids, that vegetable and animal life are possible. Solids alone are incapable of animation, or even organization.

The superior power of Liquids—their capacity for presenting interesting phenomena—arises from their combination with Imponderable Agents. In Caloric, Electricity, Galvanism, Magnetism, etc., we find the moving powers of the Physical World. Partly in these, but chiefly in still subtler agencies—in the vital forces and the nervauras—we find the moving powers of the Physiological World. The subtlest of these agencies, again conduct us into the Psychological World. In other words, all physical phenomena, all life and all thought—in a word, all POWER comes from immaterial sources. The Power which creates and governs all being, is so subtly immaterial as to be inconceivable to man.

Thus, in the vast chain of being from matter to God, it is obvious that the lower depends upon the higher; and that the further from matter our inquiries proceed, the nearer we approach the true source of its phenomena in the realm of causation, which is the true Sphere of Philosophy. A blind and heavy-footed philosophy delights itself in matter alone, moving thereon, at snail's pace, through its tedious "inductions." But the time is coming when our Infant Philosophy shall no longer crawl upon the earth, but shall stand erect and climb into the region of causes, from which all the movements, developments and varieties of life may be seen.

LECT. XLVI.—HUMANITY—UNITY OR "SOLIDARITY" OF THE RACE.

Having heretofore considered man singly, we may now regard him as a fragment of the mass of humanity. Is the human race unitary, or does it consist of isolated races or distinct individualities?

At present we find a partial unity established by family ties, friendship, business, patriotism, religion and philanthropy, but a very great amount of isolation produced by war, national jealousy, business competition, quarrels, and the all-pervading power of selfishness and avarice. What does the constitution of man indicate, as to the natural and as to the proper constitution of society? What does it indicate, as to the laws of social intercourse and mental reaction? It is manifest that the social problem must be solved by a true system of Anthropology—it is also obvious, that a true system of Anthropology must be the foundation of our ethics. The study of a *true and complete Anthropology* would do more to humanize the world, than any other effort for its moral and intellectual enlightenment which has yet been made—it would indicate a thousand duties now neglected, and point out the proper mode of attaining our highest aims.

As to the unity of the race, a true anthropology shows that the frontal and superior organs all tend to harmony, kindness, mutual intelligence and union among men, but the posterior inferior organs all tend to discord, and prevent this unity. In proportion, therefore, to the predominance of the better group will be the amount of friendliness, concord and union among men. Not only do they establish social harmony and co-operation—they render the constitution sympathetic or impressible, and thus establish both a psychological and a physiological sympathy. This sympathy with the emotions and physical conditions of others, compels us into intimate relations—we can no longer be indifferent, when we find our own well being involved in that of others.

This sympathy may be evolved to an unlimited extent. We may sympathize physiologically with the sick, not only when in contact, but when merely in their presence, as I have myself experienced, and not only in their presence but in their absence, as many have verified. The psychological sympathy may occur not only in conversation with others, as every one has experienced who can laugh with the gay or weep with the sad, but wherever we approach them or look at them, as millions have experienced, or it may be in absence and at great distances. Persons intimately connected by friendship or marriage, have often experienced this mental and physiological sympathy, when hundreds of miles apart.

The establishment of this great sympathy is favored by both the moral and intellectual organs—it is most complete, therefore, at their junction, where the highest degree of combined goodness and intelligence is found—in the intuitive region between intellect and religion.

This region of ANGELIC EXCELLENCE is the bond of universal unity! *What is its limit?*

We perceive no necessary limitation! We perceive no reason why these virtuous and unitizing faculties should not be sufficiently developed in the human race, by a proper education, to blend their separate lives, their thousand million of distinct physiological and psychological existences into one great stream of life and mind! Sublime result! The race of man existing as one man! with one universal common intelligence—as the one soul, grand and almost unlimited in its intellectual range, yet dwelling in many thousand millions of bodies. This would be the commencement of a Divine Life on Earth!

All good influences, intellectual, moral or social, tend to accelerate the advent of this condition—all evil influences retard it: which will prevail?

The unity of the race is now demonstrated to be physiologically possible, and to be the highest condition of human progress. Multiplicity is the present condition, and must continue while so many evil influences are at work. Unity, as they exist at present in the midst of crime, disease and misery, is neither desirable in itself nor admissible by the laws of nature. It must be the result of the highest improvement and maturity of man.

LECT. XLVII.—HUMANITY—SOCIAL PHILOSOPHY.

SYMPATHY OF CONTACT—APPROXIMATION AND SEPARATION.

The science of Humanity rests mainly on the laws of action and reaction between different minds—the laws of SOCIAL INTERCOURSE.

Of these the first great law is the law of *sympathy*.

Each organ, when excited, tends to diffuse its own peculiar style of organic action throughout the individual's own constitution, and through all similar organisms within reach.

This law is common to both physiology and psychology—it is common to all active processes, either of organic or of inorganic substances. Every condition, whether of motion, growth, sensation, volition, emotion or thought, is diffusive in the medium in which it exists.

Hence, every individual is a source of the continual diffusion of his predominant mental characteristics. This diffusion is proportioned to the amount of power existing in his faculties, and the extent of a suitable medium for propagating their action. The courage and ambition of Napoleon were diffused through his armies, because they were composed of a chivalrous race; but they would have called forth no such display of prowess from a race of cowards, who had not the firmness or the animal courage upon which to operate. In vain would the clown or comedian operate upon an audience destitute of Mirthfulness, and in vain would the philosopher address a community deficient in Reason. But where similar faculties exist in the beings around one, they receive the impulse of every mental manifestation. The mirthful man diffuses mirth everywhere—the morose man checks the flow of good humor—the combative man creates strife everywhere around him—the intellectual man arouses thought—the benevolent man good feeling. Thus *every man is surrounded by his own peculiar moral atmosphere*, more distinct and extensive in proportion to the amount of his powers, and the *character of the man may be generally learned from the character of the influence which he has imparted to society.*

This SYMPATHETIC LAW of mind is as simple and uniform as the laws of caloric—the laws of radiation and conduction. Every mental faculty, emotion or impulse is diffusive, and every organ is continually like a coal of fire emitting its peculiar radiation, calculated to excite similar organs and to check those of a different nature.

But there are different degrees of this power of radiation in the different organs. The different species of nervaura are not all equally subtle and penetrating. The organs of social collision or hostility, and of mental dullness, tend to diminish rather than increase the mutual influence and mental intercourse of mankind. They are, therefore, repellant, and not so diffusive. The higher powers, in consequence of their subtlety, radiate their influence instantaneously, like light to immense distances. The inferior powers, like caloric and electricity, radiate with less power, and depend more upon conduction.

Thus, in the history of mankind, the influence of brute force is limited to its immediate presence, but the sphere of the highest intellect is limitless—it operates from age to age with a far reaching power, proportioned to its exalted nature. The intellectual manifestations debased by selfish and petty influences, are destined to a speedy oblivion; but those which come from intuition and pure genius, are immortal. The region of highest illumination in the brain is also the region of the most extensive influence between man and man—of unlimited mental intercourse and sympathy.

Benevolent law! evil is thus self-limited, good is eternal. The faculties which point to self and to the earth, concentrate to a petty

space; those which look to all humanity, to truth and God, operate through a vast sphere.

By the law of simple radiation, each organ tends to increase the organic power of similar organs, as coals of fire together increase each other's heat. Hence, the power of courage or of rage in a multitude. The aggregate manifestation of courage in an army, or of violence in a mob, is above the average capacity of the individuals acting separately. So with religious excitements in the time of revivals, which suddenly change irreligious men, and panics in armies, which make even brave men falter. So in the political excitement of election days, and the social excitement of balls and parties—in such scenes we have much higher manifestations of the various feelings than solitude can produce. The midst of the throng is the place for human passions, which glow like burning coals. In solitude the fires die out for want of mutual support. Hence the vices and crimes of cities, and the comparative tranquillity of the passions in the country. Hence the demoralizing effects of crowded prisons, and the advantages of solitude.

But why is separation favorable to virtue, instead of merely producing a general inactivity of the faculties? Because the higher powers act through a larger sphere, while the inferior faculties require nearer approximation. Solitude is favorable to Love, Philanthropy, Religion and Philosophy. The course of true love never is so smooth as when the parties are remote as possible. A love like Petrarch's scarcely exists in habits of close familiarity. High and holy philanthropy perishes in the daily business intercourse of the city. Philosophy dies in the mixed multitude—folly reigns in the most crowded assemblies. If we would secure quarrels, urge men into the closest proximity—if we would keep the peace, let them be separated. If men are in an ill-humor, the nearer they approach the greater danger of collision. When far apart, anger and fighting do not arise, yet a distant author or great man may excite the highest reverence and love of millions. Death and the lapse of time remove an individual from the limited sphere of the bad passions; hence the rule, "*de mortuis nil nisi bonum.*" The more remote the more perfect the oblivion, unless some good influence endures.

Corollary.—It is necessary that human beings should have independent spheres, and the more the selfish impulses predominate, the more complete should be their isolation; hence the almost universal repugnance to communism. The more these impulses are subdued, the nearer they should unite, and the better adapted to forming one family. The worse men are, the more they are injured by association, and the greater their repugnance. Among the truly good, association is merely a beneficial stimulant to all their faculties, and realizes their highest happiness. The best of men, however, may shrink from society in which they meet only their inferiors, unless they go as leaders and teachers to diffuse their

own influence. Social customs and institutions which require the close and permanent contact of antagonistic natures, are productive of endless discord, and necessarily result in the slavery of the weaker party.

LECT. XLVIII.—HUMANITY—SOCIAL PHILOSOPHY.

SYMPATHY AND REACTION.

The greater part of the history of human life is an illustration of the law of sympathy. In consequence of this law, every faculty that we possess gives us the power of exciting the same faculty in others, and not only the power, but a constant tendency to do so.

Our intellectual faculties continually tend, when active, to rouse the same intellectual faculties in other persons—if we calculate, we address the mathematical faculty—if we make music, we address the organ of music—if we reason, we exercise or excite the reasoning powers of our listeners—if we exercise the memory by narrating, the mental powers of the listener will be exercised in the way of recollecting what he hears—so of imagination, thought, ideality, etc. Whatever faculties are exercised—whatever train of thought indulged by a speaker or writer, the same intellectual faculties are called out—the same train of thought established in the mind of the auditor or reader. Thus does every intellectual man propagate his own intellectual action, and whenever he speaks or writes, and wherever he appears, he rouses thought. Thought springs up around him, for his influence unconsciously excites it. Hence, whatever he says or writes is immediately received by the public mind. He is heard with an interest which other men can not arouse.

The benevolent man is continually surrounded by an atmosphere of kindness—he easily finds friends, and often receives evidences of kindly feeling—his language is received with great liberality, and he is tolerated in the expression of obnoxious sentiments, or in personal jests and witticisms which would be resented in others. The entire predominance and strong action of all the virtuous organs, renders the presence and influence of the individual delightful to his associates. Such persons are enabled to criticise and reform society with *comparative* impunity. Those reformers who are continually persecuted, and who find the angry passions of men ever rising against them, should guard against concluding that human nature is entriely depraved, and should look for the defect in themselves which renders their labors unsuccessful. It is not merely necessary that we should be good in design, kindly in feeling, and just and truthful in all things—our goodness should be intense and powerful—our emotions should have sufficient strength to rouse the emotions of others. To attain this condition, if possible, is our duty,

in discharging which we are repaid by the pleasant kindness which is reflected back upon ourselves—a true reflection of our own faculties. If the faculty we exercise be friendship, we have friends; if love, we are beloved; if humor, we are greeted with a smile; if reverence or personal respect, we are respectfully treated; if refinement, we escape much rudeness; if frankness and sincerity, we receive frank and truthful communications; if patience, we are received mildly, etc. Thus does virtue directly promote our own interest. It is true the virtues are often exercised without much apparent return, their return being only negative; *i. e*, they prevent the injuries to which we might, without them, have been exposed.

The virtues are often exercised without a suitable return, because exercised without firmness or energy. A feeble, sensitive temperament, must necessarily fail of making any strong impression upon more vigorous constitutions.

The energetic organs give us the power of exciting energy in others, inspiring them with courage, perseverance, fortitude, ambition, etc. Hence the man of strong character makes a strong impression, and produces great, permanent effects. As a military, political, or intellectual leader, he rouses men to efficient action. He is also capable of recognizing promptly the degree of energy or force of character in other men, and thus selecting the proper agents to accomplish his purposes.

As the intellectual man instantly detects and understands intellectual capacity, so does the man of warm emotions feel instantly the influence of virtue in another, and the hero recognizes the hero. Thus we arrive at the general principle that every faculty enables us not only to inspire or excite the same faculty in others, but to recognize its force. Each man is therefore best judged and appreciated by those who most resemble him. They who differ too widely in their own character from the subject of investigation, can not rightly conceive him. Hence every extraordinary man, *in proportion as he is extraordinary, is misunderstood.* He must either live in modest retirement or submit to slander. The misconception and misrepresentation of men's characters, arise from the fact that they differ too widely from their contemporaries, even if this difference consist merely of greater developement. As the mere tyro in arithmetic is incapable of comprehending the most abstruse mathematical problems, so is the man of inferior intellect incapable of appreciating the results attained by the most remarkable powers; and the man of inferior virtues is incapable of fully appreciating the dictates of the most extraordinary excellence. All history and observation confirm this. Extreme and strange truths attained by an uncommon intellectual power, appear as falsehood, folly or insanity to those who can not comprehend them. No man is *truly great, intellectually,* who has not attained this position in reference to a large portion of his fellow beings. Nor is he truly a great philanthropist who has not attained a position which would render him

a suspected, a dangerous, or an evil minded person in the eyes of the multitude. To the multitudes of any age, the divinest virtue and wisdom would be but horrible wickedness and falsehood. The principles of civil liberty, which were once considered so atrocious, have been gradually and imperfectly recognized by the most enlightened nations, and this recognition is *but the initial step* of their mental progress.

The law of sympathy operating through the selfish and wicked elements of character, enables the vicious to exert a powerful demoralizing influence over the young,* and to recognize readily the most suitable victims. Hence the deleterious effect of the promiscuous associations of prisons, dramshops, and all resorts of bad company. If we would discharge our duty to our children, we should keep them from all society which does not present the proper models of character.

The contagious influence of the selfish faculties is such as continually to embroil the individual in difficulties. He has many bitter enemies; he is badly treated, and suffers from every conceivable wrong, according to the peculiar cast of his character. He is malignant; his enemies are rancorous; he is dishonest, and he suffers from every species of fraud, intrigue, and treachery; he is irritable, and quarrels continually rise around him; he is selfish, and he finds that he has no friends; he is stubborn, and he meets with stubborn opposition; he is morose, and pleasant society avoids him: in short, he finds the evil of his own nature continually reflected upon himself, and thus sees too much of his own character in society—the only character he has any talent for detecting. This reflex action sometimes produces apparent contradictions. Thus the man of strong, bad passions, will have great power of exciting the passions of others, even when perfectly calm himself, and sometimes avails himself of this power to disturb them. The man who is entirely amiable has no such power. No one feels very vindictive or angry against him. Hence it may be that when a good and bad man come together, the former may become intolerably angry and use intemperate language, while the latter is mild and gentle—there being nothing in his opponent to call out strong passions or malice. So where a loving and an unlovely character meet, the former may win the affections of the latter, and yet may manifest none, for lack of a suitable object. Thus the character of every individual is often reflected from society, and truly mirrored. Owing to these causes, it is often difficult to determine in the quarrels of friends, which party is in the wrong, and few are able to understand correctly the discords of wedded life.

Every one sees society in the light of his predominant faculties.

* Vice is a monster of that horrid mien,
Which, to be hated, needs but to be seen;
Yet seen too oft, familiar with her face,
We first endure, then pity, then embrace.—Pope.

Even if he does not, by his intercourse with society, attain a peculiar experience, he has a peculiar mode of viewing life, derived from his own feelings, which give the exterior world the hue of his own spirit. Hence those governed by the selfish or evil impulses, see all things unfavorably—they think evil and speak evil—they are blind to the beauty and the merit which the world contains, and void of the hope which brightens the whole scene. Those in whom these faculties are deficient, and the better elements preponderate, are rather blind to the evils that actually exist, and inclined to see good alone in the world. The man of ample developement recognizes both the good and evil, as well the progressively increasing ascendency of the former; but he who is not progressive in his own nature, does not easily recognize progress in the human race.

LECT. XLIX.—HUMANITY—SOCIAL PHILOSOPHY.

LAW OF INDUCTION OR ANTAGONISM.

If we state the law of sympathy or radiation as the general law of human nature, an ingenious observer will readily mention exceptions—for example, although kindness in another may excite kindly feelings in ourselves, an exhibition of vanity will not certainly arouse our own vanity, as it will be more apt to excite contempt. Mirthfulness, which generally excites our own laughter, may excite our anger, if unseasonably obtruded. The display of courage, directed against ourselves, may excite fear and submission—the display of cowardice or alarm in an enemy, creates no fear in us, but rather increases our courage.

What then are the limits of the sympathetic law, and what are the laws of these exceptions? These are important questions. The proper conjunction of individuals in matrimony, friendship and business, depends upon these laws of social intercourse and mental influence. Will individuals of similar or of dissimilar qualities form the best matrimonial union?—should we seek our likes or our opposites?—and again, what will be the probable result of any given combination as to the harmony and happiness of the parties? Science should be able to give an exact answer.

The prevalence of the law of sympathy depends upon the anterior and superior organs, which are sympathetic—as we leave this for the inferior or selfish region of the brain, we find the law of sympathy gradually giving way, and in the inferior region it is gradually replaced by a law of antagonism; but there is no definite point at which we can perceive the sympathetic destroyed immediately by the antagonistic law—every conceivable intermediate gradation between sympathy and antagonism exists in the organs,

and this is a direct and necessary consequence of the nature of their functions. The spirit of opposition or combativeness impels us to thwart, oppose and reverse everything before us, as the spirit of sympathy and reverence leads us to submit, coincide and harmonize. We may, therefore, say that all the organs of the sympathetic half of the brain act more or less under the law of simple radiation, and diffuse themselves directly; but all of the antagonistic or combative half of the brain act more or less anti-sympathetically, that is, instead of increasing the power and activity of similar organs in other individuals, they hinder or diminish their action when powerfully displayed. In other words, to illustrate by physical science they act not by radiation, but by *induction*. Each organ repels the same organ in another, and thwarts its action. Thus, as positive electricity in one object repels positive electricity in another, so does positive Combativeness in one individual repel Combativeness in another. Individuals highly charged with Combativeness, Selfishness, Irritability, Vanity, Moroseness, Jealousy, etc., are mutually repulsive and unfit to associate. But as positive electricity repels the positive and attracts the negative, so do these repulsive organs attract their opposites. Thus Combativeness quells Combativeness in another, and compels the individual to submit with every appearance of good will and respect. Acquisitiveness aims to thwart the Acquisitiveness of another, and endeavors to make him to exercise his Liberality in giving. Vanity and Arrogance endeavor to display, at the expense of others, whom they would reduce to a position of Humility and Deference.

Thus each of these selfish organs acts like a plate of positively electrified metal, repelling the positive electricity from circumjacent surfaces and placing them in the opposite or negative condition.

This explains why individuals of strong and active occipital organs do not harmonize well, and can not move in the same sphere without collision, although each may be surrounded by many friends composed of amiable and feeble characters, with whom they harmonize as selfishness harmonizes with benevolence, firmness with weakness, avarice with liberality, fierceness with love, and positive electricity with negative.

The fiercest disturbers of society are sometimes blessed with wives, whose gentleness and kindness satisfy their fierce selfishness, and whose occipital organs are not sufficiently active to admit of any collision. The natural state of mankind, while the occipital organs are active, is a state of collision or social war in which the gratifications of each are derived from the oppression of the other. Each desires to appropriate the greatest possible amount of power and wealth to himself, and leave the others under his control and inferior in wealth.

The proper mode of human action is that which belongs to the law of sympathy or radiation—it has even been doubted whether the method of action by induction should ever be allowed. Good

men act by sympathy, bad men by antagonism; one is persuasive, the other compulsory. The good man nullifies opposition, by diffusing kindness around him; others annul opposition by the combative power, which overawes and paralyzes the opponent.

LECT. L.—HUMANITY—SOCIAL PHILOSOPHY.

GENERAL LAWS OF SYMPATHY AND ANTAGONISM.

The laws of SYMPATHY and ANTAGONISM, or of RADIATION and INDUCTION, do not of themselves explain all the phenomena of social intercourse, for it is not true that the kindly emotions *invariably* diffuse themselves, or that the hostile impulses of different persons invariably impede each other. A manifestation of kindness or respect may possibly be provoking, and a manifestation of animal courage is often diffusive or contagious.

The effect of any faculty or emotion upon others depends upon the DIRECTION of its manifestation, and the remarks which have been made upon the sympathetic or antagonistic effects of organs, are applicable to them only when they are directed to ourselves, and with a certain degree of power. When they are directed towards others, the effects may be different. Kindly feelings, directed towards ourselves, are necessarily pleasant and diffusive in their effects; but when directed to an enemy, or in any manner of which we disapprove, they may even excite anger or contempt. Combativeness directed against ourselves, rouses by an *irritative* stimulus the same faculty in us, and, if sufficiently powerful in its influence, it overwhelms our own Combativeness. Yet it does not always tend to overwhelm our powers of resistance. If we see it directed against others, we may sympathize with its action, and feel excited even against our will. Thus the movements of an army diffuse a military spirit among spectators, and scenes of violence generally prepare the spectators gradually to imitate them and to participate in the violence. In short, vice is contagious as well as virtue, and *contagion is the general law* of human nature. The antagonistic as well as the sympathetic organs are continually diffusing their influence.

Practically, then, we may say that radiation, sympathy or contagion is the general law of human nature, and that the law of induction or antagonism only obtains in reference to the selfish class of organs under certain circumstances—that is, when they are directed against one another. When not thus directed, they do not produce the phenomena of induction, but act by the laws of radiative diffusion. Yet in their power of radiative diffusion, they

are much inferior to the sympathetic organs, and in truth their diffusive power is altogether borrowed. Diffusion takes place by means of the sympathetic class of organs alone, which are always sufficiently active in human beings to admit of sympathetic influence. Consciousness and sensibility always maintain open avenues for contagious impressions, unless, as in profound sleep or coma, they are obstructed.

It is now clear, that when an individual directs against us his selfish and hostile faculties, we feel their influence alone, and the law of antagonism obtains; but when we merely witness their manifestation, not directed against ourselves, we do not feel this antagonism, but receive by the general law of sympathy their diffusive influence. Hence those who witness scenes of vice, such as daily quarrels, cruel punishments, abusive threatening language, falsehood, fraud and theft, necessarily absorb some portion of the demoralizing influence, and lose some portion of their own purity of sentiment and gentleness of feeling. Our views may now be summed up in this proposition: *Every organ acts by the law of radiation, diffusion, contagion or sympathy, excepting those which are essentially antagonistic or hostile in their functions, which act by the law of induction whenever they can be entirely isolated from the influence of the sympathetic class, and made to act alone.*

This isolation, however, does not usually take place, for the sympathetic organs are always more or less active. It occurs only by means of special efforts—that is, by directing our passions to bear against individuals whom we exclude from the sphere of our sympathies.

Notwithstanding this decided predominance of the sympathetic law, it is true that the inferior occipital organs tend to annul sympathy, and could their influence sufficiently predominate, the antagonistic would overrule the sympathetic law. Even in common discussions or debates, we perceive this—the spirit of antagonism between the parties is so influential, that notwithstanding the great number of reasons which they adduced to make each other think alike, their opinions often differ more widely in consequence of the discussion.

But it is contrary to the general order of nature for the antagonistic organs to predominate so much in the cerebral constitution, as to thwart the law of sympathy: they may curtail its sphere and prevent its higher displays, but they do not destroy its existence. On the contrary, the influence of the sympathetic faculties (among which the intellectual are prominent) is designed to spread through all the inferior departments of the brain, imparting to each a slight portion of the sympathetic character. The legitimate course of cerebral excitement is from before backward, and from above downward—thus, from the centre of mental illumination in the forehead, a mental life or consciousness is imparted to the inferior faculties.

Man's higher nature thus controls and pervades his inferior, as the sun controls and pervades the earth by its diffusive influences.

The cause of this ascendancy of the higher powers is inherent in their constitution. Diffusibility is an essential element of their nature, and hence their influence is more diffused through the brain, as well as more diffusible to other individuals.

In addition to the foregoing general considerations, as to the laws of mental sympathy and antagonism, we need a far more specific and exact determination of the laws governing social intercourse. This determination must be mathematical, and belongs to the department of PATHOGNOMY. The reader is, therefore, referred to the lectures upon the mathematical portion of the Science, in the latter part of this volume, in which it will be shown, that whether an organ acts by direct sympathy, diffusing similar conditions to its own; or by antagonism and induction, producing exactly opposite conditions; or by some other law, producing results neither analogous nor antagonistic, still, in all cases, it obeys but one simple law, which is mathematical, and which in all cases operates alike, but produces different results, according to the different relations of other beings, whose position in relation to ourselves determines the manner in which our manifestations may affect them. This mathematical law determines all the relations of man to man, whether as friend, enemy, competitor, subordinate, superior, teacher, lover, slave, companion, pupil, or in any other relation arising from human society.

OUTLINES OF LECTURES

ON THE

NEUROLOGICAL SYSTEM OF ANTHROPOLOGY.

PART II.—CEREBRAL PHYSIOLOGY

LECT. LI.—THE NEW PHYSIOLOGY OF THE BRAIN.

Up to the present period, cerebral science has been chiefly phrenological. Cerebral Phrenology was developed by Gall, but Cerebral Physiology has never been organized into a science, nor have the materials necessary for such a science been collected. But as neigboring sciences necessarily commingle and connect in their facts, it was impossible to cultivate so thoroughly as has been done, the sciences of Phrenology, Pathology, and Anatomy, without incidentally throwing light upon Cerebral Physiology, and developing some of its important facts. Thus Gall, for example, in teaching the functions of the cerebellum, as an organ of sexual inclinations, necessarily discovered the connection between the sexual passion, its organ in the brain, and the sexual reproductive organs in the body. Yet, it was not because Gall sought in the cerebellum the governing power of the male and female apparatus of reproduction, for he only sought the organic cause of the sexual passion, and failed to trace numerous and important effects of the cerebellum upon the procreative organs, because those physiological effects, and the reciprocal connection, were merely incidental to his main inquiry.

In recognizing an organ of Alimentiveness, its physiological relation to the abdominal organs was apparently but little regarded by Spurzheim, the organ being regarded simply as an organ of an appetite, or trait of character. And the existence of other organs in the brain, connected with the internal viscera, appears to have been entirely beyond the phllosophy and speculations of both Gall and Spurzheim.

As to the existence of special cerebral apparatus for the muscular system, so far from recognizing any such organs, Gall and Spurzheim were decidedly opposed to their recognition—at least as regards the cerebellum, which they claimed to be monopolized by the sexual passion. Among experimental physiologists, a considerable effort has been made to localize in the brain the source of the mus-

cular powers, but with little satisfactory success. No portion of the brain has been proved to be a special source of muscular power for any part of the body; nor has any thing very positive been determined concerning the muscular energies connected with the cerebellum and the crura of the cerebrum. This much, however, has been generally agreed on, as the result of physiological and pathological inquiry—that the superficial or gray portions of the brain, adjacent to the membranes and cranium, are particularly connected with the intellectual operations of the brain, while the interior and basilar portions, lying nearer the medulla oblongata, have a more intimate relation to the muscular system; the relation being diagonal, that is, between the right or left hemisphere of the brain, and the left or right half of the body.

These few suggestions are nearly all that Gall, Spurzheim, and the physiologists, have contributed to CerebralPhysiology; and in constructing such a science at the present time, it is necessary to advance, not only without the sanction, but in the face of the positive disbelief of anatomists and physiologists who have been accustomed to regard the brain as having in its *convolutions* only mental functions, and even those altogether uncertain and indefinite in their location.

In the outset I must remark, that the brain may be regarded as necessarily and especially a psychological organ, being more than any other part of the body the special residence of the spiritual power. If the mental and physiological powers were to be absolutely and entirely separated, the former would undoubtedly be referred to the brain, and the latter to the body; but as they are not, and can not be separated in life, we must consider the brain a physiological as well as a mental organ—since, as the governing organ of the body, it is continually modifying all the operations of life. In like manner, as I shall show in the lectures on Sarcognomy, the body is to a certain extent the seat of our spiritual power, and posesses its psychological as well as physiological influence.

The relation between the brain and body is that of mutual sympathy and reaction. If either be large and powerful, while the other is diminutive and feeble, the balance of their reciprocity is changed. A vigorous and sensitive body, connected with a small and feeble brain, would exercise a greater influence over the latter, and would be less controlled by the power of the mind. On the other hand, a large, active, and cultivated brain, connected with a delicate and feeble body, would exercise a more absolute control over the latter, the health or vigor of which would be greatly dependent upon the emotions, the will, and the imagination. We can not, therefore, regard all brains as having an equal amount of physiological power, since there are many in which the physiological powers are defective, and others in which a strong impression upon the brain may be adequate to the relief of formidable diseases. With these prefatory remarks I would state the general law,

That *all parts of the brain have their physiological as well as mental functions*—that every organ *acting merely in the brain, acts as a psychological organ*, but in proportion as its acts are transmitted to the body, it *becomes a physiological organ.* In the infant, from the predominance of the conductor organs, the influence of the brain is more abundantly thrown upon the body, and its physiological power is more important.

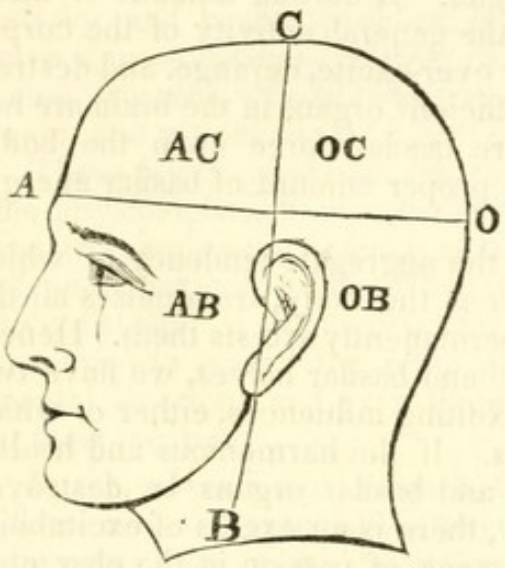
The basilar portions of the brain, which have a downward pathognomic line, transmit their influence to the body, increasing the excitement and activity of every organ. A certain amount of these basilar influences is necessary to the general activity of the corporeal functions ; but in excess, they over-excite, derange, and destroy the organism. Hence the most efficient organs in the brain are not those which concentrate the entire basilar force upon the body, but those which animate it with a proper amount of basilar energy, regulated by higher influences.

The superior half of the brain, the aggregate tendency of which is upward, diverts the influence from the body, tranquilizes all the physical functions, and, in excess, permanently arrests them. Hence, if we divide the brain into coronal and basilar halves, we have two opposite classes of sedative and exciting influences, either of which would be destructive by its excess. If the harmonious and healthful relations between the coronal and basilar organs be destroyed by the predominance of the latter, there is an excess of excitability in the constitution, as well as an excess of passion in the character. In the muscular system there is a restless and convulsive tendency—in the circulation, great violence and irregularity—the secretions and evacuations are excessive and irregular—the appetites enormous—the growth frequently excessive, irregular and deformed—the blood abundant, but impure, and the health continually deranged by irregularities—while the entire existence of the individnal is full of physical and mental suffering. On the other hand, when harmony is destroyed by basilar deficiency and coronal excess, the functions of life are languidly performed, the muscular system is feeble, digestion and nutrition are imperfect, the appetites null, the growth and developement of the body defective, the circulation feeble, and the life short.

The harmonious condition of developement is that in which the basilar organs are sufficient to energise and impel every bodily function, while the coronal organs impart tranquility, regularity, and pleasure to the course of constitutional excitement, and guide the physical developement into forms of beauty.

If we divide the brain into frontal and occipital halves, by a vertical line from the cavity of the ear, we shall find all the organs of the occipital half calculated to energize and sustain the constitution, while those of the frontal half diminish its capacities for action, and are therefore appropriated to functions not manifested through the muscular system, and not acting upon external nature.

The organs of the occipital half energize the constitution without producing the excesses of excitement, morbid sensibility, and derangement, which are found in the basilar half. In other words, if we divide the basilar half into anto anterior and posterior portions, at the cavity of the ear, the anterior portion will contain the exciting, debilitating, and deranging elements, while the posterior portion, being also a part of the occipital half, contains those vehement energies which are not of an exhausting and destructive character.



Explanation.—A, Anterior half of the head. O, Occipital half. C, Coronal or Superior half. B, Basilar, or Inferior half.

AC, Anterior Coronal Region.
OC, Occipito-Coronal Region.
AB, Anterior Baisilar Region.
OB, Occipito-Basilar Region.

If, then, we divide the occipital half of the head into two quarters, the occipito-basilar and the occipito-coronal, the former will contain the most intense and powerful animal energies which our organs can bear without destruction, while the latter will contain a group of energies of more elevated character, in which the happy and sedative influence of the superior regions is properly blended with the occipito-basilar force, producing that kind of power which is efficient but not excessive, and which is compatible with virtue and health. In a well-formed head, therefore, it is essential that the occipito-coronal region should very decidedly prodominate over the antero-basilar region, while the relative proportion between the antero-coronal and the occipito-basilar regions will determine the tendency toward the mild and amiable, or harsh and violent characteristics.

In the anterior half of the brain all is antagonistic to efficiency and power; yet there are certain functions essential to the constitution—certain moral, intellectual, and physiological capacities belonging to the anterior half, which render it necessary that the anterior region should have a sufficient developement to perform all its duties without impairing and thwarting the the occipital action. The duties of the anterior half of the head are, morally, to guide the conduct, repress the passions, and give us pleasant emotions; intellectually, to give us knowledge, and guide the blind power of the occiput; physiologically, to make us aware of the conditions of the body, so as to preserve it from disease or injury, and to carry on the changes which are necessary, by secretion and exhalation, so as to preserve the constitution in a state of purity and freshness, as well as to protect it from injury.

In other words, the anterior half of the brain contains organs governing the sensitive and visceral systems—organs which render us impressible to all surrounding influences of matter and of mind, through which we receive impressions, and sustain our intercouse with external nature, material and mental, while by the occipital half of the brain we resist external impressions, establish our independence, react upon external objects, and maintain the integrity of our own constitution. Under the frontal influence, the constitution is passive, yielding, and easily deranged or destroyed by external agencies. Under the occipital influence, we are hardy, un-impressible, and capable of making rather than receiving impressions. Under the frontal influence, the constitution becomes delicately adapted to circumstances, having no resisting power or independence. Under the occipital influence, the constitution and character are incapable of being moulded or changed, and exist in continual antagonism to every surrounding influence. We therefore determine the stamina or power of constitutions by the occipital half of the head—their delicacy, beauty, and refinement, by the frontal half. If the frontal half be signally defective in breadth and prominence, the internal viscera—to wit: the brain, lungs, and abdominal organs, are imperfectly developed and inactive, the sensitive nerves are imperfect, the secretions dry, the intellect contracted, and the whole constitution characterized by a wooden rigidity. The intellectual organs are thus connected, by their frontal position, with the secretory system, and the intellect is clearest when the secretions are all free and abundant; hence the association between intellectual deficiency and dryness. A meagre harangue, in which the frontal half of the brain is imperfectly displayed, is pronounced dry, in opposition to the rich and juicy character produced by the affectionate, social, humorous, enthusiastic, and brilliant organs of the frontal half.

The intellectual organs belong to the front lobe, while the visceral organs belong to the middle lobe, running up and down, near the vertical line, from the cavity of the ear. These visceral organs, and the viscera which they govern, are, it is true, necessary to the constitution—necessary to its excitement, its renovation, and its adaptation to external circumstances; but in their ultimate tendency they produce exhaustion instead of power, and in their immediate effects they diminish rather than increase the independent sustaining power of the constitution. The abdominal organs, for example, although essential parts of the constitution, would of themselves speedily prostrate and destroy its powers. Having no organs of external motion, they are helpless; and as appendages of the body, they cause by their operation a waste of its substance, a deterioration of the blood, a relaxation of the muscular system, and a depressing sense of debility and hunger. But it may be supposed that, although acting alone, they produce this prostration, their normal action, when supplied with food, is highly invigorating.

It is true that food, when obtained by our occipital energy, counteracts the debility and hunger which are produced by our abdominal organs; but if the amount of food be sufficient to concentrate the energies of the constitution upon the process of digestion, the effect is languor and partial stupefaction, followed by partial relief, when the activity of the abdominal organs diminishes, and then followed by still greater prostration, when they display their activity again in producing hunger and exhaustion. Thus the influence of the abdominal group is invariably prostrating and exhausting, and the full energies of the constitution are enjoyed only while the abdominal organs are in a state of comparative inactivity, and we are left unconscious of their existence. The renovating influence of food is derived from the function of nutrition, which operates in all parts of the body. In like manner, the action of the heart, as shown in the excess of fever, produces an excitement throughout the whole constitution, which is rapidly destructive; and the most powerful constitutions are those which have moderate excitability and a pulse of but moderate frequency.

That the extreme action of the pulmonary organs is also ultimately an exciting and exhausting influence, may be shown by reference to their mode of action. Respiration developes the general, cerebral, passional, nervous, and physiological activity of the constitution. This it effects by the introduction of oxygen and the removal of those materials which oxygen forms by its combinations with the blood and tissues. The process is, therefore, essentially exhausting or wasting, and at the same time generates an amount of heat and nervous activity which are relaxing and exhausting in their physical effects.

In other words, it appears that the visceral organs are calculated to expend by their activity the energies which are accumulated by the occipital half of the head, and to give the constitution that activity and internal movement which are necessary to its manifestations. That the activity of the pulmonary organs produces an immediate increase in the chemical changes and general activity of the whole constitution, we realize whenever we engage in animating exercise, and breathe more rapidly. The increased exhalation then occurring, produces an increased demand for food and drink, and sometimes for stimulus. The real invigoration, however, arises from the muscular exertion, and consequent nutrition, and not from the respiration, which removes noxious materials and renews nervous excitability—not conferring power, but renewing the capacity to display it. If we would determine this point, we might make the experiment of simply respiring rapidly and deeply for a few minutes, without having taken any proportional exercise. In performing such an experiment we experience no real increase of strength.

Slight irritations, which concentrate excitement in the lungs, or more serious diseases, which render them the centre of physiological excitement, greatly detract from the physiological force, and

indeed, pulmonary diseases, in the upper part of the lungs, are peculiarly fatal. Public speaking, and other exertions of the lungs, when not judiciously managed, so as to prevent an accumulation of excitement in the thorax, are greatly exhausting and prejudicial to health. But when conducted with so much vigor as to drive the circulation from the lungs to the surface and extremities, the constitutional vigor is sustained and improved.

The remaining viscus, the brain, is decidedly antagonistic to vitality in its general tendency. Any great developement and cultivation of the brain in the young, is calculated to retard their growth, and endanger their health or vitality. Of all species of labor, there are none which so thorougly exhaust vitality as the labor of the brain—the intense and prolonged exertion of the intellect and the finer emotions.

We may therefore regard the entire viscera of the three great cavities—the cranium, the thorax, and abdomen, as somewhat antagonistic to vital force in their character, being concerned in the excitement and expenditure of our energies, and the waste of the substance of the body. Hence we find the cerebral organs corresponding to the internal viscera, located upon the brain, immediately in front of the vertical division between the frontal and occipital halves. In this region we find six localities, corresponding in succession to the brain, the lungs, the heart, the liver, the stomach and alimentary canal; which six regions extend from the temporal arch, near the organ of Love, in the region of Sublimity, downward by the front of the ear, and underneath the middle lobe, toward the median line. In this range we have, in regular succession, the CEPHALIC, PULMONIC, CARDIAC, HEPATIC, GASTRIC, and INTESTINAL regions. The developement of these several organs in the brain is indicative of the constitutional activity and power of the corresponding organs in the body. The spleen, the kidneys, and the bladder have their corresponding organs in the intestinal region, which are marked upon the face. The skin has its controlling cerebral influence interior to the abdominal organs upon the brain, marked in the map upon the side of the chin. The muscular system, in general being used by the whole brain for the expression of all its various conditions and inclinations, sustains a general relation to the entire brain, being invigorated by the occipital, and debilitated by the frontal region. Its special cerebral organ, or principal source of power, is found in the basilar region of VITALITY. The reproductive, or sexual organs, are located in the brain, not far from the abdominal, and occupy the superior surface of the cerebellum, on the median line, extending probably into the fibres which connect it with the quadrigeminal bodies.

The entire *sensitive nervous system* is represented by the organ of SENSIBILITY, in the temples, immediately over the cheek bone, at the anterior extremity of the middle lobe.

The EXTERNAL SENSES have their locations, as heretofore de

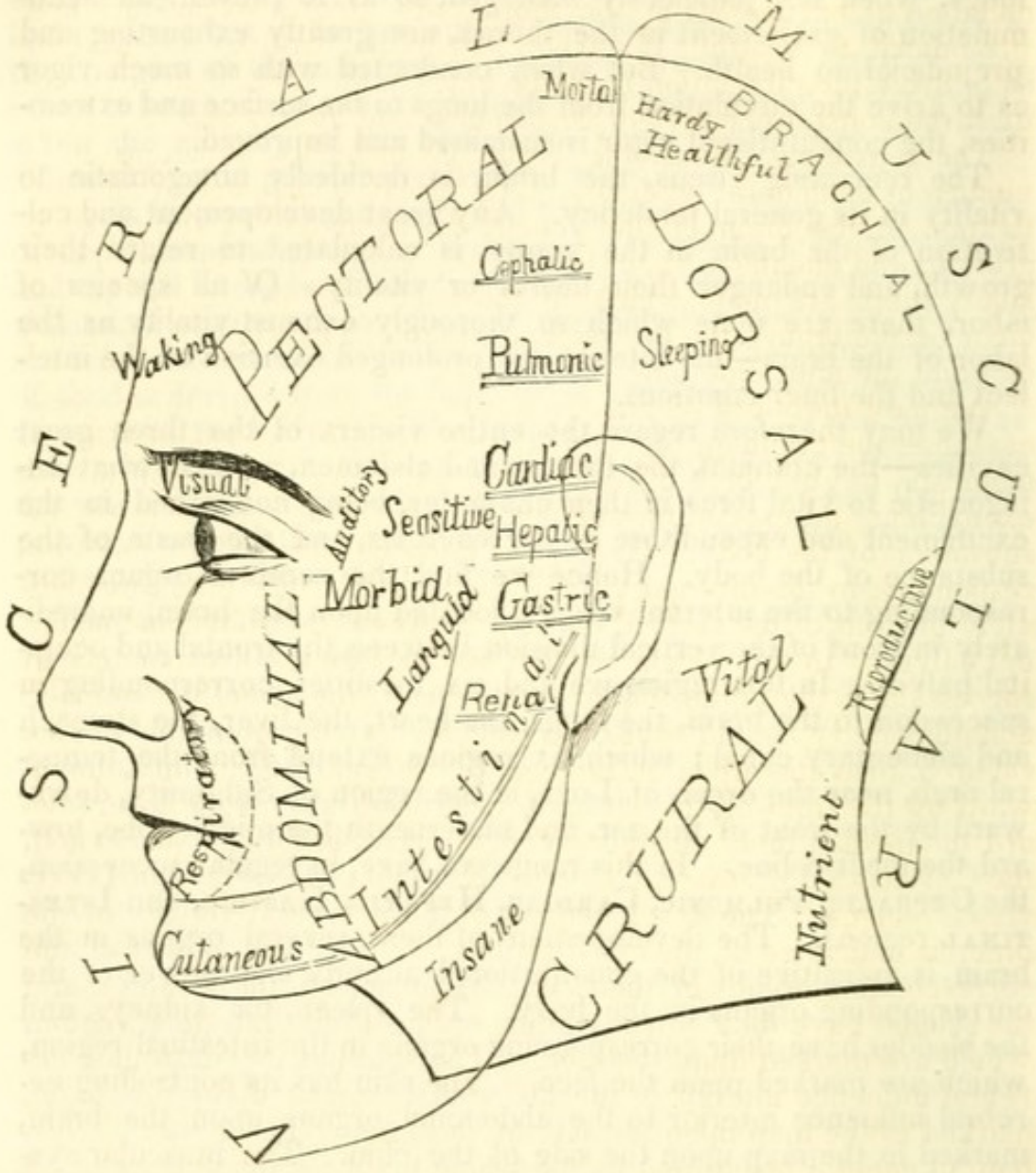


CHART OF CEREBRAL PHYSIOLOGY.

In the above chart, a nearly vertical line through the ear divides the anterior or visceral half of the brain from the posterior or muscular half. The latter energizes the muscular system—the former tends to give predominance to the viscera. The five most conspicuous terms, PECTORAL, DORSAL, BRACHIAL, CRURAL, ABDOMINAL, indicate the manner in which the different regions of the brain sympathize with the different regions of the body, and preserve a curious correspondence, which is explained by the science of SARCOGNOMY.

The terms CEPHALIC, PULMONIC, CARDIAC, HEPATIC, GASTRIC, RENAL, INTESTINAL, CUTANEOUS, indicate that these localities correspond respectively to the brain, lungs, heart, liver, stomach, kidneys, intestines, and skin.

The words VISUAL and AUDITORY indicate the seats of the senses of seeing and hearing. The words SENSITIVE, MORBID, and LANGUID, indicate the tendency of the organs o Sensibility, Disease, and Relaxation. The terms INSANE, NUTRIENT, VITAL, REPRODUCTIVE, indicate the position of the organs of Men al Derangement, Nutrition, Vitality, and Amativeness. The organs of Mortalit-, Hardihood, and Health, are indicated by the terms MORTAL, HARDY, HEALTHFUL. The intellectual organ of Consciousness is indicated by the word WAKING, on the forehead, while its antagonist is marked SLEEPING. The region marked RESPIRATORY, on the face, is that which controls the acts of Respiration.

described, at the basis of the front lobe ; Vision being located immediately above the globe of the eye—the sense of Hearing being located in the temples, at the anterior extremity of Sensibility, and the Spiritual Sense, or Sense of the Invisible, being located on the internal aspect of the front lobe.

Having thus assigned governing organs to the entire viscera, to the entire muscular substance of the trunk and limbs to the nervous substance--the skin--the external senses, and procreative organs, it is unnecessary, as yet, to speak of the remaining portions of the brain physiologically, since they are devoted in various ways to the regulation and management of different parts of the body already mentioned—to the performance of various functions through the bodily organs, and the regulation of the combined movements of life, in a manner which will be hereafter developed.

LECT. LII.—THE ABDOMINAL ORGANS.

The direct innervation of the Abdominal Organs is derived from the basis of the middle lobe, just above and anterior to the cavity of the ear. At a position corresponding to the glenoid cavity, which receives the head of the lower jaw immediately in front of the cavity of the ear, we find the Gastric organ, or organ of Alimentiveness;—the organ, phrenologically speaking, of hunger, thirst, and love of stimulus—physiologically speaking, the source of gastric activity, with the consequent vigorous digestion, speedy exhaustion, and earnest demand for food.

From the position of Alimentiveness, in reference to the neighboring organs, its tendency is to produce an excitable, irritable, morbid, passionate, sensual, unprincipled, and languid character. Hence, the excessive cultivation of Alimentiveness is highly detrimental to the moral character, and equally destructive to the physiological stamina, and power of resistance to disease. Temperance in the cultivation of the appetites, is essential to moral rectitude and physical health; but this temperance is to be attained, not by arbitrary and violent restraint imposed upon Alimentiveness, which, for the time being, increases its activity and its debilitating influence, but by gradually diverting the activity of the brain into other regions, by which the activity of Alimentiveness may be diminished. Forced abstinence, or arbitrary systems of diet, may produce a degree of irritation in the digestive organs, which would increase their predominance, and have an injurious influence upon the character. The proper object is to pacify them;—first, by pleasant indulgence—and second, by habitually and vigorously cultivating the opposite class of organs—the energetic, industrious, tranquil, and firm—the moral sentiments, affections, and pride.

A large development of Alimentiveness indicates urgent appetites and active digestion, but does not imply vigorous nutrition, nor a plethoric condition; for the tendency of the abdominal organs is to relax the constitution, to an extent which increases the natural waste or decay of materials, and thereby creates a demand for renewal. The heartiest eaters are often meagre in person, and the corpulent are frequently moderate eaters. Growth depends, not upon digestion, but upon the appropriation of material. In other words, it depends upon the organ of Nutrition, belonging to a deep basilar region of the brain, which is manifested in its external development about the middle of the back of the neck, corresponding nearly, in its interior location, with the condyles of the occipital bone.

The external indications of the alimentary or intestinal organs, are found in the breadth and depth of the face, their location being marked along the course of the lower jaw-bone, nearly to the chin. This region corresponds to the entire tract of the alimentary canal, from the stomach to the rectum. The correspondence may be traced in its successive portions—the lower portion indicating the activity of the lower bowels, and the middle portion that of the small intestines.

A marked deficiency of the organ of Alimentiveness would indicate a tendency to gastric dyspepsia, or a deficiency of digestion. A deficiency somewhat lower on the jaw, would indicate a defective action below the stomach, in the duodenum, jejunum, or ileum, as the case might be. A broad development of the whole region, would indicate general activity of the stomach and bowels, with predisposition to diarrhœa, cholera, etc., while a narrowness and defective development, indicating a lack of vital power in the organs, might also become a source of disease.

The point corresponding to the spleen, is a little lower than Alimentiveness. The effects of its development, I have seldom noticed.

The locality corresponding to the kidneys, the Renal region, is still lower, adjacent to the lower portion of the ear. A broad development, at this location, indicates a free, copious action of the kidneys, producing a large amount of urine; and the frequency of its discharge depends upon the Cystic region, located upon the lower jaw, a little behind the organ of Perspiration. This region produces activity of evacuation, both in the bladder and bowels, being the region of urination and defecation. It is not unusual, however, to find a large development of this whole region sufficiently controlled above, in the region of Energy and Restraint, to prevent any excesses; while a smaller development in heads defective in Firmness, Health, and Energy, may be accompanied by a tendency to profuse evacuations. No mental or physiological characteristic can be determined, without a proper reference to antagonisms. The antagonism of the Abdominal region is found

in the space extending from Patience and Firmness to Coldness, through the region of Temperance, Industry, Energy, Playfulness, and Restraint. A large development of this upper region enables us, with strong appetites and powers of digestion, to control them and practice abstinence with impunity, and prevents our liability to those irritations of the bowels, kidneys, bladder, etc., which arise when the healthful and energetic region is moderate.

The condition of the cerebral organs, concealed by the face, may generally be determined by the appearance of the skin, as well as by prominence of development. Over organs that have been active and highly cultivated, there is a fullness and florid appearance of the skin, which does not exist over the inactive ones. On the latter, the skin presents a pale and withering appearance, and a gradual process of absorption produces a depression. Every one is familiar with the depression which occurs just below the organ of Alimentiveness, producing hollow cheeks in persons whose industrious and energetic habits have produced partial emaciation, and with the plethoric fulness of the same region in gourmands who lead a life of indolent sensuality. In the organ of Alimentiveness, I have frequently noticed the decline of its posterior portion, the region of the Love of Stimulus, or portion immediately in front of the cavity of the ear, adjacent to the tragus, in those who had lead a strictly temperate life contrary to their natural inclinations; and, on the other hand, a remarkable fulness or red bloated appearance of the same spot, in persons who were accustomed to daily indulgence in alcoholic drinks.

The Hepatic region, governing the liver, is found in the brain, just above Alimentiveness, lying immediately over the zygoma or projection forming the cheek-bone, above the place where it connects with the temporal bone of the cranium, extending an inch or more antero-posteriorly. A large development at this point, indicated by breadth and depth, (as the organ grows outward and downward,) indicates an active condition and full development of the liver, producing a free biliary secretion, thereby increasing the digestive powers, especially for oily food, and promoting the activity of the bowels. When this development is large, it qualifies the individual, like the other abdominal organs, for a life of greater indolence, as the excrementitious materials of the system being removed by the liver and bowels do not so urgently require the depurating influence of the lungs; on the contrary, when the hepatic organ is small, indicated by the narrowness and shallowness of this portion of the middle lobe, the inactivity of the liver diminishes the digestive powers, and prevents the removal of a sufficient amount of biliary matter from the blood, leaving a greater amount of duty for the lungs and skin, and requiring consequently a more active mode of life. Hence, persons of small hepatic and gastric developments, requiring an active mode of life to which their constitutions are adapted, find themselves out of health—bil-

ious and dyspeptic—when they adopt sedentary and inactive habits, to which their constitutions are not adapted; and frequently resort to cholegogues and anti-dyspeptic medicines to accomplish what might be better attained by a more active out-of-door life, and by rousing the action of the skin and lungs.

The moral tendency of the Hepatic organ may be discovered by its position in the region of Fear, Irritability, Sensibility, Disease, Relaxation and Melancholy. Its tendency is decidedly petulant, sensitive, timid, and gloomy. Hence, hepatic diseases—whether connected with excessive biliary secretion, or with torpor, congestion, and irritation of the liver—are invariably accompanied by a depressing, melancholic, hypochondriac tendency, highly unfavorable to energy of character and personal enjoyment. The word, melancholy itself, expresses these natural associations between biliary disorders and depressed spirits, as it signifies, according to its etymology, black bile. That a certain state of mental depression should be called black-bilious, atrabilous, or melancholic, shows how early in the history of the human race the psychological influence of the liver was correctly appreciated.

The depressing influences produced by the liver and other abdominal organs, arise partly from the secretions by which they extract important elements from the blood, diminishing our plethora and enfeebling the body, and partly from the noxious influences to which the blood is subjected in the liver, spleen, stomach, alimentary canal and kidneys; in which organs it circulates in a slow, stagnant manner, degenerating in its structure, deteriorated by the contact with noxious matters in the intestines, and losing its vital, stimulating elements, the globules and fibrin, which are actually diminished while passing through the abdominal organs.

The antagonism of the Hepatic organ is found in the portion of Firmness adjacent to Temperance and Hardihood, which produces a cheerful fortitude. From these facts, we learn the incompatibility of predominant Hepatic and Gastric organs, with a high-toned and vigorous temperament. How absurd, then, must it be to speak of a temperament of pre-eminent energy and firmness, as a *bilious* temperament or temperament of hepatic action, when directly the reverse is the truth—temperaments of great firmness and energy having but moderate hepatic and abdominal action. The liver and abdominal organs are really designed to mitigate the intensity and continuity of our action, and qualify us for repose. When they predominate, as in the *mollusca*, we see the effect in the stagnant life of the oyster. When they are defective, as in the *articulata*, we observe the effect in the ceaseless activity and strength of of insects.

The abdominal temperament, whether especially gastric, hepatic or intestinal, produces the lowest grade of vital energy, (although compatible with acute sensibility) and is especially antagonistic to the muscular and thoracic temperaments, in which the highest vital force and activity are found.

LECT. LIII.—MUSCULARITY—RELATIONS OF BRAIN TO MUSCLES.

The muscular powers of man depend upon the muscular fibres, and the nervous fibres from which they derive their stimulus. We need not discuss the question, whether the muscular contractility may or may not be independent of nervous influence; we know that both the voluntary and involuntary muscles are controlled and impelled by their nervous filaments—the former by spinal nerves, the latter by the ganglionic. The ganglionic system is subordinate to the spinal, and has nothing to do with voluntary movements—it is distributed to the internal viscera, heart and blood-vessels.

Over the spinal and ganglionic systems, the brain exercises a paramount power. They are capable of action independent of the brain, but are continually put in play or modified by the cerebral influence, which is the source of all their voluntary and a portion of their involuntary action.

The muscular influences imparted by the brain concentrate as to intensity in its basis, but all portions of the brain exert a modifying influence over the muscular system. The invigorating influence may be said to attain its maximum at the depression behind the mastoid process, half way between it and the occipital knob—the location which we name VITALITY. There are other points at which we may excite a more frequent or a more powerful muscular action, and which might perhaps be considered the true region of muscularity: for example, on the middle of the side of the neck, below the mastoid process, on the sterno-cleido-mastoid muscle, (a locality marked Turbulence and Rashness) we find a greater muscular activity—we find here, near Insanity, a point which shows the maniacal strength of Frenzy, and lower down, (sometimes farther back) we find impulses to walk, run, and move about, etc., which may be designated as Locomotion, Restlessness, etc. These organs produce a greater amount and rapidity of muscular action, but there is no organ which produces a more desirable combination of energies and influences to sustain the proper and powerful action of the muscular system, and resist all adverse influences than that of Vitality.

Its antagonist, MORTALITY, on the upper surface of the brain, produces a total privation of muscular power—even while its subjects (in cases of apparent death) are distinctly conscious of surrounding objects, and developes an entranced or spiritual condition.

The regions of Energy, Industry and Health, by which we usually invigorate the muscular system, might be supposed to rank as muscular regions; but their claim is based mainly on the fact, that they invigorate the brain and supply cerebral power, instead of acting directly on the muscular system.

Muscularity may, therefore, be regarded as dependent primarily upon the region of Vitality and its circumjacent organs—secondarily upon the region of Energy, etc., which gives both cerebral and muscular force.

Muscular action is also dependent upon the Conductor Organs, located behind the face, by which the cerebral influence is transmitted to the muscular system, and Restraint (near the parietal protuberance) by which the transmission is prevented—the former produces and the latter counteracts the voluntary control of the muscular system. Restraint shows its effect in stiffness and slowness of motion.

The *activity* of the muscular system is also dependent upon the inferior basilar region, which is reached through the neck—the region of Turbulence, Restlessness, and Locomotion, as opposed by that of Tranquillity upon the parietal arch. Broad and elevated development of the parietal ridge indicates, unless the neck be proportionately broad, a calm and inactive condition of the muscles, and is generally accompanied by a small development of the muscular system, unless contra-indicated by the size of the neck and occipital base.

The organs adjacent to those already named, participate in their functions according to the cerebral laws of co-oporation and antagonism; hence, we may indicate in every organ of the brain a tendency to energize or impair the muscular system, and also a tendency to modify or direct its action in a peculiar manner.

The occipital organs in general, (posterior to the regions of Restraint and Sleep) have a highly muscular character. They are between the regions of Energy, Firmness and Vitality, so situated as to produce a great amount of moral and physical force—the latter predominating, lower on the occiput.

The anterior half of the brain, in general, is anti-muscular. It contains the antagonists of the muscular organs, (Mortality above, Relaxation and Disease below) with a great number of amiable and gentle sentiments which have a soothing, debilitating effect.

The intellectual organs are of the debilitating class, but they also serve to give to the muscular system a pliability and a power of being controlled by the mind. In this respect, they blend with the conductor organs. The reflective organs are more debilitating than the perceptive, and the outer part of the forehead more than that on the median line.

Ideality, Imagination, Reverence, Modesty, Love, Sociability, Mirthfulness, Sympathy, Benevolence, Faith, Religion, etc., are incompatible with vigorous muscular action, and therefore require a calm state and gentle action of the muscles. All rude, heavy or violent movements are incompatible with their influence, and are unpleasant to those in whom these organs are predominant. Hence, the soft and graceful movements of those whose moral sentiments have gained sufficient predominance—in whom intelligence and amiability con-

stitute the leading traits. Hence, the harsh, stiff, heavy and violent movements which characterize a coarse, animalized man. Hence, the necessity of being in repose when we would receive intellectual or moral instruction. Hence, the significance of muscular restlessness in those who are listening—showing that they are exercising the resisting rather than the amiable faculties. A little patting of the foot or biting of the lips, frequently indicates strong occipital excitement.

The knowledge of the influences of the different organs on the muscular system, gives rise to many valuable suggestions as to the proper mental discipline for sustaining and invigorating the body, and, on the other hand, a knowledge of the effects of muscular action upon its source, the brain, will furnish important hints as to exercise.

The particular influence of each organ as to muscular motion, producing particular attitudes, motions, gestures, etc., will be explained in the department of Pathognomy.

The aggregate relation of the whole brain to the muscular system is antagonistic. The tendency of the latter is to intense vitality—the tendency of the former is to a calm, spiritual mode of existence. A truly cephalic temperament or temperament of cerebral predominance, is one of a low grade of vital power. Yet the posterior half of the brain has the power of rousing the spinal nervous system as well as the mental organs, and thus bringing the muscles into active play. Hence, a brain of large occipito-basilar developments has generally a large and vigorous apparatus of spinal nerves and muscles, which it controls with vigor; but a brain of symmetrical development, exerts a sedative and tranquillizing influence over the excitability of the muscular system.

LECT. LIV.—CALORIFICATION AND REFRIGERATION.

ARDOR AND COLDNESS.

The generation of heat in the human constitution is caused and controlled by vitality. Its immediate cause is found chiefly in the combination of oxygen with carbon and hydrogen, effected by means of respiration. Whatever be the *modus operandi*, heat may be developed in any part of the system where a circulation of red blood and a distribution of nervous influence occur. These two are, in man, the essentials. Physiologists have traced up this nervous influence to the brain as its source, and our experiments show that the function is located in the basilar region, at or very near the *medulla oblongata*. It may be higher up in the interior of the *crura*, but can not be far from the median line and medulla. We excite

this organ through the chin, and consequently mark the chin as the region of CALORIFICATION. It may be partially excited from any of the positions along the median line, as these localities are not very far from Calorification, and the organs of the median line are all of a warming tendency.

The excitement of the organ of Calorification by the application of the hand, developes a heat which is apt to be most remarkably felt in the part previously most excited. Hence, if any part of the body is at the time inflamed or subject to any irritation, the heating effect will be most strongly developed in it. Thus, we may direct the heat to any part of the body in which we wish it developed, by exciting that part, at the same time applying one hand upon the chin and the other upon the neck, for example, if we wished to warm the lower limbs, or on the temporal arch, if we wish to direct it to the head. We may add, that the various portions of the organ of Calorification have especial relation to the various parts of the body, which may be shown by exciting them when no other local excitement interferes.

The organ of Calorification not only evolves heat, but is the source of all the imponderable secretions of the person. Electricity, galvanism, magnetism, nervaura, etc., are evolved by means of its influence. These imponderables are generated by the human constitution, and used for its internal purposes in carrying on the wonderful processes of digestion, secretion, and muscular action. The electric secretions of man, though less conspicuous than those of the electric fish, (torpedo,) are sometimes sufficient to give frequent sparks. Among such cases we have a report from Dr. Mussey and Dr. Hosford, of that of a lady in Vermont, who for thirteen weeks was in a high state of electrical excitement, giving off sparks to conducting objects.

Calorification produces a warm or ardent temperament; gives great power of resisting cold; increases the sensibility, intellectuality, and wakefulness; produces a febrile, hot, or inflammatory tendency, and is more favorable to observation or active intellect than to deep investigation or soundness of mind. It produces energetic pulsiveness and ardent emotions, diminishing that power of restraint which we are accustomed to ascribe to calm, *cool* heads, and which will be found in connection with the organ of Refrigeration or Coldness.

Breadth of the head above the ears and behind the organ of Cautiousness, produces a calmer, colder temperament. The organ of Refrigeration or Coldness, when excited, arrests the evolution of heat and produces a chill. If it is predominant, it qualifies us for a hot climate; and if small, we are less able to endure and resist the heat. It has a deadening effect upon the perceptive, intuitive intellect, but is less unfavorable to literature, science, and the arts, which belong to the elaborate department. The cool temperament is more tranquil, and therefore better adapted to study. Its tendency to

develope the arts is rather necessary; for those of cool temperament are more dependent upon clothing, architecture, and fire, than the ardent temperament, which has sufficient internal heat. Accordingly, Coldness is situated near the organs of Acquisitiveness, Tranquillity, and Love of Home.

The organs surrounding Refrigeration or Coldness explain its natural affinities and effects. They are Acquisitiveness, Cautiousness, Tranquillity, Restraint, Sanity, Sleep, Stupidity, Selfishness, Irritability, Fear. Hence we perceive the source of that affinity which prompts the use of such expressions as "a cool, cautious, calm politician;" "a fiery, rash, and restless spirit;" "a cold, avaricious, selfish nature" "a warm, generous friend;" "a cool, deliberate opinion;" "the indiscretions of speech in the heat of argument." These expressions indicate the connection of coolness with Tranquillity, Sanity, Caution, Avarice, and Selfishness, and the connection of Calorification or Ardor, with Generosity, Benevolence, Restlessness, Rashness, Insanity. In like manner, we have such expressions as "the fervor of devotion;" "the warmth of his zeal;" "coldness of heart;" "a lukewarm spirit;" "chilling the affections;" "warming the heart;" "fiery courage;" "cold, and timid councils;" "an ardent spirit and a brilliant mind;" "a cold apathy;" "the chill of disappointment;" "the glow of success;" "the warmth of his affections;" "a coolness between friends;" "a warm and hospitable reception;" "a cold civility;" "his constrained manners produced a chilling effect upon our feelings;" "as he grew warm and animated, his stiffness and constraint disappeared"—in which we perceive the association between Ardor and Religion, Zeal, Affection, Friendship, Courage, Hope, Active Intellect and the conductor organs, as well as the connection of Coldness with apathy, or mental inactivity, miserly selfishness, timidity, insensibility, and restraint.

The lenity with which we regard offences perpetrated in "the heat of passion," and the severity with which we condemn similar offences committed "in cold blood,' indicate forcibly the connection of Ardor with Insanity, which lessens responsibility, and of coldness with a degree of sanity which renders the individual fully accountable.

The philosophy of the Calorific and Refrigerant functions explains the adaptation of the human constitution to different climates, while the connection of Ardor and Coldness with other organs, explains the effects which various climates and seasons produce upon the human race in character, constitution, health, etc. The limits of the present synoptic treatise, however, do not permit an explanation of the neurological laws of Climatology.

The position of Calorification indicates the utility of the beard in protecting the constitution against cold, by sustaining its calorific energies, and also shows the utility of a furry or woollen covering

to the chin in cold weather, which protects us more effectually than any other application of an equal amount of clothing.

The operation of the organ of Refrigeration in diminishing the heat of the body, is by means of reducing the activity of the brain and nervous system, and the frequency of Respiration. And there is probably an oxidating influence, produced by the organ of Calorification, giving to the carbon and hydrogen of the blood, a tendency to separate from their compounds, and unite with oxygen, producing a slow combustion, while on the other hand the region of Refrigeration tends to consolidate the animal matter and prevent its combustion.

LECT. LV.—SENSIBILITY, EXCITABILITY, AND IRRITABILITY.

The general excitability and activity of the temperament, are connected with the organs which give breadth to the middle lobe, in accordance with the general law, that breadth gives activity, and length power. The centre of excitability for the constitution, is located on the temporal bone, just in front of the upper portion of the ear. The peculiar excitability connected with this locality, is of a central character, and operates upon the entire constitution, rousing the intellectual and muscular organs, acting with special power and promptness upon the heart, and producing, by an increased activity of the circulation, a general acceleration of the phenomena of life. In this acceleration, even the sluggish abdominal organs participate; hence we find high excitement not only productive of subsequent relaxation and debility, but calculated to increase the appetites, and produce violent thirst and love of stimulus. Under exciting circumstances, great quantities of spirits are consumed in communities in which their use is fashionable; and in time of battle, thirst is remarkably prevalent.

The tendency of excitement to act upon the abdominal organs, predisposing to attacks of diarrhœa and cholera, is greater as the seat of activity in the brain descends to a lower position. Fear, which attains its maximum a little below the seat of Excitability just indicated, is one of the stongest predisposing causes of cholera; and violent fright will sometimes produce an almost immediate evacuation of the bowels and bladder. Passing forward from the centre of Excitability, the function becomes more intellectual; passing backward, it assumes a greater degree of violence; passing upward, it becomes more moral or emotional; passing downward, more depressing.

[The location here given to Excitability, is the upper portion of the region of Fear. The word ear is a very imperfect expression of the character of the organ to which it is applied.]

The organ of Sensibility, just in front of Excitability, renders the whole constitution sensitive to every species of impression, and thus enables slight causes to act upon it with great power.

It is quite important, in reference to medicine, to understand the degree of sensibility of the constitution, which may render a very small quantity of medicine entirely efficient. A physician should carefully adjust his doses to the sensibility, or medical impressibility of his patient. The organ of Sensibility having been described in the phrenological lectures, the description need not be repeated. It may be remarked that the upper portion of the sensitive region, blending with Modesty and Reverence, produces a moral sensibility, or delicacy of feeling which may be very disadvantageous by diminishing our strength of character, and capacity for encountering the ordinary incidents of social life. This sensitive and blushing region greatly increases our diffidence, and diminishes the moral, as much as extreme Sensibility does the physical strength and stamina of the character. The one renders us more liable to physical disease, and the other exposes the mind to greater derangement from unpleasant moral influences, and is a common predisposing cause of melancholy and insanity.

Extreme sensitiveness either physical or mental, should be regarded as a semi-morbid state, and immediately counteracted by thorough, but gentle and gradual exposure to the inclemencies of climate and society. Steady exposure to cold while engaged in active exertion, is one of the most efficient modes of diminishing physical sensibility; and moral sensitiveness requires a similar treatment. Remove the individual from the warmth and ease of refined and affectionate society, and expose him to colder and sterner associations while earnestly engaged in important labors; especially such as may be connected with pride, ambition, and courage.

A reduction of sensibility within moderate limits, is very necessary to our health; unless we are so situated as to avoid any exposure to the inclemencies of the seasons and the unhealthy influences of the sick chamber. Yet, even if we should be apparently protected from morbific exposure, acute sensibility may find causes of disease in the most trivial changes of weather, clothing, and diet. Acute sensibility to temperature—thermal sensibility—will make us liable to taking colds, inflammations, and fevers, from very slight causes. Hence the importance of judicious exposure to cold in the winter, while taking exercise, and of bathing in cold water at all seasons.

Posterior to the organ of General Excitability, is that of Irritability; which gives about the same degree of excitement, but directs it more especially to the muscular system and the violent passions. The organ of Sensibility appears to be necessary to keep up the relations of the constitution to physical impressions, and cause the proper reaction from every influence of diet, cold, exposure, etc. The organ of Excitability enables us to arouse the energies of the

entire constitution for every emergency requiring action, by means of the circulation of blood. But in addition to this, we need a species of excitability, giving especial energy to the muscular system. This is found in the organ of Irritability, which rouses and keeps active all the basilar organs of the brain, and which, when greatly roused, stimulates the passion of anger and courage to a degree of fury which renders the individual far more formidable than when in his natural state.

When the organ of Irritability is large, it greatly detracts from the capacity for happiness, by destroying our serenity and giving a predominant activity to the basilar organs. Under the influence of Irritability, we experience much unpleasantness of feeling under circumstances in which a well balanced mind would be extremely happy. For the same reason, the physical constitution is remarkably liable to disturbance, the organs being often in a state of disorder or irritation bordering on actual disease, when there is no adequate cause. And, in such constitutions, the medicinal means which we employ, often fail to produce satisfactory results, on account of the irritation which they produce. Where Sensibility, Excitability, and Irritability, are predominant elements of the constitution, soothing and tranquilizing agents are often necessary, and tonics and narcotics, judiciously applied, produce the most satisfactory effects. Agents which diminish sensibility, tranquilize excitement and remove irritation, are obviously adapted to constitutions in which Sensibility, Excitability, and Irritability predominate. Hence it is that so many become passionately fond of opium, tobacco, alcohol, and other narcotic agents, which produce a temporary pleasure by diminishing the influence of this constitutional irritation.

LECT. LVI.—RESPIRATION.

Respiration is governed by the organs located around the nose and mouth, just above Calorification. The internal portion controls the function of expiration, and the external portion controls the function of inspiration. The developement of these respiratory organs indicates a vigorous respiration, accompanied by a voice of strength and compass, and as a *probable* consequence, a high temperature. The latter, however, though a probable is by no means a certain effect, as it depends upon the neighboring organ of Ardor. Respiration also tends to impart vividness to the intellect, excitement, warmth, consciousness and freedom of action to all parts of the system. Hence its arrestation destroys warmth, voluntary action and consciousness—as we perceive from its position between Ardor, Intellect and the conductor organs.

The external indication of the respiratory organs corresponds very well with their functional action, and hence we may deter-

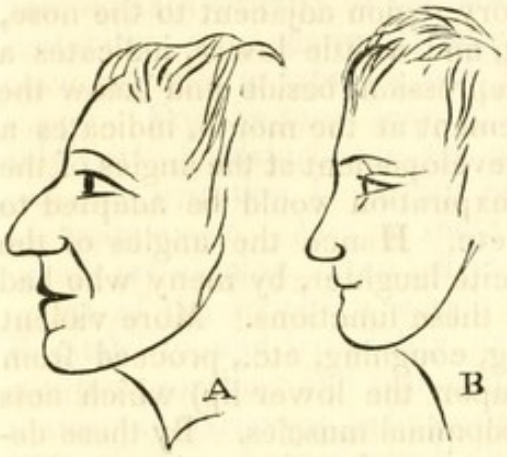
mine the respiration of any individual by a glance at his face. The upper portion corresponds to the upper part of the chest, and the lower portion to the lower—respiration by the diaphragm being indicated upon the lower jaw. If the inspiratory region is large, we may infer great expansion of the chest and demand for air. Whether this expansion takes place in the bronchial region, or nearer the diaphragm, we learn by examining the inspiratory tract from the side of the nose to the middle of the chin.

The expiratory functions, are adapted in the upper part of the organ to a gentle or moderate expiration from the upper part of the chest, such as would become the acts of talking, whispering, etc. Hence a prominence of the expiratory region adjacent to the nose, indicates a capacity for whispering, and a little lower, indicates a tendency to loquacity. A deep depression beside and below the alæ of the nose, with bold developement at the mouth, indicates a voice adapted to loud speaking. Developement at the angles of the mouth, indicates that the force of expiration would be adapted to singing, public speaking, laughing, etc. Hence the angles of the mouth have been resorted to, to excite laughter, by many who had no knowledge of the philosopy of these functions. More violent expirations, as in shouting, sneezing, coughing, etc., proceed from the lowest portion of Expiration, (upon the lower lip) which acts upon the diaphragm through the abdominal muscles. By these developements we determine the powers of conversation, public speaking, laughter, coughing, singing, and playing upon wind instruments. To this region we refer the propensity for talking and making a noise, which is a physical impulse, entirely distinct from the faculty of language.

A predominance of the expiratory functions, indicates a great facility in all the expiratory acts, and a tendency to practice them—a deficiency tends to make a silent character. The predominance of Inspiration creates a necessity for expansion of the chest, and makes it difficult to contract it sufficiently for a free and continuous delivery. Hence, such persons are frequently surpassed as to their speaking powers by others of smaller chests, who have superior Expiration, and who speak with facility upon a small quantity of air, without pausing to take breath. Stammering is generally connected with a predominance of Inspiration and Expiration. The lower or deeper respiration is, the more exciting and warming. It exercises that portion of the organ adjacent to Ardor and to the conductor organs for the basilar region. Hence, a loud, strong voice, of great compass, is calculated to give warmth and excitement to the passions; while the feeble voice, of little depth or compass, is neither impressive to others, nor energizing to the speaker. Predominant Restraint enables us to hold the breath and to check all expiratory acts. It is, therefore, useful in diving, in controlling a cough, in preserving silence, and in diminishing pulmonary excitability.

A decided effect upon the respiratory organs is produced by the point below the chin, between Calorification and Childishness, by which I have produced the symptoms of a common fit of hysterics. [This is at the anterior edge of the region of mental derangement.]

The Respiratory sense, also, which is situated just above Alimentiveness in the posterior portion of Sensibility, has considerable influence over the respiration as it produces a great sensibility to the need of air, and thus increases our frequency of breathing in the same manner that it is accelerated by mental excitement or distress.



One may recognize in the character of the voice the developement of the Respiratory organs. Thus, profile A exhibits the conformation indicating a powerful voice, so far, at least, as full expansion and forcible delivery are concerned. Profile B, on the other hand, indicates shallow respiration, and a lack of both depth and force. The former is much more indicative of constitutional vigor and activity, for the lower portion of the lungs is associated with vital and muscular power, while the upper portion sympathizes rather with the moral organs. It is, therefore, highly important, especially to those whose chests are somewhat shallow, to cultivate depth of respiration by active exercises, such as running, leaping, dancing, chopping, etc., and to manage the voice so as to keep the chest as deeply inflated as possible when speaking, not continuing the utterance of sound until the chest is nearly empty. Speaking in the loudest and most forcible manner is beneficial to the constitutional vigor, while speaking in a low or feeble voice is rather injurious. Shouting, laughing and singing are highly beneficial exercises.

Another region, co-operating with the organs of respiration, is the pulmonic region of the side head, (the organ of Sublimity,) the developement of which efficiently co-operates in promoting freedom and ease of respiration.

LECT. LVII.—CIRCULATION OF THE BLOOD.

The mechanism of the circulation is sufficiently understood, but our mechanical knowledge of the circulation derived from Harvey and his successors, does not give us the law of the distribution of

the blood. The knowledge of the channels and hydraulic apparatus, without that of the forces which preside over the circulation and distribution of the blood, is comparatively a meagre species of knowledge. Health requires an equilibrium of circulation, while disease produces a disturbance of the equilibrium—hyperemia being an essential element of inflammation, and every hyperemia of one locality indicating anemia of some other portion of the system.

The law of distribution indicating the tendency of each part to hyperemia, anemia or rectitude of circulation, would indicate the tendencies of all parts of the system as to growth, health and disease—it would give us the philosophy of pathology, and would contribute much to rendering medicine an exact science.

We regard the circulation as controlled or modified by the brain, and also as reacting upon and reciprocally affecting the brain in accordance with the laws of sympathy between the brain and the body. The facts of this influence, when arranged, show that each organ of the brain acts upon the circulation in the direction of its pathognomic line, or in other words, in the direction in which it fibres point. Thus, the organs of the external lateral surface of each hemisphere point more or less laterally, and did each hemisphere control the same side of the body, might be said to point externally; but as each hemisphere controls the opposite side of the body, its lateral organs necessarily point internally, or toward the interior of the body, and hence tend to direct the circulation so as to determine toward the internal viscera, and produce that increase of their action which arises from an increased supply of blood, and which also produces this increased supply.

The range of organs lying just in front of the ear, running from the temporal arch downward along the jaw, indicates these determinations. The uppermost is the seat of the cephalic tendency, and indicates a determination toward the brain, increasing the activity of its organs. The location next lower, (the pulmonic.) indicates the determination to the lungs. The next location, near the top of the ear, indicates the determination to the heart, and the next lower to the liver. Below the cardiac and hepatic localities, we find the gastric and intestinal—the former at the articulation of the lower jaw—the latter extending along the course of the lower jaw nearly to the chin.

The developement of any of these regions, producing a determination to the part, indicates a tendency to its growth, developement and predominance. Hence, a local hyperemia is a natural consequence of each of these organs in very predominant developement, as anemia is of their absence, and the tendencies to disease may be accordingly determined, to some extent, by their size. When large, the diseases are of an active hyperemic character; when small, the tendency is to a predominance of torpor or debility.

The determination to the shoulder and arms is supposed to be

controlled by the organs lying on the median line of the occiput, commencing at Firmness and extending as low as the neck; and the determination to the lower limbs depends upon the organs of the base of the brain, extending from the jaw, mastoid process and occipital spine, down the neck. These determinations are inferred from the sympathy of the different parts of the body with the brain. The region of the neck sympathizing with the lower limbs; the shoulder and arm with the median range of the occiput; the lower part of the occiput or region of crime sympathizing with the lower and posterior part of the body; the lateral part of the occiput or region of Adhesiveness and Restraint, sympathizing with the upper part of the back; the entire abdominal region of the body sympathizing with the anterior surface of the chest, and the region of Virtue with its upper anterior and lateral aspects on each side of the intellectual department. From these sympathies it is inferred that the determination of the blood must be to similar regions—so that the laws of cerebral and corporeal sympathy would come very near indicating the exact routes of sanguineous distribution.

These determinations are accompanied by a peculiar state of the pulse, and as every cerebral organ has its peculiar relation to the circulation and pulse, it follows that the pulse may be considered diagnostic of the state of the mind and body.

The cardiac region produces a state of excitement, and is indicated by an excited pulse, beating with rapidity and violence, but not with great regularity. If the excitement is continued the pulse is apt to become feeble and more unsteady unless the constitution possesses great tone or vigor.

The region of Health produces a full, firm and regular pulse; the region of Disease produces a small, feeble, fluttering and irregular pulse.

The lower occipital organs produce a pulse of firm, tense, wiry character. The coronal and frontal organs produce a pulse of soft, open character, which in the region of Patience and Integrity approaches the steady firmness of Health; but in the region of Ideality approximates the feebleness and variability of Disease.

The maximum frequency arises from the regions of Ardor, Excitability and Disease; the maximum slowness from Coldness, Sleep and Firmness.

We may say that in proportion to the resisting qualities of the pulse, it indicates occipito basilar influence. As the entire occipital half of the head is connected with muscular energy, it gives to our vascular system also a contractile energy, manifested by vigorous contractions of the heart, and a firm and tense condition of the arteries. The anterior or visceral half, having the opposite character, gives to the blood vessels a soft, yielding condition.

The resisting tonicity of the occipital organs produces in their upper portion the degree of firmness, steadiness and regularity of action, which corresponds to the standard of health; but in the

lower or occipito-basilar region this resisting energy becomes excessive, and the arteries, contracting upon their contents, produce the small, tense pulse, which is called *wiry*.

The wiry pulse, which prevails among the basilar organs, becomes more frequent and excitable as we approach the lateral region of excitability, and also loses its regularity and firmness as we approach the region of Disease.

The full, steady and moderately compressible pulse of Health becomes, as we advance forward upon the head, softer and more yielding, as well as more excitable and liable to variations.

In the anterior half of the head, the antero-basilar is distinguished from the antero-coronal by its greater frequency and irregularity.

In accordance with these views, we may infer from a full, steady, regular pulse, of proper tension, the predominance of the superior occipital, or occipito-coronal half. In other words, a substantial condition of mind and body.

A pulse of more contracted, wiry character, indicates the existence of oppressive irritation, either in the physical or in the mental constitution. Hence, it is often found under the influence of disease, or of bad passions.

A pulse of good character, excepting that it is rather soft and slow, indicates the coronal influence—more anteriorly as it is more frequent. In other words, it accompanies a very pleasant, tranquil, happy state of mind and body.

A pulse of great frequency, indicates a temperament of more excitability than power, and is more objectionable in proportion to its irregularity. Frequency, combined with softness and fullness, indicates an excitable but amiable character, of moderate force. Frequency combined with hardness, indicates predominance of the basilar region and a harsh character.

To apply these views to the philosophy of disease.

Persons of great pride, firmness, integrity, prudence and self-control, will have but little liability to disease, and their circulation will be regular and tranquil.

Persons of violent and selfish passions will have great force of circulation, especially in the limbs and lower part of the body, and will be liable to diseases of active, sthenic character, in which the phenomena of disease will be violent, but life will be seldom endangered. Rheumatism, gout, inflammation, and convulsions will be their tendency.

Persons of indolent and unprincipled habits—of but little integrity, self-control, fortitude or industry, (a very large class,) will have a circulation of but little regularity, and will be predisposed to active disorders of the abdominal region—cholera, diarrhœa, dysentery, congestion of the liver and typhoid prostration.

Persons of amiable, mild and feeble character, will have but a languid circulation in the limbs and lower part of the body, and

will be predisposed to pulmonary disorder—consumption, bronchitis, pneumonia and pulmonary congestion.

Persons of amiable and delicate temperaments, but of great fortitude, firmness, perseverance, energy and ambition, will be liable to chronic torpor and obstructions of the liver, alimentary canal, kidneys, etc., which defects may be accompanied by the consumptive tendencies.

When this fortitude, energy, etc., are accompanied not by the amiable, but by the basilar organs, we have not only torpor of the abdominal apparatus, but severe chronic irritation connected with that torpor.

When strong violent passions are associated with sensitiveness, timidity, indolence and melancholy, we have not only prostrating diseases, such as dysentery, cholera, typhoid prostration, but fevers and inflammations of the greatest variety and complication. We have profuse evacuations, severe suffering and great deterioration of the whole mental and physical organism.

Hence, the physician finds in the lowest classes of community the worst and most destructive forms of disease. While in the truly highest or most exemplary classes, he has less practice, and their disorders, if not neuralgic or consumptive, are generally some form of chronic obstruction or torpor of the visceral organs, requiring deobstruent and tonic remedies; or general debility, requiring exercise, travel, fresh air, and a nutritious, tonic regimen.

LECT. LVIII.—LIFE AND DEATH.

The relations of the human constitution to the whole journey of life, are indicated in our cerebral experiments. We discover an organ of Vitality, producing life, an organ of Nutrition, to produce the proper growth and developement of the person, and organs Manliness and Childishness, producing the characteristic marks of the different ages as they predominate in various degrees. We have also various organs presiding over the circulation, and modifying the growth of the person so as to produce the characteristic form and size of the individual. The process controlled by the organ of Nutrition, for example, tends to the indefinite growth of the person, and would result in hypertrophy, corpulence, or monstrosity, unless checked by the antagonistic region, which produces absorption and checks growth. Thus we have the original mainspring of Vitality—the powers that produce and modify the constitutional developement and constitutional history through life—the power that checks the farther evolution of the person; and finally, the power that arrests vitality itself and produces death.

The organ which we call MORTALITY, is situated in the department of Virtue, as the organ of VITALITY, its antagonist, is situated in that of Crime—an arrangement calculated to strike us with surprise, as most persons associate the most gloomy and unpleasant feelings with the thought of death, and therefore might regard its location among the virtues as painfully incongruous. Nevertheless, we observe that when we excite a small organ at the posterior margin of Hope, we produce, after awhile, great depression of all the vital powers. The pulse diminishes and almost disappears—the senses become indistinct, and a general sense of sinking produces a feeling of impending dissolution. This consciousness of the approach of death, has hindered me from carrying such experiments to the greatest length. Yet others have reported more extreme effects, produced without having any knowledge of this organ, such as total disappearance of the pulse at the wrist, and alarming prostration of the whole system. It happens, occasionally, that in exciting the region which includes Mortality, (with persons of moderate basilar developements,) that the effect becomes very generally and decidedly enfeebling. On the other hand, if we excite the antagonistic organ of Vitality, a general and powerful renovation of the whole system is produced, and a high degree of vigor is imparted, especially to the muscular system, which is now in predominance, and we have a consciousness of vital power which could easily resist the influences of disease, hardship, wounds, exposure, etc.—we have a high degree of animal life ; and if this excitement is connected with that of the organ of Health, it gives us the highest degree of pleasant personal vigor. The best operation for the restoration of feeble, invalid constitutions, is the excitement of these two organs.

Mortality being located above, and Vitality below, it would follow that the indulgence of the harsh, selfish, animal faculties, would increase our stock of animal life ; and that the cultivation of the most serene and lofty elements of character, if carried to excess, would greatly diminish the vital stamina. Hence a life of great serenity and happiness is less calculated to develope a strong vitality than one of great action and strong passions—many of the trials which diminish our enjoyment in life, increase our physical force and longevity. The loftiest sentiments of religion, and the greatest loveliness of character, are often accompanied by great constitutional frailty, and the loveliest of precocious children are often the most short-lived.

When Mortality predominates greatly, diseases assume a fatal character contrary to our expectations, and sudden deaths, without apparent cause, are common. The deaths arising from excessive joy, are explained by the location of Mortality among our most pleasant and joyous faculties. The state of extacy or trance, which is so often produced by high religious excitement, is the effect of Mortality ; for similar conditions can be produced by its experi-

mental excitement. It would seem that a high excitement of Mortality may take place to the extent of completely arresting Vitality in appearance, without completely extinguishing life. This is seen in the numerous cases of apparent death, in which it has sometimes happened that the unfortunate patient has been consigned to the grave.

The case of Col. Townshend, of the British army, would seem to indicate that Mortality may, to some extent, be brought under our control as a voluntary faculty. He had the power of apparently dying, to such an extent as to convince his friends that he was dead, by the cessation of the pulse, breathing, etc., and then slowly returning to life. The reports of those individuals who have been restored from their trances, would indicate that this apparent death is a state of spiritual activity and consciousness. May not this be an argument to prove that the death from which there is no recovery, is also the commencement of a spiritual existence? The position of Mortality among our highest and happiest powers, would seem to indicate that death was the highest function of humanity, and was calculated to elevate us to a state of being in which much higher happiness could be enjoyed, while our physical functions should entirely cease. It also indicates that during the full indulgence of our lower passions, we are not so apt to die as when, in the progress of life, the inferior powers have declined, and our higher faculties have gained a decided ascendency. Thus death comes as a friend to relieve us by translation to a higher sphere, when the faculties which have their hold on this world have declined, and the faculties which prepare us for another have gained the ascendency. Thus it may be that "to die is gain." But a sudden transition from life to death by violence, like a premature birth, hurries the individual to a new sphere, for which he has not been prepared.

The region of Hope and Mortality takes away the fear of death and confirms our confidence in the future spiritual life, for which it qualifies us. The horror of death and dread of the life after death, spring from the basilar organs, and indicate a low stage of human developement.

LECT. LIX.—HEALTH AND DISEASE.

The existence of two such organic forces in the brain as Health and Disease, constitutes one of the most startling discoveries—least in harmony with any of our pre-conceptions; yet, as a faithful reporter of Nature, the true philosopher must record, without reserve, her facts—not waiting until his theories sustain his observations.

We find that the organs of the upper surface of the brain mani-

fest a pleasant, soothing, and happy influence upon both mind and body. If this tranquil enjoyment were favorable to the vigor and hardihood of the constitution, we might suppose that the coronal organs would have the most healthy tendency; but as this tranquillity and suppression of the animal passions implies too great a refinement and delicacy of the physical constitution, we must expect to find more healthy tendencies in those organs which do not entirely suppress the animal passions, and which produce a proper combination of moral and physical force. These we find in the neighborhood of Firmness. The moral or virtuous organs become more energetic as they approximate the occiput; and we must therefore look to the blending of the coronal and occipital organs for the best balanced combination of tendencies. This healthy combination requires an organ somewhat more excitable and active than Firmness, with a less decided bias toward any emotion. We find, accordingly, that the healthiest tendency is developed at a point between Firmness and Pride, on the one side, and on the other, Tranquillity, Sanity, Restraint, and Coldness. This organ lies in juxtaposition with Hardihood, Energy, Temperance, and Restraint or Self-control. Its excitement does not produce any decided passion or impulse—it brings forth no predominant inclination or trait of character, of which its subject can speak—it does not excite him, unless he has previously been in a state of dullness or languor below his proper condition—it does not tranquillize him, unless he has previously been under some unusual excitement. It produces no unpleasant effect whatever, and its subject, if interrogated as to his sensations, will be very apt to reply that he feels entirely natural and very well qualified to attend to his business: if a lawyer, or physician, he feels that he would like very well to be actively engaged in the practice of his profession—if a business man, he feels prepared to enter upon his daily duties with alacrity. The most decided effect is produced when he has previously been laboring under some irregular excitement, or when his constitution has been in any feeble, unhealthy, or unpleasant condition: he feels his troubles diminished or removed; headaches disappear; the condition of the stomach is improved; the circulation is brought into a vigorous and well-balanced condition; the respiration is free, pleasant, and regular; the external senses are clear and unembarrassed; and thoughout the whole person a sense of ease, vigor, pleasure, and freedom from obstruction, imparts a consciousness of the highest perfection of health—a condition at once firm, tranquil, vigorous, and self-possessed, with a decided desire for action. Physiologically, this organ produces a state of health. Psychologically operating, it produces a general energy of character.

When we excite the region of Disease, which is reached through the cheek-bone, a languid and sickly influence is usually experienced; but if there be at the time any slight departure from health and comfort, that disorder is immediately aggravated; headache,

fatigue, weakness, nausea, inflammation of the eyes, palpitation of the heart, affections of the chest, etc., are immediately aggravated; or if previously lying dormant and unnoticed, are made very sensible. If the constitution has any natural tendencies to disease—any weaker portion which would be supposed most readily to succumb, that portion is most sensibly affected. In short, if the experiment is continued, the patient becomes really sick, as if from some powerful morbid influence; and if, while exciting Disease, we make other operations on the constitution at the same time, the course of the morbid excitement may be so controlled as to affect particular portions of the body, or develope particular diseases—as by exciting Ardor we may produce a fever, or convert it into a chill by the organ of Coldness.

The experiment of exciting Disease should be practiced with great caution. I have seldom carried it far, except for the purpose of convincing stubborn or prejudiced persons, who required some strong and painful impression on the senses to arouse their reasoning faculties. If tried upon persons of delicate constitution, we should be prompt in removing the disagreeable effect, and exciting the region of Health. Even those of vigorous health may be injured by such experiments, to an extent of which they may not be aware at the time. Within the last six or seven years I have found such experiments react so much upon myself, as to compel me to be very cautious, and to seek speedy relief from their effects, or entirely abstain from their performance.

These facts compel us to recognize specific organs of Health and Disease—which ideas are still further enforced by observing that the relative developement of these two organs indicates the healthy and morbid conditions of men, so far as health and disease depend upon congenital endowment. Narrow cheek-bones, with that upward and backward elongation which developes Health, being the sure indication of natural health, and power of resisting disease.

We have heretofore regarded disease as no essential part of the economy of man, but as a forced condition—a disorder and disturbance of the functions by injurious agents—a mere crippling of the machinery of life; but this is a limited and unphilosophical view. All processes of the living constitution are forced conditions, resulting from external stimuli operating upon the vital forces, without which external stimuli the functions would not be developed, and even life would not exist. Every phenomenon of life is but a result of some external causes, which, as they impinge upon the system, affect some portion of our fabric especially, and develope its special action. Thus the application of food excites digestion—of air, respiration—of light, vision—of ærial vibration, hearing—of threats, anger—of kindness, friendship—of odors, smell—of honors, pride—of humor, mirthfulness—of misfortune, sadness—of disgusting substances, nausea—of intense and continued heat, debility—of alcoholic drinks, intoxication—of narcotics, sleep—of violent blows,

pain—of great danger, fear—of poisons and unwholesome food, disease. Each of these conditions, thus induced by external agents, appertains to a special portion of the brain, and is manifested with a vigor proportioned to its developement. As the anger arising from injuries is in different individuals proportioned to the organs of the violent passions, so the amount of disease arising from any morbid influences, will vary in different individuals in proportion to the organic developement which gives the power of morbid action.

Hence we are enabled to pronounce an individual naturally healthy, or but little susceptible of disease, when his face exhibits but moderate breadth, and at the region of the cheek-bones has not the usual prominence, but presents instead a uniform plane. When the organ of Health is also large, and the deep occiput indicates large Vitality, we have the best conditions for constitutional vigor and longevity.

It is self evident that the potion of the brain which produces the highest degree of sensibility, if combined with debility, relaxation, and excitability, must also produce the maximum capacity for disease, as excessive sensibility continually tends to suffering. Hence the anterior, inferior part of the sensitive region, must be the seat of the morbific sensitiveness.

In the structure of the body we find similar evidence of a necessary capacity for morbid action, viz: in the upper portion of the abdominal region, (a region associated with debility,) we find the blood in its most degenerate condition. The blood of the portal vessels, previous to entering the liver, is in a degenerate state, unfit for the purposes of life until it has been subjected to the action of both the liver and the lungs. This is the region which corresponds exactly with the region of Disease in the brain. (See lectures on Sarcognomy.)

LECT. LX.—SANITY AND INSANITY.

The discovery of an organ of Insanity, is no less wonderful and startling than that of the organ of Disease. It produces a radical change in our psychological philosophy; and those who have habituated their minds to the philosophy of the old system, must necessarily look with doubt and perplexity upon this change. The organ of Insanity, like that of Disease, is one which I had not anticipated by reason, but the existence of which harmonizes with the most extensive views of Anthropology, and greatly enlarges the horizon of our knowledge.

It has been supposed that insanity was an affection of the brain, or a mental disease—an affection of our spiritual nature. Phrenology discarded this latter idea, and regarded it not only as a disease

of the brain, but as a special disease of the organs which were not conspicuously displayed or perverted. The brains of lunatics were therefore examined for evidence of the truth of this position, but without any satisfactory result; and while the brains of lunatics failed to give evidence of disease, diseased brains generally failed to manifest lunacy. The great number of autopsies in hospitals and private practice which presented inflammation, softening, tumors, and other disorganizations of the brain, were not, according to the reporters, accompanied by anything called lunacy, during life.* Phrenology, therefore, threw but little light on the nature of insanity, though it illustrated the fact that insanity was often determined as to its symptoms by extraordinary organic developements, and that it was closely akin to certain faculties or passions, which, in their excessive display, often produced a species of monomania. The existence of a homicidal mania, arising from a great developement of Destructiveness, was particularly illustrated by Gall.

These facts should have led us to recognize the inferior portions of the brain as possessing insane tendencies; since these inferior organs, when manifested too conspicuously, were regarded as displaying insanity. It is accordingly in this violent region that Insanity is found—where the organs are of such character as to produce exciting, restless, exhausting, and depressing effects upon the mind. In the vicinity of Insanity, we find Rage, Melancholy, Restlessness, and Rashness. In the same region we find Feebleness or Relaxation, Intoxication, Disease, Murder, Baseness, Fear, Irritability, Profligacy, and Amativeness. Thus the developement of Insanity by a particular portion of the brain, is strictly in harmony with its general arrangement; for if, in going over the brain, we find that as we approach a certain region, the organs approximate more and more nearly to an insane character, we may conclude that in some portion of that region Insanity will be fully developed.

A review of the cerebral localities will show the student of Anthropology that there is no portion of the brain which could, in harmony with general principles, evince an insane tendency, except the middle basilar region.

If we should draw an inference from the location of Insanity, it would appear that it is favored by all those influences which powerfully excite, disturb, depress, and degrade the mind—that each organ of the brain sustains a relation of co-operation or opposition to

* Without reference to the dissection of lunatics, abundant evidence may be gathered to show that mental derangement is not necessarily dependent upon inflammation of the brain. Dr. Dewees says—"In one of the most furious cases of delirium I ever witnessed, and which bore the most unequivocal marks of cerebral inflammation, Dr. Physic and myself found the brain, upon examination, to be healthy, while the stomach exhibited the highest grade of inflammation. While on the other hand, Willis, Bonetus, Sarcone, etc., have observed inflammation of the brain without delirium having preceded death." "We have lately witnessed very remarkable derangements of this kind in two children who died unquestionably from these affections. In neither instance was there the slightest delirium; in one there was a slight strabismus; yet, in both there were marks of high previous inflammation."

Insanity, and that we may, therefore, calculate in reference to our various faculties, to what extent they should be indulged, if we would promote or check Insanity.

Sanity, the organ which produces a sound and clear condition of the mind, lies on the arch of the parietal bone, closely connected with Cautiousness, Coolness, Restraint, Tranquillity, Love of Home, Playfulness, Energy, etc.—organs which make a calm, clear, self-possessed, cheerful, prudent character. The breadth and height of this region indicate a mind always sound, steady, and self-controlled, capable of resisting the influences of passion or of misfortunes, and capable of preserving its soundness, even in the midst of disease, and to the last hours of life.

The developement of the organ of Insanity may be determined by the breadth and depth, or prominence beneath the lower jaw. When this region is unusually full, and the region of Sanity is small, we have a constitution predisposed to insanity, and requiring care to avoid its predisposing causes. Such persons, in a high fever, invariably have delirium; for the organ of Ardor is very near that of Mental Derangement. Under the various annoyances of life their intellectual faculties suffer, and they feel incapable of clear, vigorous mental action. In disease they are incompetent to take care of themselves; and if they indulge in the use of ardent spirits, they are rendered wild and furious, silly, idiotic, torpid, or perhaps so insane as to reverse their natural character, and make them assail their friends, or do the acts from which they would naturally recoil in horror.

The position of Insanity is illustrated by the fact that injuries of the base of the brain are often accompanied by delirium, and that excitements in the region of the jaw, throat, and neck, are calculated to affect the mental integrity. This is often illustrated in diseases of the throat, but is most remarkably displayed in Europe, by the phenomena of *Cretinism*—we there see, in the valleys of the Alpine mountains, large numbers, in all stages of mental degradation, from simple folly or dullness, to the most pitiable and loathsome idiocy, limited to the animal instincts and dependent upon the constant care of those around them. This is connected with a goitrous enlargement of the region beneath the jaw, upon the anterior portion of the neck.

The posterior portion of the region of Mental Derangement produces the most remarkable form of lunacy, running into absolute frenzy—the upper portion presents the character of *melancholia*, as it has been called by writers upon the subject. It may be considered as an insanity connected with the virtuous organs, in which the subject is mild, sensitive, and easily affected by the conduct of others. The anterior portion of the organ appears to affect the intellectual faculties, as it produces idiocy, childishness, and torpor. The location of Torpor is just above the protuberance of the throat in the angle of the neck and jaw, or chin. The torpor is

very similar to that which is produced by the heats of summer in reptiles, or by the organ of Sleep.

Childishness can scarcely be included in the definition of Insanity, although it belongs to the same class of functions. Its full operation produces the character and general condition of the child, operating physiologically as well as mentally, and renders the muscular action feeble and clumsy, as the antagonistic organ of Manliness gives tone and vigor to the mind and body.

Manliness, in the region of Sanity, favors the early maturity and manly dignity or stability of the character. A distinct portion of this region may be recognized as connected with the womanly peculuarities.

The location of Insanity corresponds with the position of the carotid artery and jugular vein—its external developement, therefore, indicates a predominance of the vascular system of the brain. This excessive vascularity, a consequence of excessive excitement, indicates a liability to cerebral irregularities, as excessive arterial developement indicates extreme excitement and activity, while an excessively venous condition indicates a feeble or lethargic action, and a feeble organic structure—a softness approximating that of the infant. The anterior or idiotic portion of Mental Derangement, is nearer to the vein, while the region of mania and frenzy is adjacent to the carotid artery. The region of Mental Derangement extends also upon the lower part of the back of the neck—this locality bears a relation to the vertebral ganglion on the lower vertebræ of the neck which controls a part of the cerebral circulation.

This locality is highly important in reference to the treatment of cerebral disorders. Headaches are greatly benefitted by dispersive manipulations on the back of the neck—epilepsy, and other cerebral disorders, are benefitted by counter-irritation at the same locality, and by cupping or bathing.

It is highly probable that counter-irritation upon the neck, and upon the lower pelvic region of the body, will prove one of the most important means of treating this malady.

The localities of Insanity upon the neck, correspond to the great blood-vessels, as well as to the ganglia, which are supposed to exercise an influence upon the circulation. [The highest of these ganglia, the *ganglion of Ribes*, lying upon the anterior communicating artery, between the cerebral hemispheres where the circulation supplies the most interior intellectual organs, communicates below with the *carotid plexus*, in the region of Insanity.]

LECT. LXI.—THE CEREBELLUM.

It is not necessary in this work, designed for general circulation, to develope this subject fully, which may be left for my System of Physiology. The reproductive functions may be said to be under the control of the cerebellum; but they are greatly modified by the organs of the cerebrum. Of these the organ of Love is that which has the most direct and important influence.

That the central superior portion of the cerebellum is the seat of Amativeness, is demonstrated not only by our nervauric experiments, but by many pathological facts. The external location of Amativeness is immediately beneath the occipital knob on the median line. The phrenological doctrine of Gall and Spurzheim, that the whole cerebellum is the organ of Amativeness alone, has not been sustained by pathological anatomy. Nor does it appear plausible that so large a portion of the brain should be devoted to one function exclusively, and that one of so irregular and unfrequent manifestation. The comparative weights of the cerebellum in the ox and bull, gelding and stallion, do not exhibit that inferiority in the former required by the theory of Gall.

The doctrine to which my investigations have led, is that the cerebellum sustains a subordinate relation to the cerebrum—that it is not the seat of any distinct consciousness—that its functions are of a physiological character, relating to the whole body, and sustaining all the processes and powers of animal life.

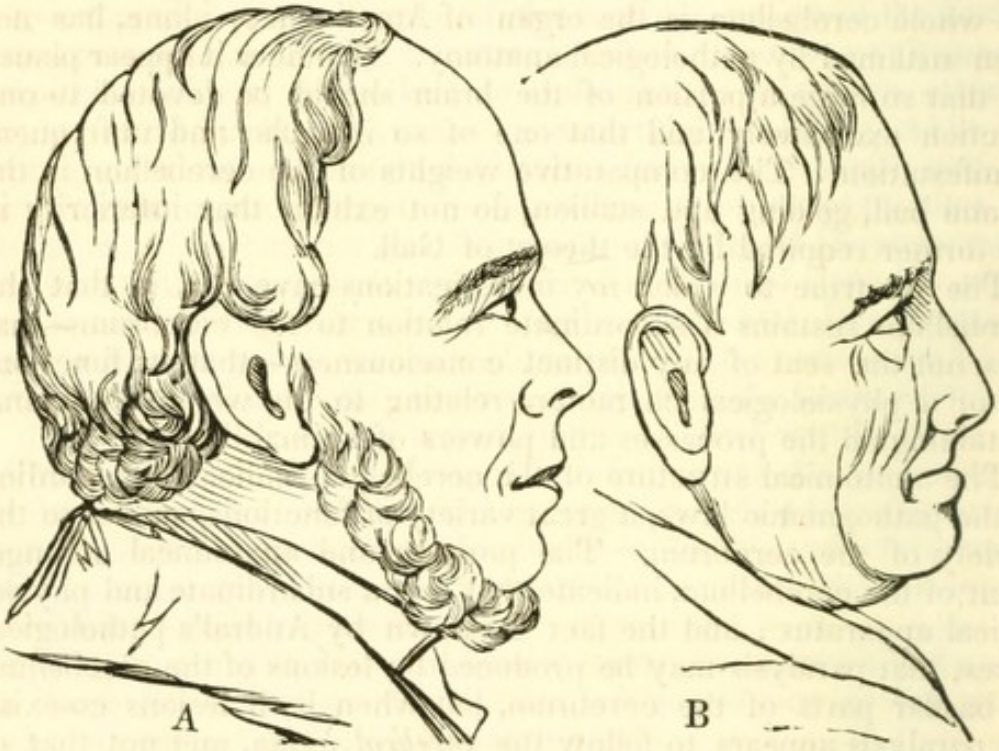
The anatomical structure of the cerebellum indicates, according to the pathognomic laws, a great variety of functions, similar to the variety of the cerebrum. The position and anatomical arrangement of the cerebellum, indicate that it is a subordinate and physiological apparatus; and the fact is shown by Andral's pathological cases, that paralysis may be produced by lesions of the cerebellum or basilar parts of the cerebrum, but when both lesions co-exist, the paralysis appears to follow the *cerebral lesion*, and not that of the *cerebellum*. The connection of the cerebellum with other functions than the muscular, is indicated by the nausea and vomiting which so often accompany its lesions. Its general influence upon organic life is shown in the constitutions of those who have a large cerebellum. They are generally stout, if not corpulent.

Pathognomy indicates that the relations of the cerebellum, like those of the cerebrum, are universal—its pathognomic lines corresponding to all parts of the body, and consequently that it should be regarded as the physiological regulator of the entire constitution, acting under cerebral control and constituting a reservoir of nervous power. The cerebellum in its relation to the body is not like the cerebrum, governed by the law of decussation, but its hemispheres each maintain connection with the same side of the body, and paralysis resulting from lesions of the cerebellum occur on the

same side instead of occurring on the opposite side as when the cerebrum is affected. The hemispheres of the cerebellum thus stand, in reference to the cerebrum, as a part of the body, each governed by the opposite hemisphere.

According to this view, various and opposite physiological relations may be ascribed to the different regions of the cerebellum, corresponding to those of the cerebrum, and in looking for its pathological conditions, the foregoing principles may elucidate its appearances.

The sexual function, or Amativeness, which belongs to the central superior portion of the cerebellum, has its antagonist in the region of Cautiousness, Coldness and Restraint, the effect of which, phrenologically speaking, is Chastity—physiologically speaking, it is impotence.



The physiognomic indication of Amativeness is found in the middle of the upper lip, the prominence of which indicates activity of the sexual functions (fig. A)—the flatness indicates its restraint or inactivity, (fig. B.) The latter form is as common among the old as the former among the young. It is especially characteristic of the age of puberty. The former is indicative of the freedom or excess of the catamenia—the latter of deficiency, restraint or difficulty.

The relation of the various organs of the brain to the reproductive functions, will be developed in my System of Physiology.

LECT. LXII.—TEMPERAMENTS—FORMER DOCTRINES.

Our popular systems of temperaments are crude and unphilosophical. They are merely descriptions of the constitutions of men, without reference to the physiological causes of their peculiarities. These causes we may find in the brain.

A temperament may be defined to be a peculiar and habitual condition of the human constitution, arising from the combined action of its organic forces. As these organic forces present an infinite variety of developement and activity, there is consequently an infinite variety of temperaments. The attempt has been made to classify them by grouping together those in which certain qualities predominate, thus we have the nervous, sanguine, bilious and lymphatic, or phlegmatic. So far from this being a full catalogue of human temperaments, we might remark, that it is not even possible to construct such a catalogue—it would be endless. But if we understand each of these terms as the name, not of a temperament, but of a class of temperaments, we may use it with propriety. We may affirm that there are many temperaments which agree in having a conspicuous developement of sanguine characteristics—that in another class the nervous characteristics are more conspicuous, and we may designate these classes as sanguine and nervous, bearing in mind that each of these groups, or classes, contains innumerable varieties.

If we consent thus to make classes of temperaments, as has been the custom, the arrangement that we adopt is merely a matter of convenience. If we understand the nature and cause of each temperament, the study of temperaments may be a matter of some utility.

The study of organology is the analytic mode of viewing anthropology—the study of temperament is the synthetic mode—temperaments present us the effects of the combined action of the organs—the characteristics of groups. It is well, after studying the characteristics of organs in detail, to combine them in various methods, for the purpose of producing a peculiar temperament or character. When we understand the brain analytically, we may combine its organs correctly in an infinitely diversified manner, producing characters and temperaments, which we will thoroughly understand, and each of which will nearly correspond to some one actually existing.

Let us review analytically the temperaments commonly recognized. The *sanguine temperament,* as commonly described, hav-having much excitability, yet neither very permanent nor morbid in its excitement, having an abundant supply of blood, vigorous muscles, warm passions, a ready intellect, sensibilities neither acute nor obtuse, senses good, complexion rather florid, spirits rather lively, person well built and rather symmetrical, is produced by a

nearly symmetrical head, in which the organs have equable developement, and the basis of the brain is amply but not excessively developed. There is no excessive developement of any of the organs, and temperaments of this class may be considered fair average specimens of the human race. The characteristics of a sanguine temperament, however, are more energetically displayed when the head and neck present a greater breadth from right to left, on the range of the organs lying at and below the ear, and in the occipito-basilar region. This region, therefore, may be considered the source of the strongly marked sanguine temperament, which, in its excesses, runs into violence, sensuality and crime.

The *bilious temperament*, characterized by firmer fibre, a compact frame, without superfluous flesh, a strong, dark complexion, greater powers of endurance, more intense but less evanescent feelings, greater heroism and concentration of purpose, and a more striking, rugged outline, is produced by a predominance of the occipital organs over the organs of the temples. The temples and face being narrow, their lateral organs are small, and the occipital organs, which are their antagonists, overrule. Hence, we have all their effects, which are easily enumerated, by reference to the neurological bust, viz: Great firmness, fortitude, hardihood, energy, industry, application, perseverance, temperance, self-control, health, vigilance, decision, pride, ambition, love of power, arrogance, combativeness, etc. The intellectual organs may or may not be prominent, but even moderate intellectual organs will make energetic manifestations in such a temperament. The intellect may be perverted and partially obscured by selfish passions, but always has a forcible manifestation, rather than a simple and graceful display. The amiable sentiments are less easily moved than in the sanguine or nervous temperament, but have strength in their manifestations. Conscientiousness generally predominates over Benevolence and Love—Sagacity and Intuition over Ideality and the organs of the temples. There is less tendency to sensuality than in the sanguine temperament, because Alimentiveness and Amativeness are relatively smaller. The inferior acuteness of sensibility, the strong powers of resistance to disease, and the strong motives which impel this temperament, produce intense and protracted exertions under exposure and hardship, which stamp the person with unmistable signs of the energy which he has exerted. His cheeks are generally hollow, while those of the other temperaments may be full, and his flesh is firm.

The name, *bilious temperament*, and the opinion that this temperament is owing to the biliary secretion, and its influence upon the constitution, are singularly groundless, being rather the reverse of the truth. The bilious temperament has, in reality, but a small developement of the hepatic organ in the brain; it is rather dry, and often liable to obstructions and chronic diseases, in consequence of the inactivity of the secretions, and the hardy, perhaps careless,

exposure of the individual's health to injuries which he does not perceive or regard. A very copious secretion has a prostrating effect upon the constitution, and a predominance of the liver, among our bodily organs, produces a very inferior and worthless temperament, deficient in all the desirable characteristics of the bilious temperament. It would seem, therefore, that the bilious temperament has been named on the *lucus a non lucendo* principle, in exact opposition to its character. In this temperament large doses of cathartics, especially cholagogues, are often required.

The *nervous temperament*, characterized by greater excitability and sensibility than the bilious, by mental activity, by greater delicacy of person, and less muscular developement, is produced by a head of less occipital strength than the bilious, and less basilar developement than the sanguine. The predominant organs occupy the lateral and frontal regions, viz: the intellectual organs generally, Sensibility, Ideality, Modesty, Reverence, Excitability, Sublimity, Cautiousness, Anxiety, etc. Irritability, and the organs running back on the same level to Arrogance, are the principal source of the energetic impulses of this temperament. As the basilar organs are not very deep, the person is not very fleshy, nor the muscular system stout. Not being strongly developed upward or downward, it does not produce the greatest extremes of vice or virtue—of sensuality or passion. It is adapted to pursuits which require intelligence and readiness, with respectable or moderate force of character. It is much more easily affected by medicine than the bilious temperament, and much more liable to disease from slight causes, but less liable, proportionally, to obstinate chronic attacks.

The simplest definition of the nervous temperament would be to say, that it is the temperament produced by the range of organs lying between the eye and the top of the ear.

In the *lymphatic* or phlegmatic temperament, characterized by feeble or sluggish functions, a watery blood and pale complexion, there are none of the marked developements which belong to the other temperaments. Energy, Vitality, Muscularity, Excitability, Sublimity, Firmness, Ardor, Combativeness and Ambition are moderate, while Relaxation, Restraint, Sleep, Nutrition and the super or lateral organs may be larger. The neck may be stout, but if so, it is developed from before backwards, rather than from side to side, and at the junction of the body rather than the junction with the occiptal base of the cranium. The lymphatic head is narrow above the ears, low across the region of Firmness, and moderate or small in the occipital organs. It may, however, be high in Firmness, (especially in its anterior portion, giving Patience and Fortitude,) and low on each side of it, which would produce a sluggish, melancholic tendency.

In addition to these temperaments, there are others frequently referred to in conversation and literature, though less commented

upon by physiologists—such as the ardent, melancholic, gloomy, calm, joyous, morbid, refined, sensual, etc. These are easily understood by reference to the principles of Neurology. The organs calculated to produce such temperaments immediately occur to the mind.

Temperaments have also been very philosophically classified by Prof. Caldwell, and by Dr. Thomas, with reference to the predominant portion of the body. This may be considered as the first step which was taken toward the philosophical arrangement of this subject. This system would recognize the cephalic, thoracic, abdominal and muscular temperaments, as the four varieties of temperament produced by a predominant developement of the muscular system, or of the viscera of the cranium, thorax or abdomen. The brain, the lungs, the chylopoietic viscera, and the muscles, are supposed to exert a functional influence, and stamp a peculiar character upon the constitution, whenever either of them predominates decidedly. This theory only needs the additional proposition which we advance, that the brain is the most important of these viscera, and as the central controlling organ, indicates the character of the whole temperament. A similar proposition was maintained by the distinguished French physiologist, M. Georget.

The Phrenology of the last fifty years has not maintained this proposition, because it was but a portion of the entire cerebral science—it discovered no physiological functions in the cerebrum and regarded temperaments, as peculiar independent conditions of the body, not controlled by, but controlling the brain.

LECT. LXIII.—TEMPERAMENTS—NEW SYSTEM.

Neurology recognizes temperaments as dependent upon the relative developement and physiological constitution of the different parts of the body, and these as dependent upon and indicated by the cerebral structure; consequently the temperament may be learned from the brain, which indicates the conformation and qualities of the whole body. A temperament being described, we may, from the description, infer the cerebral conformation—or, a head being described, we may thence infer the temperament.

This coincidence is owing to the fact that the brain moulds the body, by a direct physiological influence, giving it the form, constitution and appearance appropriate to the cerebral organs.

Beside the direct nervous influence, there is the influence of action under cerebral control. Thus, if Alimentiveness be the predominant organ, the intemperate indulgence in food and drink, which it produces, stamps the whole bodily frame with its characteristics. If the region of Firmness and Energy be very predomi-

nant, it will produce a constitution of the opposite character. The individual will exert himself with a persevering industry, and encounter hardship or exposure, while he will control or stint his appetites, and consequently he will have a frame of great muscular firmness and power—of the dry, hard, compact, bilious temperament, strikingly contrasted with the feeble, bloated organization produced by the sensual organs. If the front lobe and its co-operative organs, on the parietal ridge predominate, the man is devoted to intellectual pursuits, and necessarily becomes delicate and refined in appearance, with less muscular developement and firmness of fibre, than would belong to one in whom the occiput predominated, and who being averse to sedentary pursuits would lead a life of action and excitement. Thus, particular cerebral conformations may produce the temperament characteristic of the scholar, the hunter, the military hero, the glutton, drunkard, debauchee, the suicide, the consumptive patient, etc., etc.

B t as we are subject to foreign influences, as well as to our own physiological tendencies, we may be compelled to a course of action at war with our natural inclinations, and calculated to change our natural temperament. This would, of course, tend to destroy the harmony between the craniological developement and the bodily constitution, until the influence has continued so long as to bring them on the same level. Thus, if one of a predominantly intellectual organization should be compelled by want to confine himself to incessant and severe bodily labor during fourteen or sixteen hours daily, and deprived of intelligent society and books, h s person would lose its delicacy and beauty, until it would present a striking contrast to the intellectual character of his head. Nevertheless, his brain would undergo a similar degeneracy, which, although it might not be fully shown by the exterior of his cranium, would probably be shown in the inferior intellectual developement transmitted to his children. Again, a temperate man who is led merely by force of social examples into habits of drunkenness and gluttony, changes the character of his body rapidly, yet the functional activity of the brain changes as fast under these influences, and ultimately its developement becomes harmonious with the changed character of the body. True, we do not discover the extent of these cerebral changes, without looking at the *interior* of the skull, or at the brain itself, but still it is certain that such changes do occur.

Thus, the parallelism of the brain and the body, and the fact that the former indicates the temperament of the latter, are rendered certain by the following reasons:

1. The brain controls all the voluntary, and modifies the involuntary functions of the body.

2. The entire brain and entire body have a correspondence and sympathy which are exact; each portion of the brain having a corresponding portion of the body, with which it maintains a special relation of sympathy.

3. The acts to which each organ leads, produce a characteristic effect upon the body, and thus render it a fitting instrument to execute and to indicate the inclinations of the cerebral organs.

4. When the execution of these inclinations is hindered, and external influences modify the constitution contrary to the cerebral tendencies, these influences also modify the condition of the brain itself and bring both to a similar condition.

While these reasons establish a parallelism (in the long run) between the brain and body, they also indicate that the frequent thwarting of the natural inclinations to which the condition of society gives rise, must often hinder the proper development in the body of the tendencies which belong to the brain, and thus diminish the accuracy of the correspondence.

It is manifest from has been said, that any cerebral organ when sufficiently predominant, produces a temperament or state of mind and body essentially distinct from any other; hence we have as many temperaments as cerebral organs, and groups of organs; in short, they are innumerable. It may be convenient to form a list of temperaments in this manner, taking particular groups of organs, and describing their characteristics as commonly manifested. Thus we may unfold the philosophy and description of the principal temperaments, designated as follows: the ardent, cold; restless, tranquil; energetic, indolent; healthy, morbid; hardy, sensitive; ambitious, humble; abstemious, sensual; cheerful, melancholic, etc.; which are based upon particular organs and their antagonists. To these may be added the Cephalic, Pulmonic, Cardiac, Hepatic, Gastric, Hypogastric or Pelvic, Muscular, Plethoric, Anemic, and others, based upon physiological developements.

Or we may describe temperaments based upon larger regions—as the basilar, coronal, frontal, and occipital temperaments.

A large and interesting volume might be made of the description of temperaments, or synthetic view of anthropology. Much of the interest and value of such a volume would be derived from the exact portraiture of the conjunction of certain mental and *physiological* characteristics in connection with certain manners, physiognomy and sentiments.

Corono-Frontal Temperament.—In this temperament we have generous and amiable emotions, refined, delicate feelings, philosophy, literature, spirituality, true religion, philanthropy, and disinterestedness. The passions, desires, and appetites are moderate, the disposition yielding, and the character often lacking in energy, while the constitution is often defective in vital force.

Occipito-Coronal Temperament.—In this temperament the character is strong and commanding. The intellect less receptive and expansive, but more energetic and practical. The ambition is unbounded, and the energy proportional. The constitution is hardy, active, firm, and enduring, the flesh firm and features strongly marked. Integrity and the sense of honor are the leading virtues.

Such men are efficient in all their undertakings, and apt to be leaders. The appetites are moderate and strictly governed.

Occipito-Basilar Temperament.—In this temperament we have violent passions, great physical force, strong appetites and desires, great selfishness, and restless activity, which often lead to the ruin of the individual and those connected with him. Of this temperament are our greatest criminals and wretches.

Antero-Basilar Temperament.—This is the temperament of the feeble, morbid, miserable, and worthless. Without energy of mind or body, such individuals are useless to themselves and burdensome to society. They may be intellectual, but their intellect produces no important results. They may have good inclinations, but they are not reliable. They easily fall a prey to epidemics, their constitutions being relaxed.

The *Basilar Temperament* is the combination of the antero-basilar and the occipito-basilar. It combines all the worst elements of human nature, being passionate, unprincipled, indolent, sensual. It is the temperament of crime, misery, and degradation, united with sufficient physical force to render the individual formidable and give him some tenacity of life.

The *Frontal Temperament*, composed of the corono-frontal and antero-basilar, has the virtues of the corono-frontal, but in a passive condition, being too inefficient to display them vigorously. This is the temperament of pure intellect, adapted to excelling in art, science, and philosophy, but unfitted to gain wealth, distinction, or influence. Such persons are sensitive, and often melancholic and morbid. In the present condition of society they are often neglected, and the benefit of their talents lost to mankind.

The *Occipital Temperament*, the union of the occipito-coronal and occipito-basilar, is the temperament of action and passion. It combines the elevated tendencies of the occipito-coronal with the violent and selfish impulses of the occipito-basilar, and is only restrained from crime by prudential considerations and personal ambition. This is a character of great force, restless, aggressive, and domineering. As it prevails in a nation, they make war upon their neighbors and reduce them to servitude.

The *Coronal Temperament*, composed of the corono-frontal and occipito-coronal, combines all that is noble and admirable in man—profound wisdom, generous virtue, and heroic action. Those of this temperament are the exemplars and benefactors of mankind.

The basilar temperament is prevalent in the lowest forms of savage life, and the lowest class of civilized society. The occipital temperament belongs to the barbarous and semi-civilized society, of which we see examples in ancient Rome and her cotemporary nations. It is still the most influential temperament of the European race of the present day. We observe also in society many examples of the occipito-coronal and the frontal temperaments. The prevalence of the domineering, occipital temperament in men, often

reduces families and the feebler members of society, to the frontal, or basilar condition. The occipito-coronal temperament exerts a more ennobling influence upon society.

LECT. LXIV.—PHILOSOPHY OF ANIMAL MAGNETISM.

Human beings exert remarkable influences upon each other, in proportion to their impressibility, by means of the nervaura or vital emanation. These phenomena collectively have been denominated Animal Magnetism, because a species of vital attraction, resembling the phenomena of mineral magnetism, constitutes a prominent portion of the phenomena. The name Mesmerism, (derived from Mesmer,) being convenient, has been generally used, and has even been applied to the nervous agency employed, which we call the nervaura.

These phenomena may be classed under the heads of: 1. Atraction. 2. Sympathy. 3. Intuition. 4. Volition. 5. Sleep-waking. 6. Therapeutic Applications.

1. *Attraction* is nothing more than a vital function, active in all human beings, as well as in magnetic subjects, and arising from the organ of Adhesiveness. This influence holds together husband and wife, relatives, friends, familes, etc. In magnetic subjects, this influence is displayed physically, and thus appears mysterious, although it is in reality but a more direct manifestation of the force which is ordinarily displayed through the intervention of consciousness. The man of great force of character and adhesive attraction, easily establishes attractive relations between himself and others. These are established by means of his attractive influence operating upon the emotions, intellect, and will of others, who, in proportion to their susceptibility to such influences, become more or less bound to him and unable to escape from his fascination. It is true their acts are voluntary; but nevertheless they are in many instances the irresistible effect of a superior mental power operating upon them, often in spite of their resistance. In the magnetic subject this attraction is produced directly, without the intervention of any of this play of emotion, because the mental influence, or nervaura of the operator, controls directly the body of the subject. The phenomena of animal magetism depend upon the impressibility of the patient, which renders him susceptible of those delicate influences not felt by others. He feels the nervaura of another's constitution with so intense a sensibility, that his whole constitution is rendered accessible to the mental and nervous influence of another, and hence when brought very near or in contact, his person may be attracted without the intervention of his own consciousness or volition, on the same principle that he sympathetically feels the

pains or obeys the will of another. Attraction, then, is but a consequence of impressibility. The attractive force exists in the operator's hand, the nervaura of which is that of Adhesiveness or Attraction. The nervaura of other portions of the person has some portion of this attractive power, the origin of which is in the attractive organs of the brain. There are repulsive as well as attractive organs, and they have their corporeal apparatus. The back of the hand is decidedly repulsive—so are the elbow and the back of the forearm. The inferior posterior part of the body is repulsive, and upper anterior surface attractive. The power of attraction necessarily varies in different individuals, in proportion to their developement of the attractive organs, and hence the amount of this power may not be a criterion of their power for other purposes. The power of energizing the stomach, lungs, brain, etc., is proportioned to the developement of those physiological forces, and the power of relieving disease proportioned to the developement of Health.

2. *Sympathy.* — The magnetic subject sympathizes with the thoughts, sensations, emotions, and entire existence of his magnetizer. This is merely the consequence of his impressibility. Such sympathy, in some slight degree, is an every-day occurrence with those of the impressible constitution, and occasionally it has spontaneously gone as far as we observe it with those who have been magnetized. A very interesting volume might be compiled of authentic narratives of these cases. I have been acquainted with several persons whose mental sympathy with others has been active at the distance of many miles. Out of this sympathy, assisted by the region of *Intuition*, necessarily arises the power of Diagnosis or detection of character, of disease, and of thoughts. The wonderful powers displayed by sleep-waking subjects, of knowing the thoughts of those in contact with them, visiting mentally the scenes which they visit, interpreting their unuttered wishes, recognizing their state of health and describing their local pains, are merely consequences of the sympathetic condition which is connected with the intuitive faculties; and I have often produced these experiments in the ordinary condition of the constitution, without resort to any of the magnetic processes, in persons who had not been magnetized. Perhaps it may give an incorrect idea to say that I have *produced* such results. I have merely taught persons, possessing this sympathetic power, how to exert it.

3. *Intuition.*—Magnetic subjects display many forms of intuitive knowledge. They are clairvoyant, or capable of seeing objects at any distance, without even the assistance of sympathy; they are *prevoyant*, or capable of foreseeing future events; and they have have also intuitive knowledge as to the thoughts and characters of persons to whom they direct their attention, so as to describe the character and objects of distant individuals. In truth, there is no definite limit to the range of their intuitive knowledge. In medicine, mental philosophy, theology, chemistry, geology, etc., they

make remarkable disclosures; and yet it must be confessed the results of their intuition heretofore have been trivial in comparison with what we are authorized to expect, and what we still believe may be thus developed. There has been too much sympathetic reproduction of the ideas of those with whom they have been connected, and too little original thought or observation. The explanation of all these wonderful facts is sufficiently obvious. They are merely displays of the power of Intuition. This region of the brain foresees, penetrates, discovers, reveals; the magnetic operator excites this region by the production of somnolence, in connection with mental serenity. The region of Somnolence is the co-operative region, (see Lect. on Co-operation,) of Intuition or Clairvoyance, and hence these intuitive clairvoyant powers have been most highly developed in the somnolent state. But there is no indispensable necessity for such a state. The intuitive powers have all been displayed, independent of the processes of animal magnetism. They have been brought forth by disease, by mental excitement, by religious fervor, by love, and even spontaneously by strong organic developement, without any extraordinary cause. Like other powers, I have found them capable of excitement by experiments upon the brain in the natural state, and in making experiments upon them, have often felt the delightful, luminous, intellectual effect, which they produced. There have been hosts of clairvoyant and prevoyant individuals in the world who never heard of animal magnetism—it is probable that to this class of individuals we are indebted more than we are aware. The delicate perceptions of truth and beauty in many of our writers, have probably been due to impressible, ideal, and intuitive faculties.

4. *Volition.*—The power exercised by the volition of the magnetizer over his subject, controlling his acts, and even his feelings, has many analogies in the ordinary influence of the strong mind over the weaker. The power of volition is necessarily capable of controlling the limbs and brain of another person, when the impressibility is so great as to destroy the distinct separateness of the two individuals, and enable the organic powers of one to affect the constitution of the other. Any highly impressible individual will feel the influence of the mental condition of another who is near, and of course is liable to be influenced or swayed by his will.

5. *Sleep-waking*, or Somnolence, is one of the natural conditions to which man is liable. Its production by the magnetizer is quite intelligible when we understand the locations and laws of the organs. The organ of Somnolence is closely connected with that of Sensibility, and thus, by the sympathy of contiguity, they are associated in action. Hence congenial impressions upon our Sensibility, which excite its proper action and do not produce intense excitement or pain, have a somnolent tendency. The most anterior superior portion of Sensibility, which recognizes the nervaura and other imponderables, is that which connects most intimately with Somnolence;

hence the most efficient influence for the production of somnolence, is that of the nervaura used by the magnetizer. The influences of caloric, galvanism, magnetism, electricity, music, and other sounds, as well as various pleasant impressions upon the senses, are calculated in various degrees to produce the somnolent state, in proportion as the organs which they affect are connected with Somnolence. This explains the somnolent effect of music—of a warm day—of murmuring sounds. The somnolent effect of electricity is often experienced in certain electric states of the atmosphere, at the approach of thunder storms. Magnetic subjects are liable at such times to fall into a spontaneous somnolence. The most somnolent of our sensibilities is that which feels the influence of the nervaura, and which produces impressibility. Being connected by immediate contiguity with the organ of Somnolence, it follows that we become somnolent whenever the influence of the nervaura of another constitution is felt. Its application alone does not necessarily produce somnolence, for the effect of every agent is proportioned to the organic sensibility upon which it acts. It is necessary, therefore, that a sufficient impression should be made, and also that the organ of Somnolence should be sufficiently large and active. Under these conditions, the nervaura received in contact or proximity with another constitution, becomes decidedly somnolent in its influence.

The magnetizer imparts the attractive nervaura of his hand—he applies it over the head, arms, and body. A gentle warmth from the hand and person, and a pleasant impression upon the sense of touch, contribute to the effect. The entire quietude of the patient produces a repose of the basilar organs, and gives the ascendency to the cerebral and nervous over the muscular and corporeal functions. The kindly and submissive feelings which are encouraged or even required, contribute much to diminish the resisting power and increase the impressibility. Thus the subject is placed in the conditions best calculated to develope all the effects of the agency employed, which being the sole object of his attention, necessarily becomes quite impressive.

In addition to these circumstances, the passes of the operator have a somnolent effect. His hands applied often to the head, chest and arms, tend to draw excitement towards the superior portions of the person. The passes from the shoulders to the hands, tend to produce quietness and attraction by transferring excitement from the vigorous functions of the arms to the attractive functions of the hands. Especially on the outer surface of the arm above the elbow, do we find the coarse muscular influences which antagonize somnolence, and the dispersion of these by the downward passes, is therefore a rational course. The passes on the head are made in the direction from the energetic and vigilant region toward the somnolent organs of the temples; or perhaps carried as far as the chin, in which case they become not only somnolent, but warming. The passes in front of the person, toward the epigastric region, are spe-

cifically calculated to produce somnolence, as they concentrate to the regions of Somnolence and Sensibility upon the body.

When, without any of these processes, sleep is produced merely by the fixed gaze of the operator, the somnolence is produced directly and simply by the subtlest nervaura of the intellectual organs, (aided by the effect of monotony, which suspends intellectual activity,) which is radiated by the eye. The amount of intuitive intellectual influence thus imparted, generally renders the somnolence lucid or clairvoyant, which may not be the case in the other method of operating, if not rightly conducted. In all cases, however, the lucidity depends, of course, upon the capacities of the subject.

When sleep or somnolence has been once produced by the magnetizer, the laws of association are such, that it may be reproduced even by thinking of the scene in which it occurred, the processes used, and the person or countenance of the operator, these conceptions having become *associated* with the somnolent condition.

There is another reason for sleep ,which might indeed be the result of a fixed gaze at any other object, as well as at a human being. Variety of action is the law of the intellect. The more the intellectual organs are developed, the greater the number of distinct ideas which they originate. To increase the number of these ideas by diversified scenes and interesting objects, excites the highest intellectual activity; to diminish the number by excluding all change—confining ourselves to one impresion, tends proportionally to paralyze the intellectual faculties; in other words, to produce sleep. If, at the same time, the intellect of the patient is rather inactive, or the organs of sleep large, he probably yields to the sleepy influence entirely, and falls into the animal sleep; but if his intellectual activity resists, being deprived of any new impressions from the perceptive organs, he is thrown upon the resources of memory and its co-operative region of Ideality and Somnolence. Hence his mental action assumes a vague, abstract, dreamy character, just as if he had closed his eyes—perhaps even more abstract; for in the latter case the perceptive organs may act more freely than when they are riveted to one impression. The somnolence produced by fixing the eyes immovably upon any object, may be of the lucid, clairvoyant character, although this is not so apt to be the case as where the mental and nervous influence of the operator assists. Gazing upon the eye and watching the mental action of another, brings into play our intuitive intellect, as it is a direct exercise of the psychological sense.

The various processes for somnolizing, are not at all necessary to somnolence. The organ of that function is spontaneously active, and often manifests itself in the highest degree, as in the feats of natural somnambulists. It is also under our control and may be voluntarily exercised. Those in whom the organ of Somnolence has been much cultivated, acquire the power of using it at will, and assuming the clear-sighted, intuitive condition whenever they desire.

Therapeutic Benefits.—The relief of pain and disease by the operations of animal magnetism, is mainly dependent upon the sympathetic relations between the operator and subject. If the former be of vigorous health, he is continually elevating the subject to his own condition, and also receiving a morbific influence from his patient; in other words, an equilibrium is establishing between them. Hence operators generally suffer from the contact even more than they are aware, and patients are benefitted in proportion to the character of the constitution with which they come into contact. The production of somnolence has in itself a soothing influence, and the maintenance of that condition greatly increases the impressibility. The passes made over diseased organs serve to disperse the morbid influence; and it really appears that these morbid influences are susceptible of dispersion and removal, as if they consisted of some peculiar fluid. The effects of the various passes over the body and head, are explained by a knowledge of the various functions of the parts over which the passes are made. The passes remove, disperse, concentrate and change the vital forces, according to the direction in which they are made. (See Lectures on Sarcognomy.)

The power which the operator exercises over his subjects, is exercised in all cases in which two beings confront each other, for friendly or for hostile purposes. If the relations are friendly, we observe remarkable intimacies and sympathies, accompanied by an affectionate subjugation of the more impressible individuals, and an adhesive union which can not be severed without violence and suffering. If the relations are hostile, the power of each intensely excites the other, and if greatly disproportioned the stronger overcomes the weaker, compelling a passive submission. The same remarkable attachment—the same conquests by nervous force are observable among animals as among men Dogs, horses, cows, birds, serpents and other animals have been subjected to human mesmeric influence, and human beings have been affected in return, especially by serpents.

(A. W., a lady of highly impressible temperament, was once dangerously fascinated by a snake, when a girl about ten years of age. Passing with her school companions within about ten feet of a log, they saw upon its top a large black snake, at which the others were frightened and ran off. A. was attracted, at first, by curiosity to remain and gaze at the snake, but gradually became impressed by the eye of the animal, as it gazed in her eyes, moving its tail, and occasionally, at first, putting forth its tongue. Her companions meantime had reached the summit of the adjacent hill, on their way home, and loudly called on her to escape, but she had no disposition to do so. The fascination appeared to suppress her powers of speech, and she slowly approached the snake. Her adopted sister ran back in alarm from the hill-top and seized her when within a few feet of the serpent and forcibly dragged her off.

Yet so strong was the impression on her mind, that, even after her escape, she was desirous of returning, and disposed to quarrel with her sister for dragging her away.)

Animals often exert this power on each other. Serpents and cats are said to fascinate birds, and it has been stated that the fascinated bird is so completely under the influence of the snake as to be affected by the blows which the snake receives. Mr. J. W., an intelligent and accurate observer, assures me that he once saw a large black snake fascinated by a cat. This cat, which was remarkable for its great size, was accustomed to catch and bring home snakes, which it brought in a peculiar passive condition, the cause of which was not known. Once, when Mr. W., then a youth, was at work in a small shop adjacent to the forest, a black snake, six or eight feet long, crawled by and passed over his foot. Seeing his cat at that moment, he seized it and started in pursuit of the snake, which he expected the cat would be able to catch or destroy. Passing over an open field, the cat soon headed the snake and arrested its course, standing in front of it and turning from side to arrest its progress. Gradually the cat approached the snake, standing within two or three feet, its hair erect, and its whole attitude and movements indicating intense excitement. The snake, with open mouth and protruding tongue, appeared to be overawed, and its movements became more quiet. The cat crouching upon its abdomen, approached its subject, and at length put its paw upon the head, thus asserting an authority, to which the snake submi ted. It then walked around the snake, closely watching it, rolled over on it, and seemed to be quite at home with its pet, which quietly submitted to its pleasure. By this time, Mr. W. thought proper to interfere; he pulled the snake by its tail and it made no resistance. He then administered a heavy blow, which severed its body and killed it.

LECT. LXV.—NERVAURIC TREATMENT OF DISEASE.

If the whole human race possessed the requisite degree of impressibility, the necessary sphere of drug treatment would be quite limited. Diseases might be treated by manipulation alone, with far geater success than what at present attends the use of medicines. As it is, there are many to whom manipulation is a far more beneficial remedy than medicines. The number is far greater in proportion to the mildness and warmth of the climate, the refinement of character, the cultivation of the gentler emotions, and the effeminacy of the mode of life.

In many cases, however, we find the impressibility so moderate as to render it more tedious, expensive and laborious to treat dis-

eases in this manner than by medicines, and unless some measures are adopted to increase the impressibility, there would not be sufficient encouragement to induce one to persevere in manual treatment. The processes commonly adopted by magnetizers are well adapted to the cultivation of impressibility. The somnolent state is one of a high degree of impressibility, and by its frequent production, or even by the approximation to it, the impressibility will be greatly increased; hence, benevolent and persevering operators have frequently taken hold of the most unpromising subjects, upon whom, at the first sitting, they produced scarcely any decided effect, and continued their efforts until they brought the constitution entirely under their control, so as to effect important cures. It is highly desirable that we should have a class of operators devoted to the manual treatment of disease, which is often too tedious for the practice of the physician. By encouraging this class as a distinct profession, a great number of cases will be successfully treated, in which the ordinary medical treatment would have failed, or at the best would have left the constitution greatly impaired. The physician is so strongly tempted to resort to the easy method of prescribing doses of medicine, and to avoid the labor, or perhaps ridicule connected with a more genial method, that it is probable he will often overlook the impressibility which might have enabled him to work magical cures; nor is it probable that he will persevere in cultivating impressibility where it is very slight and requires perseverance for its developement.

As the number of impressible constitutions, at present, is in warm climates, sufficient to render one half or three-fourths of the population subjects for partial manual treatment—as the progress of refining, humanizing influences in society contributes greatly to the increase of impressibility, and as it may be cultivated greatly by somnolizing processes, as well as by diet and moral influences, there can be no doubt that the manual treatment of disease should take a high rank among the various methods known to the healing art. I have no doubt that manual treatment, combined with treatment by water, neither of which requires a thorough medical education, would produce results superior to the average of our present fashionable practice. A large portion of the results of hydropathy are due, not to the water, but to incessant frictions and manipulations of the attendants, which are carried to an extraordinary extent at the water cure establishments. The principle of Priessnitz, "flesh to flesh," was the result of experience.

The principles governing the manual treatment of disease are simple and obvious. Wherever there is any accumulation of nervous excitement, of irritation, or of sanguineous congestion, it should be our object to disperse it, and to remove from the system entirely the morbific tendency. When there is simply congestion, accumulated excitement, or an inflammatory tendency, the dispersive movements may be sufficient; but if there be much morbidity,

it will be desirable to disperse and entirely eliminate from the system the noxious influence of the morbid parts. This may be accomplished by passes from the morbid part toward and beyond the extremities, or by the direct application and withdrawal of the hand. The nervaura seems to follow the movement of the hand, and the passage of the operator's hand from the person of his subject, or from its central toward its extreme parts, appears to withdraw the morbid or irritating nervous influence, and to substitute therefor the more genial influence of the operator's constitution.

The operator is in great danger of imbibing into his own system a portion of the malign influence which he receives, and hence is required to be on his guard. The fact of the patient being entirely in a passive condition, renders his influence less potent, and at the same time the resolute exertions of the operator give *him* the power of resisting the influence of his patient. He is exerting his Firmness, Vigilance and Energy—his occipital organs generally are active and the enfeebling temporal organs are inactive—hence, he has less impressibility than usual while operating. His own constitution, while emitting an efficient influence, is too vigorous in its own action to be much affected by the vital influences which are thus yielding before him. It is desirable that there should be a great disparity of impressibility between the operator and the subject, for the benefit of the former. He will thus work the most astonishing cures, in a very impressible subject without perceiving any effect upon himself. But if the subject be not more impressible than his operator, the latter will be liable to imbibing as much morbific influence as he removes, and will owe his safety to the precaution of keeping his system braced and active, diminishing the necessary amount of contact, making rapid, dispersive passes, and relieving himself by the proper passes, after operating upon his patient. The hands, which have been used in contact or proximity to anything morbid, are the direct recipients of the morbid influence, which is thence diffused over the body; hence, dispersive movements down the head and over the hands may withdraw the morbific influence derived from the patient.

The passes made for the relief of the patient operate by the nervous influence, and do not require contact. The higher the impressibility the less necessity for contact—the less impressibility the nearer the approach that is necessary—the least impressible requiring physical contact. In the highest possible grades of sensibility, mental contact is alone sufficient without physical manipulation, and the mind of the operator imparts vigor to his subject. In these cases the mind has an unlimited power over the body, and being controlled by another mind, which supples an energy not its own, is enabled by this imparted power to renovate its enfeebled body. The mental influences of the operator may even be imparted to particular substances, which may then be used by the patient advantageously. A ring, a book, or a piece of money, may

be charged with any mental or physiological influence, as sleep, mirth, nausea, etc, so as to produce these effects when touched; but as these phenomena are produced with equal facility, by imagination alone, in such persons, as by simply telling them that a certain object will put them to sleep, there is no accurate distinction in such experiments between those which are merely imaginative and those which depend upon a real nervous influence.

LECT. LXVI.—LOCAL NERVAURIC TREATMENT.

Beside the simple operation for the dispersion of morbid influences, there are many which require a knowledge of organic functions.

The organ of Disease (in the body) being located in the hypochondriac region, it is important in operating for the benefit of the subject, to disperse the vital excitement from this region, and diminish the action of the morbific faculties.

Hence, the most frequent manipulations, for the benefit of the patient, will consist of dispersive passes from the region of Disease toward that of Health—on the head from the cheek bones to the crown—on the body from the hypochondria to the shoulders. A brisk upward movement of this kind, upon the person, will be felt by almost any one, as a rousing, bracing, refreshing operation. The delightful influence of a cool breeze is owing to the fact that it operates in the manner just described—the cool air passes over the cheeks and temples, backward, toward the energetic organs of the occiput, exerting a sedative and dispersive influence upon the debilitating organs of the middle lobe. It is for the same reason that we are so much refreshed by the application of cold water to the face upon rising in the morning, and the knowledge of the bracing influence of cold applied to the cheeks and temples, leads us to resort to it immediately, in every case of fainting. Upon the body the same principles apply. The breeze striking us in front exerts its sedative influence upon a group of debilitating organs, and is delightfully invigorating—it is therefore pleasant to face the cool breeze, and for the same reason injurious to receive the breeze upon our back. The remark is said to be true of quadrupeds as well as of human beings—horses and cattle, it is said, pull better against the wind than with it. If a breeze be of higher temperature than the body, its influence will be reversed, as it will heat the parts upon which it blows. Facing such a wind, will, therefore, be debilitating, as is well known in warm climates. In bathing, we may observe that the application of hot water or steam to the front of the body, especially near the hypochondriac region, is debilitating and sickening, when upon any other part it would be agreeable. The jet of cold water striking the person in

front is entirely pleasant and tonic. The dispersive passes from the hypochondria may be made both upward and downward. In a majority of cases, invalids need both movements—they require the latter to rouse the animal forces. The manipulations should extend upon the legs in such cases, and not terminate upon the abdomen. The object being to throw the vital force from the abdomen to the shoulders and legs. To develope it more effectually in those parts, we should apply the hands, gently touching and withdrawing, or lightly tapping upon the organ of Health on the shoulder, upon the front of the thigh and upon the calf of the leg. The highest degree of muscular activity is imparted by the outer portion of the calf. In operating upon the head, the most beneficial vigor will be imparted by touching at the same time the organs of Health and Vitality. This effect I have often felt myself while making the experiment. (For Vitality place the finger upon the hollow of the neck just behind the mastoid process.)

Besides this general restoration, we may concentrate the sanative energies of the constitution upon the diseased organs Thus, by touching simultaneously the organs of Health and Alimentiveness, we concentrate the sanative powers upon the stomach, or by touching any other organ than Alimentiveness, at the same time, we throw the sanative power of Health to a corresponding part of the body.

In every individual case there must be a variety of operations, adapted to its peculiarities Organs which are torpid must be excited ; those which are overexcited must be tranquilized ; an equilibrium of circulation and of excitement should be established. (See Circulation.) Thus, in a great number of cases, it will be necessary to excite the hepatic organ, to produce a sufficient activity of the liver—to excite calorification and perspiration to produce warmth and moisture of the surface—to excite Vitality to rouse all the physiological energies—to remove the circulation and excitement from from the head to the extremities, by passes down the side of the head and neck toward the shoulder—to warm the lower extremeties by exciting Calorification and the organs of the lower part of the neck at the same time—to relieve internal congestion of various organs by backward dispersive passes over the side of the head—to relieve the oppressed lungs by exciting the organs of Respiration, or to diminish the disposition to cough by the organ of Restraint—to arrest a fever by transferring the excitement from Calorification to the organs of Refrigeration, Perspiration and the secretions—to quiet the excitement of the heart by the region of Firmness—to check profuse abdominal secretions by the region of Restraint—to relieve the brain by throwing the excitement to the lower extremities, etc , etc. In short, there are a great number of operations o be made upon the brain and body, for the restoration of disordered functions, in which we are to be guided by the simple rule of ascertaining which function is torpid, concentrating ex-

citement upon its organ, and diminishing the excitement of those which are over active or highly irritated, regulating the balance of functions in such a manner as to give a decided ascendancy to those of the region of Health.

The details of what should be done in each case must be derived from a thorough knowledge of the functions, as developed by Neurology, and their exact location on the head, as well as the corresponding locations on the body developed by Sarcognomy. With this knowledge of localities and functions, we readily comprehend the nervauric management of various disorders, by applying the hands where we wish to concentrate excitement, and making dispersive passes where we wish to dissipate it.

LECT. LXVII.—MEDICAL MANAGEMENT OF IMPRESSIBLE CONSTITUTIONS.

In a large number of impressible persons, it will be found impracticable or injurious to rely entirely on manual processes for their relief from disease. So few, at present, are skilled in these processes, it may be impracticable to obtain the services of any suitable person. In these cases the patient, if subjected to ordinary medical treatment, will be apt to experience, in consequence of greater impressibility, more severe and prostrating effects from the ordinary doses than his physician will have been prepared to expect. A slight error in the choice of his medicine may be more deleterious; and many influences of diet, climate, clothing, atmosphere, etc., may affect him more injuriously than others. Hence it is necessary that, if possible, he should convert this extraordinary susceptibility, which renders him more liable to disease, into the means of guarding against its attacks. The impressible person, *ceteris paribus*, is more liable to disease than the non-impressible. But when he has been taught the nature of his impressibility, and in what manner it is a quality for his own protection, he may be more successful in guarding against disease and relieving himself from its attacks than those of less susceptibility.

A highly impressible person, by cultivating his powers, may learn to avoid every influence and every article of food that would produce an injurious effect. It is not necessary for him to swallow a dose and wait for hours to understand its influence. It is not necessary for him to have consumed his dinner and awaited the results to know whether or not it was compatible with the state of his stomach. Every article with which he comes into contact, diffuses its influence at once over his whole person. The medicine which he holds in his hand exerts its medicinal influence almost at once over his whole constitution. The food which he takes upon his tongue

exerts its sympathetic influence upon the stomach, bowels, brain, and nervous system, and he is at once aware of its tendency. He should, therefore, in regard to his diet, cautiously feel his way, not going merely according to the dictates of a previously formed judgment, but following implicitly the promptings of his sensations, when the articles of food are placed before him; eating deliberately, and consuming only those articles which, on the first taste or impression, appear to exert a genial and wholesome influence.

By this experimental system of diet he will be enabled to choose with more than scientific accuracy, the article which is adapted to his physical condition for the time being.

The facility with which he receives medicinal impressions, renders it scarcely necessary that he should take any medicine internally. By simply holding it in his hand, or placing it on the epigastrium, or on some other portion of his skin, he experiences its entire medicinal influence, as thoroughly as if taken internally, and escapes the prolonged and often injurious influences of medicines administered in the ordinary method.

By this external mode of medication, he is enabled to continue any medicinal influence just so long as it may be beneficial—to discontinue the application whenever it appears to be expedient to do so; and to undergo the influence of a dose of any magnitude whatever, with the safety which arises from the fact that it may be discontinued in a moment. Not only may its action be thus suspended by removing it, but by rapid manipulations over the point at which the medicine had been applied, its influence may be to a great extent, if not entirely, withdrawn from the system. By this external method of medication, not only do we relieve the stomach and spare the constitution, but we enable the patient to select his own medicines, with a certainty and accuracy otherwise entirely unknown in the healing art. If, for example, his condition indicates the necessity for a tonic, he may select ten or twenty that appear best calculated to fulfil the indications of the case. In a few minute's trial he rejects those which are pernicious, and selects those which produce desirable effects, and informs us of the mental and physiological results which the chosen medicine produces.

How simple and how beautiful the whole process! The constitution of man, when developed to its highest degree of moral and physical beauty and refinement, possesses the unerring senses, by which it selects, from the different kingdoms of nature, whatever it stands in need of. With an unfailing internal sense, he chooses his appropriate nutriment with equal certainty. He avoids noxious plants and minerals; and when his health is deranged, he needs but to walk through the forest and exercise his finer senses, to find a plant which combines in its leaves, its flowers, its bark, or its seeds, the power that restores him to health.

How beautiful and how benevolent appear the system and circumstances of human nature—the relations and plan of the human

constitution, when fully developed in accordance with its divine plan! Is it not a pleasing anticipation that, in a more harmonized condition of society, that which is now true to a limited extent of a few, may become true to a much greater extent of all?

The beneficial influence which impressible persons may thus derive from food and medicine, will also be derived from other peculiar sources. They will be able to perceive the effects of peculiar locations, and even of the position of the bed in which they lie, and in all the measures we may institute for their relief, to test and ascertain the propriety of our course. To this class of individuals the social influence is of pre-eminent importance. If surrounded by meagre, feeble, drooping, desponding, or irritable attendants, they will feel a sympathetic depression or irritability; but if surrounded by the robust, healthy, gay, and good-humored, they will receive an elevating and sustaining influence from the moral atmosphere of health and happiness by which they are surrounded. Hence the success of many a popular physician, who cheers his patients by an impersonation of vigorous, joyous health, and hopeful sympathy. Not only is the presence of such persons desirable, but the conversation of friends should ever turn upon scenes of health, happiness, and kindness. Such conversation is really sustaining and beneficial to the sick. Those visitors to the sick room, whose sallow and morbid countenances reveal a life of little enjoyment, and whose conversation continually runs upon disease, misfortunes, deaths, quarrels, and pecuniary troubles, should never be admitted.

Not only may the mental influence of those who are present, and of the scenes which they describe, benefit the patient; but even the influence of a letter may be decidedly beneficial. Contact with the letters of the healthy, robust, and cheerful, who have a genial influence, is a moral medicine, of considerable value to those of the highest susceptibility.

LECT. LXVIII.—BLETONISM.

One of the most remarkable facts which has been neglected by the scientific, is that which has been expressed by the term Bletonism, or Water Witchery. The familiar practice in Europe and America of determining the proper location for a well, and the probable depth at which a stream of water will be found, has not received the proper attention of scientific men. The custom is so universal in our country, that there are probably none of my readers who have not witnessed or heard of some illustration of this power. In many neighborhoods there are individuals distinguished by their powers in this way, who, without remuneration, and with-

out any motive for deception, are accustomed, whenever a well is to be dug, to survey the ground and determine by certain internal perceptions, where the water can or cannot be obtained, and at what depth it will probably be found.

The prevalence of this custom, and the honesty and intelligence of the parties, entitle it to our respect. It is evident that the power in question depends upon some endowment of the nervous system which exists to a higher degree in some individuals than in others.

We observe that when the water-finder is going about, with his switch or forked twig in hand, in pursuit of water, many of the spectators are often tempted to try, through the same process, to ascertain whether they possess the power themselves. In any considerable number of persons we generally find some who become expert in water-finding. It is therefore certain that a peculiar sense or endowment exists among a large portion of the human race, sufficiently acute in its perceptions, and correct in its intelligence, to be available in determining the site of subterranean streams of water.

But when we examine the process by which the discovery is made, we do not observe any thing very rational or scientific. The water-finder proceeds over the ground, holding in his hands a forked twig of witch-hazel, peach or some appropriate tree, which it is believed will turn down with considerable force and point toward the subterranean stream, whenever he stands directly over it. Such is the general opinion of water-finders ; and some of them even declare that the twig turns down with sufficient force to twist it in their hands, breaking the bark. It is also believed that by holding a switch or rod in the hand by the smaller end, leaving it in a position free to move, it will adapt its direction to the course of a subterranean stream, and thus become a guide by which the stream may be traced. It is believed that on the water witch holding a small rod or twig in his hand above the site of the subterranean stream, it will soon be thrown into motion by a mysterious attraction, and begin to vibrate vertically to and from the water.

In these opinions, although they may appear ridiculous to the man of science, we observe the form in which a familiar fact presents itself and is received by the unscientific mind. As to any attraction between the twigs and the subterranean stream of water, when no human being interferes, we have not the slightest evidence of its existence. The whole cause, therefore, of the facts and phenomena, must be found in the constitution, capacities, and peculiarities of the individuals who make the experiment. The forked twig or divining rod is held in such a manner, compressed by the hand, as to be very liable, if the pressure is not carefully made, to be thrown down by the force used. Hence its turning down, even with apparent violence, is not at all surprising. But the water-finder tells us, sincerely no doubt, that he makes no effort to cause the twig to turn down, but, on the contrary, wishes to prevent it.

Nevertheless, we know that the twig can be maintained in its erect position only by the judiciously balanced force which he applies to it, and that whenever, from any cause, his force is improperly applied, it must descend, whether he wills such a result or not.

So in the case of following the guidance of an elastic switch, it is very easy, when it is held almost balanced from one extremity, swinging to and fro in an elastic manner, to change its direction by the unconscious movement of the hand of the holder. And in the case of the vibration of the twig, which is supposed to play freely in the hand of the holder, it is obvious that a very slight movement, however communicated, even the slight movements which are always experienced from the impulse of the heart and from the movements of respiration, will be sufficient to produce a gentle vibration of the twig. By these means we can explain the movements of the divining rod of the water-finder, as being entirely caused by the action of his own muscular system, independent of any anticipation on his part, or any design to produce such results.

This reasoning, however, does not explain the wonderful fact, which has been verified in thousands of instances, that the true situation of subterranean streams may be thus pointed out, and even the depth at which the water lies correctly indicated. To explain this fact we must refer to the wonderful powers of the nervous system, which recognize the influence of a medicine enveloped in a paper or hermetically sealed in a bottle. The powers by which we recognize the influence of a medicine through solid media—by which we recognize the mental influence belonging to the contents of an unopened letter; and by which we recognize the pathological condition and feelings of a patient near whom we may be standing, are powers of a similar character to that which is concerned in water-finding. It is a consequence of an impressible nervous system, that all substances around us, and at various distances, are capable of exerting an influence upon us. Sensitive persons may be powerfully affected by a magnet at fifteen or twenty feet distance. That so simple and harmless a fluid as water should exert a distinct influence upon the human constitution at a considerable distance, is not incredible when we have witnessed parallel facts as to operation of other agents.

In order to explain the mysteries of Bletonism, I have selected persons of a high impressibility, with a view of determining, by the excitement of their organs, in what portion of the brain the power of the bletonist could be located. Knowing that it was a perceptive power, I discovered that any highly impressible person might be endued with the power of the bletonist by exciting sufficiently the sensitive and perceptive organs. In the greater number of highly impressible persons, these organs are spontaneously sufficiently active for our purpose; and such persons are capable of becoming water-finders if they exercise their power.

I discovered in my first examination of the subject, that any im-

pressible person might be sensibly affected by proximity to a body of water, and that, by exciting his intuitive perceptive organs, he would be enabled to recognize its presence whenever he approached it. Thus, by placing a large bowl or pitcher of water upon the table, and causing the individual to pass around the room with his eyes closed, holding his hand extended horizontally, I observed that whenever his hand passed over the bowl of water, not knowing where it was, it would slightly descend as though attracted towards it. After a little experience he would be enabled, by passing his hand around the room, to recognize the spot at which he experienced the action of the water. Thus, if a bowl of water should be placed under a chair, he would be able by placing his hand, with his eyes closed, upon each chair, to distinguish the one beneath which the water was situated. After placing his hand over a bowl of water several times, and observing a descent of his hand at each passage, it was observed that if he stood still, holding his hand in the same position, it would gradually be attracted towards the water, and descend, as if compelled by an increasing force, the muscles of the arm appearing to undergo a peculiar contractile and benumbing influence.

Having observed these facts, I sought an opportunity to apply the principle to the case of a somewhat noted water-finder. This individual was an old man, a magistrate, residing in the country, of good standing and personal character for integrity, and who was much distinguished for his success as a water-finder. The old gentleman was brought to my office. I gave him a hint of my views as to his peculiar powers, which he received with considerable skepticism. Nevertheless, I proposed to test the matter by experiment, and to show him that the whole mystery of water-finding consisted not in any peculiar virtue of the divining rod, but in a peculiar influence exerted by water over the human system. By the experiment of holding his arm extended in different parts of the room over a bucket of water, and elsewhere, I endeavored to convince him of the truth of the principle. He found that whenever his arm was held over the water, it was strongly disposed to descend; yet, it was not till after repeated trials in other portions of the apartment, that he could be convinced that the water exerted any peculiar influence, although his arm did not exhibit the same disposition to descend in other places. Finally, however, resolved that he would not be convinced if he could help it, he determined to hold his arm above a bucket of water, and not allow any influence from that source to affect it. He accordingly held out his hand, and steadily resisted the influence, which nevertheless was visibly operating and causing its descent. He continued this struggle until his arm was spasmodically agitated by his effort, and yielded the point only when he found himself unable to resist any longer.

After giving him this demonstration of his impressibility, I in-

formed him that the same principle was applicable to other influences as well as that of water, and placed upon his forehead, in succession, the letters of Judge S., General Jackson, Mr. Calhoun, etc., from each of which he derived a striking and characteristic impression corresponding to the characters of the writers and the mode in which he was accustomed to regard them. Thus we learn that the phenomena of Bletonism are nothing more than a popular and universal mode of displaying the impressibility of the nervous system, which Neurology has demonstrated. The rod or twig, or any other apparatus for the exercise of this power, is a convenient method for its exhibition, as the muscles of the operator, while holding the twig, are affected by the influence of the subterranean stream. But in truth no such apparatus is necessary. The impressible bletonist may go forth with his hand alone—may recognize subterranean streams, indicate their course and depth; and I believe may not only indicate the course of subterranean streams, but may also determine the position of mineral strata.

LECT. LXIX.—DIETETICS.

As medicines exert their influence upon the constitution at the moment of contact or of proximity, and the influence thereby exerted is diffused over the whole person, so do articles of food. Food and medicine can not be distinguished by any accurate boundaries. All articles of food are more or less medicinal; that is, they modify the state of the constitution as to health or disease, and excite the functions of one class of organs rather than another. Perfect food—that is, consisting of substances incapable of producing pathological or therapeutical effects—does not exist. All substances are pathogenetic, when used to a sufficient extent. (Water, by its innocence, approaches nearest to the character of perfect food.)

The Materia Medica, therefore, comprehends all substances; and the strictly alimentary class of the Materia Medica is but a small and rather indefinite class. There are few articles of food which can be consumed in large quantities, and for a great length of time, with impunity. The greater number require to be used with caution and moderation, and these not alone, but in connection with ther articles which may counteract their peculiar tendency. There are many of our condiments which require to be used in quantities as small as our medical doses. Vinegar, salt, pepper and mustard can not be largely consumed with impunity. They are, themselves, rather disagreeable when used as medicinal substances. The only real difference between an alimentary and a medicinal substance, is that the former may be used in greater

quantity than the latter generally admits of. This, then, is the distinction between food and medicine, that substances which produce beneficial effects, in large quantities, are called food, and substances which produce beneficial effects only when used in very small quantities, are called medicines.

Medicines of the greatest intensity, and producing pathogenetic effects in the smallest doses, are generally called poisons. The distinction, then, between poison, medicine and food, is but a distinction in quantity. All substances become poisonous or injurious by being used in sufficient quantity; and any poisonous substance, specially so called, becomes harmless by being sufficiently attenuated, or diminished in quantity.

From these remarks, we perceive that the properties of food may be ascertained in the same manner as those of medicines and poisons, by ascertaining their effects in contact with the person externally; for it is not merely after a substance has been digested and absorbed, that it produces its characteristic effects. These effects are instantaneous and diffusible in proportion to the impressibility of the constitution.

Experiments of this kind demonstrate that animal food has a direct relation to the basis of the brain, and stimulates and developes the basilar organs. Hence, it gives great vital force, a tendency to violent and inflammatory diseases, a muscular constitution, brutal passions, and a low state of the moral faculties. These facts are illustrated by comparing the character of herbivorous and carnivorous animals, as the lamb and wolf, horse and tiger, elephant and lion, goat and hyena. Under the influence of the violent passions, the appetite becomes voracious and demands stimulating food and drink—mobs are always ready for ardent spirits. Under the influence of intellectual pursuits, or the indulgence of the affections, gross animal food and strong stimulants are exceedingly disagreeable. Hence, we observe that hard students, refined ladies, and persons generally of a very refined and amiable character, are averse to a strong, stimulating diet; while those of angry passions, restless habits, and strong impulses, generally desire a stimulating diet—the very articles the former reject. All the lower occipital organs demand stimulus. The gloomy and morose individual needs some stimulus from without to raise his spirits, which are depressed by the basilar organs.

The organs of the coronal region produce a happy frame of mind, which originates no desires and requires no stimulants. They also restrain the activity of the muscular apparatus and digestive organs, so as to diminish the demand for food. Consequently, the constitution, governed by the coronal organs alone, demands but a small quantity of food, of a mild, unstimulating character. I do not mean to affirm that all good men eschew animal food and stimulants, and that all bad men use them to excess; for, in truth, men with a full developement of the animal organs may use all

kinds of food in various proportions; and a bad man may be vicious in consequence of moral defects, special or particular excesses among his selfish faculties, without having a large, general developement of the animal impulses. But it is still true, that the moral and intellectual organs, in proportion to their predominance, tend to withdraw us from gross animal and stimulating diet, giving us a fondness for fruits, vegetables and farinaceous food; while the animal organs, in proportion to their predominance, render such food distasteful, and give us violent, coarse, carnivorous appetites. An appetite for alcoholic drinks, pungent stimulants, and raw flesh, is the legitimate result of animal predominance. The fact that such an association exists between the diet and organic action, indicates that as the organs seek the diet, so does the diet seek and stimulate the organs. An abundant flesh and brandy diet tends to brutalize the man, as a vegetable diet tends to elevate his intellectual and moral nature. Heliogabalus, the brutal emperor, spent thousands for a single dish of peacocks' brains. Howard, the great philanthropist, lived chiefly on garden vegetables. Religious zealots have often endangered their lives by fasting; but millions of profligates have shortened their days by gluttony and drunkenness. Men devoted to a studious and virtuous life, often exhibit the meagreness of an imperfectly nourished body, while those living for selfish, animal ends, as often exhibit the coarse and bloated person produced by unrestrained appetites.

While it is easy for the more careless observer to discover the natural association between animal food and the animal organs, and vegetable food and the moral organs, it is a delicate task to determine in what proportion the different species of food should be used, and in what manner combined to produced the best condition of health, or to improve the original defects of constitution. It is manifestly wrong to lay down an arbitrary system of diet, to be followed by the whole human race.

Each article of food produces specific effects upon the moral and animal nature, and may, under certain circumstances, become specially appropriate to the existing condition of the constitution. The only proper method is to ascertain, distinctly, the exact value and influence of each separate article of diet, and then, knowing the peculiarities of your constitution, to adapt the diet to its existing condition.

The first object, therefore, of dietetic science, is an exact survey of the physiological and mental influence of each article of food.

This subject is so extensive and important as to require a special treatise, which I expect to prepare hereafter.

LECT. LXX.—IMPROVEMENT OF THE HUMAN RACE.

The original organization of each individual is more important than his education. Centuries of education would be required to elevate an inferior stock to a high position in intellect, virtue and physical developement. But on the other hand, the world always contains a large number of individuals whose physical and mental qualities are of a superior character, and whom education might render fit for a high social condition.

In vain do we educate and elevate a portion of the race, if the improved beings thus produced commingle with the mass of feeble, diseased, passionate, selfish, ignorant, superstitious, criminal and miserable beings, who constitute the inferior strata of society, among whom the process of degeneration may be as active as the process of elevation can be made by the teacher.

If this commingling could be prevented, and the propagation of the nobler portion of the race alone permitted, we should witness a rapid advancement of mankind in wisdom, happiness and power. The perfection which has been attained by breeders of domestic animals, the dog, horse, cow and sheep, might be more than equalled in the improvement of mankind.

No other agency for human improvement is so important as this. Could any system of legislation, or any social combinations, thus correct the propagation of vice, crime, ignorance and disease, giving free scope to the growth of intelligence, truth and virtue, such a movement would ensure the speedy redemption of the race from ignorance and suffering.

There is but little probability that this will ever be done by legislation, for philosophy has but too little influence in government. Criminals and the most debased members of society ought surely to be prevented from propagating their like, but for this great object we must rely upon individual intelligence. The entire community should be duly enlightened upon this subject, and should act as a vigilance committee to reprobate and to condemn vicious unions, and above all, to prevent alliances of women with base, unworthy and miserable men. But our reliance for human improvement must be principally upon females. When women are universally instructed in the importance of selecting the best possible parentage for their offspring, and when they are encouraged and sustained in such a course by their friends, the lowest classes of society will no longer be permitted to perpetuate their vices. Let all parents impress it upon their daughters, as a sacred principle, that they should never permit the human race in their own persons to degenerate, but should always secure, in their matrimonial alliances, qualities superior to their own, thus rendering it certain that their offspring would exhibit improvement rather than degeneracy. The instincts of every good and enlightened woman

lead in this direction, but, unfortunately, the fear of dependence and poverty, the love of wealth, and the influence of selfish, managing relatives, combined with youthful inexperience and credulity, often attract good women into unhappy and degrading unions, with their moral or intellectual inferiors. If such unions were prevented by the intelligence and independence of women, a most effectual restraint would be imposed upon crime, ignorance, and degradation. Having secured the proper parentage, we may calculate, that in the usual course of events, the offspring will exhibit all the conjoined characteristics of both parents, and thus each generation exhibit, in slightly varied forms, the same sum total of the various qualities of humanity which belonged to the better portion of its predecessor; but this transmission is modified by the influences operate upon each generation, to elevate or lower it, and the character transmitted is not only the congenital but the acquired character developed by the force of education and circumstances. Especially are those qualities transmitted, which are in the greatest activity and power, during the period of conjugal union, and during conception and gestation. The father and mother, during the year preceding the birth of each child, should take the utmost pains, not only to preserve the highest possible condition of health, but to maintain their intellectual and moral faculties in the highest state of activity, and to cultivate such society and such intellectual vocations, as would have the happiest influence upon themselves, and through them upon their offspring. Children born from a period of great intellectual excitement and heroic exertion, inherit a natural energy and genius which may render them distinguished in their subsequent career, while others, born under more tranquil or indolent influences, sink to a common-place level. Hence, we see in children of the same family the contrast of genius, with fatuity, or of honesty, and moral worth, with profligacy and felony.

If the mother be of a highly impressible temperament, she should avail herself of this impressibility to maintain her constition, and especially the brain, in the highest condition. By associating exclusively with persons of a superior organization, she may invigorate her noblest faculties, and by resting her hand upon the shoulder, the forehead, or the superior regions of the brain of such persons, she can obtain the specific nervaura which her constitution requires; and when such an opportunity is not convenient the autographs of eminent men will enable her to place her mind under the best physiological, intellectual, and moral influences.

LECT. LXXI.—NORMAL NOMENCLATURE.

To construct a nomenclature, which would accurately indicate the functions of all the organs, when acting in the normal sphere of beneficial activity, would be one of the most difficult tasks of the Anthropologist. When an organ has a marked tendency or result, which *is* easily expressed, it is difficult to find a term which will give a correct idea of the tendency, (without indicating or referring to its results when in predominance,) and express merely. a mode of action entirely beneficial. Such an undertaking would prove so difficult, notwithstanding its practical utility, that I cannot formally adopt such a nomenclature at present.

Meanwhile, it may be remarked, that the normal action of any of the inferior class of organs, in conjunction with the higher faculties, which keep them within their legitimate sphere, results in a more elevated manifestation, corresponding very nearly to a more elevated class of organs, situated higher in the head. Thus, by elevating each of the organs of the lower part of the head, toward the region of Virtue, Health, and Intelligence, we may learn their sphere of normal action. The organ of Disease, for example, when elevated in character, becomes merely the extreme Sensibility, which renders us liable to impressions that may produce morbid results Fear and Hypochondria rise to the rank of General Excitability; Destructiveness and Hatred rise to the rank of stern Combativeness and Energy; and Acquisitiveness assumes the character of a cautious, conservative care of property. Thus, throughout the brain, the elevating influence of the healthful and virtuous region, developes functions of a higher character, and elevates the lower organs to the sphere of respectability; as, in like manner, the predominance of any basilar influence, tends to degrade the higher organs, giving to Combativeness the character of violence; to Cautiousness, the character of Fear and Avarice; to Secretiveness, the character of Baseness; and to Ambition, the character of Arrogance. Not only do our own basilar organs thus degrade our higher powers, but the basilar organs of others degrade their conception of our character in a similar manner.

A normal nomenclature, therefore, would be simply a description of the action of a brain, in which the basilar organs were effectually and thoroughly controlled. Hence, it would not be the exact and complete description of man which should be derived from a thorough analysis of his nature.

The analytical view of the brain derived from experimental psychometric investigation is no doubt the true scientific view of man. But those who look at this analysis need to have sufficient synthetic power in their own minds to conceive the separate organs as parts of a harmonious whole.

He, who in looking at the anatomy of man, should conceive a flexor muscle as the organ of permanent rigid flexion of the arm, and its antagonist as the organ of permanent rigid extension, would have as incorrect a conception as he who should regard the anterior part of Benevolence as the organ of prodigality, and its antagonist, as the organ of miserly avarice—or who should regard the mastoid region as the region of Murder, and the Alimentive region, as that of gluttony and drunkenness, without harmonizing these conceptions with general integrity and symmetry of character.

Organs, like muscles, are not habitually in operation to their extreme extent, but lie at ease prepared for action in a certain direction, while their analytic name indicates the extent to which that action *can go* without determining the *invariable* extent of it. He who derives his ideas of human nature from names which indicate the most extreme action of the organs, without understanding lower grades of excitement, obtains a very erroneous conception of the habitual action of the brain, as those extreme displays, do not constitute the greater part of life, but occur only under strong excitement. If names could be found for organs which would express not only their extreme effects, but their general tendency and various degrees of excitement, such names would be much more satisfactory and convenient.

The use of the analytic nomenclature is not objectionable, provided it be correctly understood and used synthetically, but the synthetic nomenclature, which *expresses* the normal character of all the organs, and *intimates* their spasmodic capacities, is difficult to construct, if not almost a philosophic impossibility. Some of the organs being so essentially abnormal, that their normal action is difficult to conceive, and when we have found a term to express the normal action, it is inadequate to express the abnormal, which is still essential to a philosophic and complete knowledge.

Gluttony and drunkenness may be reduced to Alimentiveness —Felony, Desperation, and Hate, may be grouped as Destructiveness, Disease may be reduced into the group of Sensibility, Baseness called cunning, and Insanity called passion; but none of these terms will convey a full knowledge of the traits of character actually displayed, as many minute specifications by analytic terms will be requisite to convey a knowledge of the true impulses and passions which are manifested.

A clear view of the whole may be obtained by arranging together the analytic and synthetic nomenclatures, the former representing the *ultimate tendency*—the latter, the normal and harmonious manifestation.

SYNTHETIC NOMENCLATURE. (Expressing the conjoint action of the organs, each being restrained by its antagonists, and regulated by the entire brain.)	ANALYTIC NOMENCLATURE. (Expressing the isolated action and ultimate tendencies of the distinct organs.)
ALIMENTIVENESS.	ALIMENTIVENESS—Hunger, Thirst, Love of stimulus (Gluttony, Intemperance).
AMATIVENESS.	AMATIVENESS — (Licentiousness, Rape).
AMBITION.	AMBITION — Moral, General, and Military or Criminal, Vanity.
AUTHORITY.	ARROGANCE—Love of power.
ARDOR.	CALORIFICATION.
ACQUISITIVENESS.	ACQUISITIVENESS—Conservative, Trading, and Avaricious.
AVERSION.	Hatred, Disgust.
ADHESIVENESS and APPROBATIVENESS.	ANIMALITY — Clannishness, Bigotry, Stupidity, Ignorance.
BENEVOLENCE.	BENEVOLENCE—Liberality, Devotedness.
CAUTIOUSNESS.	SANITY —Cautiousness, Anxiety, Indecision, Fear.
COLDNESS.	COLDNESS.
CONDUCTOR ORGANS.	CONDUCTOR ORGANS OR ORGANS OF MANIFESTATION—Intellectual, Moral, and Occipito-Basilar.
CHILDISHNESS.	CHILDISHNESS — Carelessness, Idiocy.
COARSENESS.	COARSENESS.
COMBATIVENESS.	COMBATIVENESS—Moroseness, Opposition or Contentiousness, Harshness, Stubbornness, Censoriousness, Hostility.
CUNNING.	BASENESS.
DESTRUCTIVENESS.	Turbulence, Desperation, Felony, Profligacy, Irritability.
ENERGY.	ENERGY—Industry, Application.
FIRMNESS.	FIRMNESS—Fortitude, Indifference, Perseverance, Intrepidity, Decision.
HARDIHOOD.	HARDIHOOD—Insensibility.
HEALTH.	HEALTH.
HOPE.	HOPE—Happiness, Extacy, Trance.
INTEGRITY.	INTEGRITY—Justice, Honor, Fidelity, Gratitude.
INHABITIVENESS.	INHABITIVENESS.
LOVE.	LOVE—Conjugal, Filial, Parental.
MODESTY.	MODESTY—Purity, Horror, Bashfulness.

Mobility.	Rashness, Restlessness, Impulsiveness.
Patience.	Patience—Serenity.
Patriotism.	Patriotism.
Philanthropy.	Philanthropy.
Playfulness.	Playfulness.
Pensiveness.	Melancholy—Suicide.
Passion.	Insanity.
Reverence.	Reverence—Servility.
Religion.	Religion.
Restraint.	Restraint.
Relaxation.	Relaxation—Indolence, Intoxication.
Sociability.	Sociability—Mirthfulness, Imitation, Politeness, Versatility, Admiration, Esteem, Friendship.
Self-Esteem.	Self-Esteem—Pride, Self-confidence.
Sensibility.	Sensibility.
Selfishness.	Selfishness.
Secretiveness.	Secretiveness.
Skepticism.	Infidelity.
Sublimity.	Sublimity.
Somnolence.	Somnolence—Reverie, Dreaming, Optic Illusion, Somnambulism, Somniloquence.
Temperance.	Temperance—Abstinence.
Truthfulness.	Truthfulness—Expression, Sincerity, Faith.
Intellectual Organs.	Intellectual Organs.

From this it appears that the only material difference between the Analytic and Synthetic Nomenclature lies in the basilar region. The intellectual organs are the same in each nomenclature, and the moral organs have no great variation.

[The region of Insanity is marked as Passion, meaning thereby that intense and partial activity of the organs which destroys the mental equipoise and tranquility. Every organ when over excited or impassioned, destroys the soundness and accuracy of the judgment, leads to errors of action, and tends to derange the condition of the brain. The word passion belongs especially to the basilar organs, but it is applied also to the higher regions of the brain, as well as to gaming, avarice, revenge, etc. The extreme manifestations of the higher organs are regarded as passions, and tend to monomania. Every extreme excitement of the organs in nervauric experiments produces illusions which would be insane if they continued. From this remark, however, the region of Firmness, Sanity, and Health, must be exempted as producing very little tendency to the illusions of passion.]

OUTLINES OF LECTURES

ON THE

NEUROLOGICAL SYSTEM OF ANTHROPOLOGY.

PART III.—PATHOGNOMY.

INTRODUCTORY REMARKS.

The word PATHOS, signifying feeling and also disease, its derivative PATHOGNOMY signifies in medicine the recognition or indication of disease, and in Phrenology, the study of the natural language, or manifestation of the organs. The word, however, is but very little used in either sense, especially in the latter, although the adjective pathognomic (commonly written *pathognomonic*) is common in medical writings.

For fifteen years past, I have used the term PATHOGNOMY to signify the science of mental manifestation, consisting chiefly of the mathematical laws of muscular action as governed by the brain.

This science embraces the study of—

1. The manifestation of character through the general action of the muscular system in gesture, movement, and attitude, which may be distinguished as BIAGNOMY, or Biagnomic Pathognomy.

2. The manifestation of character through the movements of the hand, in writing, which I have termed CHIROGNOMY.

3. The manifestation of character through the movements and developements of the face, which has borne the title of PHYSIOGNOMY.

4. The manifestation of character by the sounds of the voice, which may be termed PHONOGNOMY.

LECT. LXXII.—SCIENCE OF PATHOGNOMY.

In the first disconnected observations of Gall, for the discovery of natural signs or indications of character, he was necessarily struck with the fact, that every human faculty was accompanied by certain gestures and attitudes, as well as by certain organic

developements. In observing the attitudes and gestures, he could not fail to remark a striking relation or correspondence between the gestures, expressive of any faculty, and the locality of its cerebral organ; and when he detected in the gestures or natural language of an organ, an evident relation to its position in the brain, he considered this relation an additional proof of the correctness of his discovery. The pathognomy which he thus incidentally developed, was, however, as crude and inaccurate as it was incomplete, being, in fact, but an incidental matter to which he paid no great attention. Not realizing the importance of pathognomy, or the existence of simple and universal laws, governing human manifestations, he left but his incidental and detached observations on the subject, which have been but little improved by subsequent inquirers.

Space does not, at present, permit me to make a formal review of his suggestions as to natural language, to point out their inadequacy. In my own earliest observations of nature, I endeavored, by the faithful study of cerebral pathognomy, to render it a complete and philosophical portion of the science. In this investigation, I soon discovered errors in the suggestions of Gall, and a lack of harmony in his detached observations. As soon as I had methodized my views upon the subject, it became apparent that a systematic pathognomy was not only incompatible with Gall's views of natural language, but very decidedly incompatible with some of his phrenological doctrines. I had observed enough to satisfy me beyond a doubt, that the natural language of the organs was governed by one simple law, viz: that every organ manifests itself by action, in the direction of its own organic developement. Knowing that nature is governed by a few simple and invariable laws, I was satisfied that a law of which I saw so many exemplifications, must be a universal law of nervous action. I therefore continued the joint study of organology and pathognomy, with the view of rendering all mental phenomena harmonious, with this simple mathematical law, that every organ manifests itself in the line of its developement, as the coronal organs manifest themselves in the upward, the basilar in the downward, the anterior in the forward, the posterior in the backward, and the lateral in a lateral direction. After several years of careful study of nature, I became entirely satisfied that craniology fully sustained this pathognomic law, and that phrenology and pathognomy, illustrating and proving each other, acquired a pleasing and demonstrable simplicity.

These new views based upon the anatomy of the brain and the entire body, revolutionize the entire aspect of the science. Instead of deriving the pathognomic tendencies of organs from the position of their external developement upon the bust. I referred to the fibrous developement of their convolutions in the brain, and their relation to the muscles. Thus, for example, in-

stead of taking the organ of Religion as a single organ of the upper surface of the head, I found two organs with different pathognomic lines, each pointing outward and upward toward the opposite side. In like manner, all the organs on the median line have their pathognomic lines, diagonally crossing each other. And the entire mass of cerebral organs, instead of expressing certain relations for the whole body, express a certain pathognomic tendency, in the left hemisphere for the right half of the body, and in the right hemisphere for the left half of the body, thus giving a different character to all the lines and movements from what was suspected by Gall and Spurzheim.

This study of pathognomy, guided by the duality and decussation of the brain, and the relation of its fibres to the muscles of the body, produced results of the most exact and striking character. The pathognomic science was so exact, that whenever I assumed the attitudes or gestures in accordance with the anatomy of the brain, the character indicated could be recognized by the most inexperienced eye. In demonstrating these discoveries before my classes, I was accustomed to exhibit faithfully the attitudes and movements mathematically produced by the various organs, and every one recognized, at a glance, the truth of pathognomy as a law of nature. That the organs which corresponded in their lines with the attitudes and gestures really belonged to the same faculties, had already been partially established by Gall and Spurzheim, and my own discoveries completed the parallelism between pathognomy and phrenology. The demonstrations of pathognomy gave me greater confidence in my craniological observations, and the coincidence of the two produced a positive conviction of their truth. Pathognomy and phrenology concurred in demonstrating that the functions ascribed by Gall to the region which he demonstrated Philoprogenitiveness, could not be true, and that the amiable functions were incompatible with any position in the basilar region of the brain. When the study of pathognomy, in connection with sufficiently numerous craniological observations positively rejected any portion of the Gallian system, I did not hesitate to follow nature; and when, in 1841, the entire phrenological system was brought within convenient grasp, by my discovery of cerebral impressibility, I found pathognomy and craniology sustained. The satisfactory demonstration of the entire system requires but an evening spent in the study of natural language, as mathematically developed. These demonstrations, which I nave been accustomed to give in person, cannot be conveyed through the printed page. But I can refer with pleasure to certain striking facts, mysterious and inexplicable to physiologists, which demonstrate the universality of the pathognomic law, that movements are governed by the line of their controlling nervous fibres.

The fibres of the muscular nerves attached to the spinal cord,

derive their innervation from the basilar region of the brain, adjacent to the *medulla oblongata*, from which directly proceed all impulses to voluntary motion. In experimenting upon this region, Majendie, Fodere, and others, have developed the most decisive illustrations of the pathognomic law. The cerebellum, lying in the basilar posterior portion of the cranium in man, occupies a still more posterior position in animals, being the most posterior part of the encephalon. Experiments upon the cerebellum, which is closely connected through the Medulla Oblongata with the spinal cord, produce a marked effect upon the muscular system, the muscular power being greatly impaired in animals, when a large portion of the cerebellum has been removed. But the remarkable fact was displayed in the experiments of Majendie, that the ablation of large portions of the cerebellum, instead of impairing muscular power, generally and uniformly, destroyed merely that propelling power, which is concerned in locomotion, and which enables the animal to advance. After a considerable portion of the cerebellum has been removed, the animal becomes incapable of advancing, and actually recedes in its attempts at progression. The ducks, for example, would swim backwards in water, and animals on land would walk backward, or rest in an attitude of retrograde movement, the fore legs being thrown forward, as if in the act of backing. Rabbits, becoming entirely incapable of flight, displayed only retrograde movements, sometimes of a convulsive character.

These results, which were amply verified by Majendie and Fodere, admit of but one explanation. The cerebellum, growing backward from the *medulla oblongata*, its fibres are mainly appropriated to movements in the posterior direction, by which the body is advanced. Movements in the line of those fibres which were severed by the vivisector, were paralyzed, and onward locomotion became impossible. That this fibrous direction was the cause, was demonstrated, when the mode of experiment was changed. When the right and left halves of the cerebellum were cut apart on the median line, the transverse forces belonging to the connecting fibres were deranged, and the animal unable to balance the opposite forces, inclined or fell alternately from one side to the other. When, on the other hand, the fibres at the anterior portion of the cerebellum, by which it is connected with the *medulla oblongata*, were divided, the result proved that these fibres of connection, or the *crura cerebelli*, which run backward from the *medulla oblongata*, exert a force in the direction of their growth. When the *crus* of the right side was divided in the rabbit, the propulsive power of the left side acting unbalanced in a posterior direction, caused the left side of the body to be propelled, while the right side was unable to keep up, and consequently produced a rotary movement, or a running around to the right; this rotation was extremely rapid and uncontrollable, not only continuing for

hours after the experiment, but kept up on the succeeding day. Dividing the left *crus* alone, he established a rotary movement in the opposite direction. But when both of the *crura* were divided, the paralysis being equal or balanced, no such rotation occurred. The same rotary effects were produced, when large portions of the cerebellum were removed; as, for example, when three-fourths of the cerebellum were removed from the right side, and one-fourth removed from the left, the unequal balance of power caused the animal to turn to the right, until the left *crus* being divided in the same animal, the balance of power again changed, and the animal turned to the left.

Thus, we perceive distinctly, that the fibres running backward from the *medulla oblongata* through the body of the cerebellum, exercise a propulsive energy in a corresponding line through the muscular system, but that when they turn to cross the median line, the direction of the power changes, being concerned in the opposite movements from side to side. Again, if we trace the connecting fibres of the cerebellic hemispheres through the Pons Varolii, in which, anteriorly, they cross from right to left, or left to right, we find that in this horizontal curvelinear course, they become sources of movement, in the direction of their fibres. A division exactly upon the median line of *pons varolii*, produced an unbalanced condition, while a division upon either side of the median line gave a decided tendency to rotation in that direction—thus showing, that the fibres of the *pons varolii* conducted a motor influence in the direction in which the fibres depart from the median line. In other words, that the *pons varolii* is concerned in movements of rotation, while the *crura* of the cerebellum, and a great portion of its substance, are concerned in movements of propulsion, all parts acting in accordance with their line of developement.

Although such experiments cannot be made upon human beings by the vivisector, they are sometimes made by the operations of disease. The eminent French pathologist, Serres, has described the case of a shoemaker, greatly adicted to alcoholic intoxication, who was attacked by an uncontrollable impulse to turn round, and continued his gyratory motion until death, when upon the inspection of the brain, the only change that could be discovered, was a diseased condition of one of the *crura* of the cerebellum, a disease which rendered his condition nearly identical with that of the rabbits experimented upon by Majendie and Fodere.

In the anterior basilar region, we have additional illustrations of the same law. According to Majendie, the removal of both of the *corpora striata* (portions of the brain which grow forward from the *medulla oblongata*) was followed by a violent impulse to rush forward in a straight line. A rabbit upon which he made a public experiment, by removing the *corpora striata*, rushed for-

ward violently against whatever stood before it, incapable of arresting its progress, and, finally, remaining in the attitude of progression, thus showing, that the *corpora striata* exercise the anterior power by which we arrest our progress—a power which they exercise in the direction of their fibres.

A similar checking power appears to reside in the *optic thalami*, as the removal of one *optic thalamus*, after the removal of the *cerpora striata*, modified the balance of power, leaving it still to advance, but causing it to turn toward the injured side. The removal of the remaining thalamus restored the balance of its checking powers, and its rotation ceased. In fact, it remained tranquil, with its head directed backwards, the direction of its propelling power, being either unable to guide its movement, or exhausted by the experiment. Thus we perceive that, from the *medulla oblongata*, the entire anterior fibrous developement of the brain of the rabbit, exerts a checking or a retrograde influence, while the entire posterior developement, in the cerebellum and its *crura*, exercises a posterior propelling power,, the transverse fibres of the cerebellum producing balancing movements, and the transverse fibres of the *pons varolii* producing the horizontal movements of rotation.

If, then, all the fibres going to the formation of the encephalon, observe, in their first departure from the *medulla oblongata*, the great pathognomic law that the direction of the nervous fibre determines the direction of the movement which it controls, it is not improbable *a priori*, that the same law governs all the convolutions of the brain; and no one can observe, for a few minutes, a correct representation of the attitudes of the various organs, without perceiving clearly the general truth, that all cerebral organs are governed by the pathognomic law.

Perhaps the most striking exhibition of the prevalence of this law, is, that given by the experiments of M. Flourens, upon the semi-circular canals of the ears of birds, which are published in the Memoirs of the French Academy of Sciences. These canals, which are merely portions of the labyrinth in which the auditory nerve is situated, have no anatomical connection with motor nerves, which would account for the wonderful phenomena connected with their lesion. There are three semicircular canals in the internal ear, in which the auditory nerve and its membranes are expanded; two, which run in a vertical direction; and one, horizontally. When the horizontal canals were divided, no effect was produced, if the bone alone was cut, leaving the contents of the canal undisturbed; but when the horizontal canals were completely divided, the horizontal balancing powers of the animal were strangely disturbed. The head removed rapidly from right to left, and from left to right, and it was difficult for the bird to preserve its equilibrium. When the inferior vertical canals of both sides were divided, the direction of which is backward and

downward, violent vertical movements were produced, and the equilibrium destroyed; the bird, as if deprived of its sustaining power, fell backwards, and lay upon its back. When the superior vertical canals were divided, which run in the opposite direction, there was the same loss of balance in the vertical line, in an opposite direction, and the bird fell forward on its head. The experiment was also made upon a pigeon, of dividing all the canals alike, which resulted in violent and confused movements in every direction, as though all guiding power had been lost.

Why the expansion of the auditory nerve should exercise this guiding power over the movements of the animal, it would be difficult to explain; and it would be an intricate problem also, to determine why the intellectual organs should cause spontaneous movements in a forward direction, or why the coronal organs should produce upward movements. But all these facts alike—the movements of birds, in connection with the auditory nerve; the movements of man, under the guidance of the intellectual, moral, and animal faculties; and the movements of birds and quadrupeds, under the guidance of the basilar parts of the brain—demonstrate the simplicity and beauty of the grand laws which govern the existence of the animal kingdom—from the movements of the smallest insect, to the highest displays of thought and affection in man. Nor are these laws limited to the animal kingdom alone; they belong to the entire world of life and mind—to the entire realm of spiritual life, and to the Divine plan of creation, so far as it is displayed upon our globe. The grand movements of nature, her sunshine and storms, the rich growth of forests and fields, rising from the surface of the earth, laden with beneficence; the arrangement of mountain and valley, garden, desert, morass, mine, and volcano; the sphere of the humming bird, the eagle, the rattlesnake, and crocodile, are all illustrations on a grander scale of physical magnitude, of the same pathognomic law, which is so perfectly demonstrable in man, and which carries mathematical science from ponderable masses of matter and physiological life, up to the infinite realms of spiritual existence.

LECT. LXXIII.—MATHEMATICAL NATURE OF ORGANIC ACTION.

Every cerebral organ evolves or projects a vital force in the line of its fibres. Its tendency is to impel everything upon which it acts in that line, or from its central to its distal extremity. In acting thus upon the external world, action and reaction being equal, exactly an opposite effect to that which is produced upon

the object will be experienced by the agent, viz: as the occipital organs act in a line running backward, their influence producing backward motions, and repelling objects behind us advances our person, and thus gives us a great amount of propelling energy. The action of these organs upon others tends as much to retard them as to advance ourselves.

The coronal organs which tend to elevate everything upon which they act, tend to depress us proportionally as we bear the weight. The organs of the forehead which exercise a projectile influence forward, tend to dimish our propulsive power, and diminish the energy of our pursuit of various objects.

The basilar organs acting downwards tend to pull down and destroy everything upon which they act, but by their action downward they repel us from the earth, and enable us to stand up. (The arrangement of muscles in the human body changes this proposition to a very different practical result—but I leave this general proposition to be qualified hereafter.) That line of action which is downward and slightly backward combines the requisite forces for walking.

The organs of the lateral occipital region attract objects towards ourselves, and impel us in pursuit of them if they are stationary.

The organs of the median lines repel everything from us, and cause us *vice versa*, to retire within ourselves—opposite in this respect to the lateral organs which carry us out of self in pursuit of surrounding objects which they attract to us. Hence, the head governed by the median line may seek a hermit life, while the broad head will seek society and business.

Another mode of illustrating the pathognomic law is this: every organ produces muscular contraction in the line of its fibres. This muscular contraction approximates two points, the origin and the insertion of the muscles—if one be more firmly fixed, the other moves—if both move, they move in opposite directions. Consequently the action of every organ is associated with two opposite movements upon its pathognomic line. One of these movements being executed by the limbs, the other will be executed by the body, and the effect of every organ upon the person will be to move it in its pathognomic line from the distal toward the central extremity, or in other words, the limbs will have the centrifugal, and the body the centripetal tendency. Thus the coronal organs will depress, the basilar organs elevate, the occipital half of the brain impel, and the frontal half retard the body, while in the gestures or movements of the limbs, or whatever be moveable, we shall find that the coronal region will elevate, the basilar region depress, the occipital throw back and the frontal throw forward. Phrenologists have fallen into errors from non-acquaintance with this law of centripetal and centrifugal movement on the pathognomic line. Jeffrey was, hence, enabled

to ridicule the science by asking in reference to Adhesiveness, if friends were ever found drifting towards each other stern foremost according to the phrenological theory. If we mark a horizontal zone around the head about an inch in breadth, running above the top of the ears, and through Consciousness in the forehead, we shall make a group of organs of nearly horizontal action, which, as they point neither upward nor downward, decidedly, maintain very extensive and active relations with surrounding objects, extend the sphere of our relations to the widest possible extent, and pointing to the whole horizon and all visible objects around us, are the organs which give the greatest activity, diversity, and scope of action. In this range do we find excitement and alarm, Acquisitiveness, Adhesiveness, Coarseness, Ambition, etc. The horizontal zone is the source of our movements in various directions when it cooperates with the organs below, which give muscular power and enable us to sustain the body, but when cooperating with the superior organs which are sedentary, it would rather attract the objects to ourselves, or move them in various directions than move ourselves to or from them. The region of Acquisitiveness, for example, if associated with the basilar organs would lead us to go in pursuit of the objects of our desires, as by war, hunting, commerce, and other active pursuits, but with the coronal organs, Inhabitiveness, Pride, &c., it would rather remain fixed and attract the objects to ourselves, as by quiet industry. The region of Fear would repel us violently from the scene of danger, but if overruled by occipital organs which would cause us to advance, it would repel the dangerous objects from us. The region of Modesty would impel us from society, but if Ambition or Adhesiveness has compelled us into it, then it would simply repel society from us by a distant manner.

Hence, we perceive that organs of opposite pathognomic lines instead of simply nullifying each other by their action produce decided results, which results although opposite and fully developed in different directions, and do not necessarily impede each other. Thus Acquisitiveness and Liberality may be very large in an individual who would thence be rendered capable of accumulating largely and using it generously. We often find Patience and Irritability largely developed, producing great capacities for manifesting either calmness or temper, and displaying them simultaneously to different persons.

In the normal action of opposite organs, neither runs to excess. The centre of gravity being sustained, the centrifugal tendency of each organ is displayed without disturbing the centre of movement.

LECT. LXXIV—GENERAL PRINCIPLES—THE VERTICAL LINE—LANGUAGE.

All science is mathematical. Mental science, moral philosophy, and all that relates to man, are as distinctly subject to the laws of form, magnitude, and number, as the physical world. The action of the organs, the play of thought and feeling, and all the various acts to which they lead, are governed by a few simple mathematical laws, the existence of which may be detected in man so easily as to make us wonder at our previous ignorance. A true philosophy shows us that the mental and physical, instead of being widely separated and in contrast, are, in reality, close together, strictly parallel, and that whatever may be affirmed of one, a similar proposition will be true of the other.

The fundamental mathematical law of the brain is, that *all organs act in that line of direction in which their fibres point.* By the application of this simple principle, all movements, gestures, attitudes, and physiognomical expressions are at once analyzed and referred to their cerebral sources. Not only do we thus gain a philosophical understanding of all the manifestations of human nature, but by the application of this principle, we may learn the true function of any organ from its position, and also the nature and degree of the relations between different organs. In my craniological studies of nature, the discovery of this mathematical principle was of inestimable value as a guide to my investigations, furnishing a satisfactory clue to that which had otherwise been a succession of labyrinths. No one can realize the importance of such a clue, until he has wandered in the mazes of physiological psychology, without it, or until he has attempted, from incomplete materials, to construct a boundless science. The architect who finds the scattered stones which constitute the ruins of a magnificent temple, that he aims to reconstruct, would be extremely grateful for any authentic ground-plan or outline of the building, which would indeed be indispensable to its proper construction. In like manner, the mathematical law, which constitutes the ground-plan or outline of humanity, is indispensable to the construction of a true Anthropology.

The lines of direction of the various organs (called pathognomic lines, as they belong to the science of pathognomy) point in every direction from the brain, as the radii of a sphere, pointing to everything in the universe. The organs acting in these lines, establish universal relations between man, and all that exists. Their relations to each other are calculable by the relalations of their lines. The brain being a double sphere in its

pathognomic relations, the pathognomic line of each organ, or, rather, pair of organs, is double, and the pathognomic lines of the right and left sphere sustain various relations to each other, which, when understood, are highly instructive and satisfactory.

The pathognomic laws, which are discovered in man, are not limited in their operation to him ; they are parts of the general plan of the Universe, the tracing of which is intensely interesting, and gives us the skeleton of a divine philosophy.

The vertical line is every where associated with strong characteristics, the cause of which is unintelligible until we explore the brain. The upward tendency is associated with pleasing emotions and thoughts, with the conception of moral excellence, goodness, greatness, etc. The doward tendency is, inseparably, associated with ideas of evil. The etymology of those words, which indicate goodness or any very desirable condition, associates it with the idea of physical elevation. Thus, the man who has a preferable character or capacity to another, is said to be *superior* to him, *i. e. above* him. The man of poor capacities, or character, is said to be an *inferior* (below). In the application of these words—superior and inferior, which mean simply higher and lower—we see the universal prevalence of the principle. All things which are better are ranked as superior; all things worse, as inferior. The man who is entitled to command, in consequence of better faculties, is said to have a natural *superiority* to his fellows, and to be entitled to a *higher* rank. The man who has an important authoritative position in the government is said to be in a high rank, and the writer who is greatly admired and respected, is said to have a *high* reputation. The man who increases in reputation of power, is said to be advancing *higher*, and in proportion as an individual gains more or less of our esteem, he is said to be rising higher, or sinking lower in our opinion. When we wish to express the worst estimate that can be formed of an individual, we pronounce him a man of very *low* character, by means of a term of Latin derivation, that is, we pronounce him a *base* man—*basis*, in Latin, meaning bottom—*bas*, in French, low. The word *low* might be equally expressive of moral inferiority, but as it has a familiar use in the simply physical sense, it is not so efficient or intense an epithet as *base*, which is less familiarly used in the physical sense.

The definitions of the word base, by Johnson and Webster, illustrate this matter forcibly.

" Base (*bas*, French) mean, of mean spirit, of *low* station, of no honorable birth , illegitimate. Applied to metals, without value. Applied to sound, *deep*, grave. *Low* in position or place.

Base (*basis* Latin), the *bottom* of anything; the *pedestal* of a statue ; that part of any ornament which hangs *down ;* the broad part of any body, as the *bottom* of a cone.

There is perhaps no word in our language which expresses more of evil or sinks the individual deeper in the pit of iniquity than this word *base*. Place an individual in the best condition of goodness and greatness, and he is said to be at the *summit* of human *excellence*. These words, summit and excellence, imply great HEIGHT. If anything diminishes his reputation or power they are said to *decline*. If he loses them entirely he is said to *fall*. If his character proves to be *base* his reputation is said to *sink*, and he is said to be *degraded*. The noblest title that we can give an individual at the *summit* of power are those of his *excellency* and his *highness*. The recognition of his *superiority* is shown by bowing *down* before him; his position in public halls is made *lofty;* the king, the judge, lord, general, bishop, etc., are assigned the *highest* places, and are said to *condescend* when they hold familiar conversation with one of an *inferior* rank. Degradation or taking a *lower* rank, is considered the consequence of everything that injures the moral and intellectual powers. Such injury is never associated with the idea of *elevation ;* one reaches the *depth* of infamy, disgrace or degradation. but the *height* of honor, distinction, virtue, fame, excellence, power, etc. The great man is above us—the man of equal powers and qualities with ourselves is on our *level*, the man who has less intelligence, energy and virtue we consider *inferior*, and the man whom we have considered an equal may, by an act of baseness or any act demonstrating his great inferiority, sink "*beneath* our notice," or, as it is sometimes expressed, "*below* even contempt."

This is an extensive theme, and a very interesting volume might bo made in illustration of the universal structure of language, and the striking correspondence or identification of the mental and and physical in their geometrical laws.

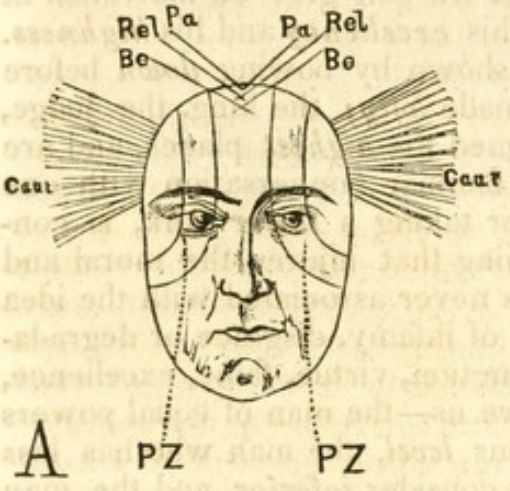
The brain being constructed upon the same plan as external nature, exhibits the same arrangement in reference to the vertical line ; organs of good, elevating tendencies point upwards and are located on tne superior surface of the brain, and in proportion as an organ deviates from noble, virtuous tendencies, or leads to evil and degradation, it is located nearer the basis of the brain, and points more directly downward.

LECT. LXXV.—INTELLECTUAL PATHOGNOMY.

The ascertainment of the pathognomic lines was to me a matter of assiduous investigation for years. Their demonstration requires but their proper exhibition to the eye by a correct elocutionist.

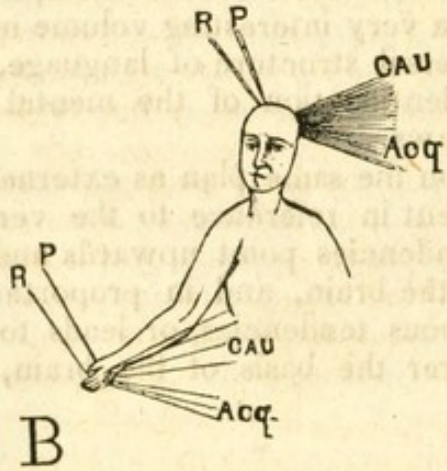
The pathognomic lines *generally* point in the direction of the surface of the cranium, at which we mark the organs. Those of

the coronal organs point upward—of the basilar downward, of the occipital half backward, and of the frontal half forward. But it must be borne in mind that the brain is double, and consequently there are two pathognomic lines for every organ instead of one. Hence the idea that any one direction will adequately represent the character of each organ is extremely fallacious. The pathognomic lines for the right and for the left brain are reversed, viz: Cautiousness on the right points opposite Cautiousness on the left. (See fig. A.) The organs along the median line, bordering upon the longitudinal sinus, point outward and consequently cross each other, as in Patience, Religion, etc. The coincidence of corresponding organs in the opposite hemispheres as to their pathognomic line, occurs only in those upon the middle of each cerebral hemisphere, which point neither to the right nor to the left. Thus we may trace corresponding zones on the two hemispheres, the organs of which would be parallel, like the spokes of parallel wheels, (Fig. A., P. Z.)



A

It is necessary to bear in mind that each cerebral organ relates to the opposite side of the body, and that its pathognomic lines, to be rightly understood, must be applied to that side. Thus Cautiousness and Acquisitiveness would draw the hands together and close to the person, while Patience and Religion would extend them upwards and apart. (Fig. B.)

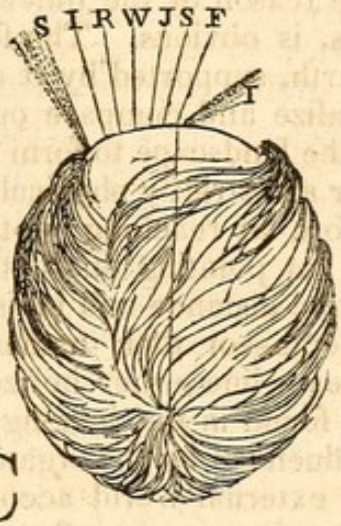


B

As the organs of the lateral surface of the brain which points right and left would point towards the median line, when acting upon the opposite side of the body, their influence would be to draw the movements inward, and to give the circulation a congestive tendency. The organs of the median line, in consequence of their outward direction, are centrifugal and opposed to internal congestion. Their movements are of an open and expansive character.

The pathognomic lines of the front lobe point forward—consequently, when one is engaged in study or thought, he habitually inclines forward, either when sitting at his desk or when walking about. The head is seldom held up and never thrown

back under intellectual excitement. The body bends forward, and in proportion as a speaker becomes engaged in his subject, and is carried away by the intensity and activity of thought, he bends forward in a manner calculated to arouse and interest the attention of the audience. If speaking directly to their Sagacity and Intuition, as is most frequently the case with eloquent popular orators, his gestures are forward and outward. If engaged in a train of logical remark, reasoning by the links of causation or practicing analysis, he will be apt to gesticulate in a straight line forward—a line corresponding to the organs of analytical reason, which lie vertically over the eye. But when engaged in a more ingenious, synthetic argument, in which Reason, Ingenuity, Planning and System are concerned, he illustrates the line of those organs by gesturing in a less diffuse manner, bringing the hands nearer to the median line, and frequently crossing the line or bringing them into conjunction. (See fig. C.) The organs of the side of the head generally display this tendency to approximation of the hands. The region of wonder, admiration reverence, and modesty in the temples produces movements of conjunction like those of synthetic reason, but as their lines project less, the hands are not thrown forth much, but are clasped nearer the person, as we see in many exclamations of wonder, admiration, awe, etc.



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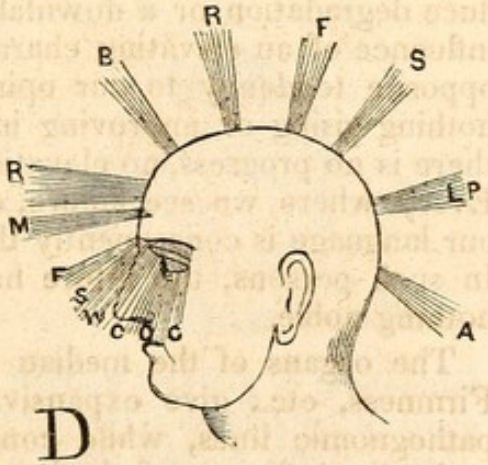


D

The perceptive organs of the brow point forward and downward, in a direction in which their objects lie, (Fig. D.) The organ of Form, which perceives objects, points forward and outward in the line in which we recognize the greater number of objects by the opposite eye. The organ of Distance, pointing forward, and that of Size more downward, are properly arranged for viewing small objects near us or for looking afar. The organ of the sense of sight points neither to the right nor left.

Order and Calculation point downward, forward and inward, especially the latter. This line adapts them to intellectual, perceptive action and to acts of combination. Sense of Force, Order

Calculation, Invention and System have pathognomic lines which capacitate for combination as they point forward and toward the median line of the body, suiting the combined use of the hand in the arts. The eyes by this influence would be directed to objects near us, instead of extensive observation, and would thus be fitted for the labors of art, science and literature, which depend upon this lateral group of intellectual organs. This proximate vision is adapted to the functions of Calculation and Order, as it enables us to unitize a group and take a number as an object or simple conception grouped near us, instead of looking abroad, around us.

The reason of the different lines of the perceptive and judging organs, is obvious. The former act upon objects which are upon the earth, supported by it and more or less near to it. The latter generalize and compare our perceptions—consequently, they look over the landscape to form general impressions, (See Fig. D.) The former are strictly physical—the latter occupy a higher sphere, and are more far reaching; not limited to the physical objects before them, but pointing on to the future—that which is before us at an indefinite distance and invisible. The knowledge of the properties of objects—or their tendency to action—and power of progress, requires a line either horizontal or upward in its tendency. This line is found in the judging organs. In their action, we know they are influenced by the organs of the feelings, which modify our ideas of the external world according to their pathognomic line. Thus the superior organs influence our judgments—give every thing an upward tendency. Hope gives the maximum of this tendency, being most vertical—it prevents our perceiving any thing to produce degradation or a downfall, and enables us to perceive every influence of an elevating character. The inferior organs give an opposite tendency to our opinions; under their influence, we see nothing rising or improving in others, or in the external world—there is no progress, no elevation, no noble capacity lying dormant. Every where we see failure, downfall, degradation, baseness, and our language is consequently that of croaking, derision, or slander. In such persons, the future has nothing good and human nature nothing noble.

The organs of the median line, Ardor, Benevolence, Religion, Firmness, etc., give expansive views, in accordance with their pathognomic lines, while contracted, belittling impressions arise under the influence of the lateral organs of Cautiousness, Coldness, Fear, Acquisitiveness, etc., which are mathematically incompatible with expansion.

The range of Memory has a horizontal action, adapted to bringing the past to the present. Being the only intellectual region which is horizontal in its average direction, it is the only region which can point to the past, (by its central extremity) and thus serve to recall it. The same direction projecting into the future, gives us a conception of the future merely as a monotonous contin-

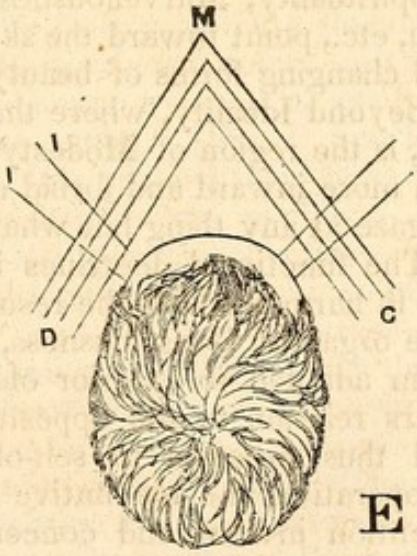
uation of the past. It can not give the true foresight, as future action requires a sustaining impulse which is not found in the horizontal line. Memory alone but brings the future to the present, and suggests its perpetuity.

The line of the inner portion of Memory, (the recent) points to a broader sphere of objects nearer at hand. The outer points directly back, and therefore is adapted to the lengthened range of one's entire life.

Time acting in this horizontal line, necessarily recalls the whole range of the *passed* or past. Language thus sanctions the idea, that time lies in the horizontal line behind and before us, as a portion of our road which we have *passed* and another portion to which we are approaching. Time past is behind, and the future before us.

System and Invention have pathognomic lines suited to combination—the former to combination more for its own sake, the latter with a view to results. System presents its results by the progress of time—Invention produces a visible result.

The power of combination with a buoyant energy, producing objects which advance and act with power, belongs to the upward and inward pathognomic line (upward, sustaining—inward, combining) which is found in the region of Scheming and Imagination. (The line of the combining organs is shown in Fig. E.) The pathognomic lines I I of the left hemisphere, belonging to Ideality, Invention and Scheming, act on the right side, as in the lines C M, while their corresponding organs of the right hemisphere act through the lines D M, and thus these combining organs co-operate on the median line at M.



E

The intuitive, intellectual organs of the median line point outward, in a diffusive manner, thus relating to all about us. Their upper portion relating to tendencies and results, (or, in other words, to the future) is calculated to trace the numerous and diversified results arising from a single object, power or principle, rather than to trace the production of a result by numerous objects or powers acting in conjunction in one operation, which is recognized by the organ of Scheming (Fig. C.) It is true, the lines of these organs are similar in course, though different in their point of origin. Thus, if an object be before us, Foresight readily appreciates its tendencies rather than its causes; for the right eye, governed by the left hemisphere, does not look much behind the objects toward their past career, as its line is visible only in its onward movement to the right. The left eye, for the same

reason, looks only forward and to the left. On the other hand, the organ of Scheming, when looking through the right eye, looks chiefly on the right side of the median line, and consequently sees the posterior portion of the pathognomic line—the line of anterior causation. The lines, however, of Foresight and Scheming are coincident, as well as their functions; but for the reason just given, the former is better adapted to the exploration of the future consequences, and the latter to the exploration of co-operative causation.

The pathognomic line of Ideality, pointing too far inward for exterior observation, is rather adapted to concentrated, internal thought, as when we direct our attention to about the region of the forehead (which is common in deep study, with the eyes closed.)

The pathognomic line of the co-operating region of Intuition and Inspiration pointing outward, tends to turn the eyes apart and give a very extensive range of observation. (The position of the eyes in animals would indicate that this region was active.) The co-operation of the Ideal, Spiritual and Imaginative with the Intuitive, is seen in the united glance of the eyes to the right or left, especially in looking toward the sky.

Spirituality, Marvellousness, upper Ideality, Pliability, Imagination, etc., point toward the sky, the home of spiritual, poetic fancies and changing forms of beauty.

Beyond Ideality, where the pathognomic line forbids distinct vision, is the region of Modesty and Reverence, which turn the eyes still more inward and forbid us to look about with idle curiosity, or to gaze at any thing but what is directly before us.

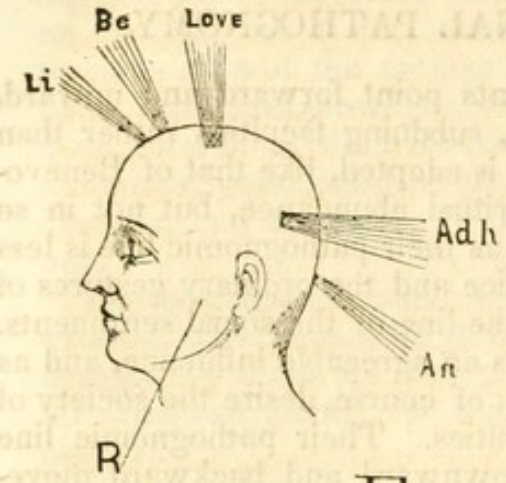
The functional doctrines indicated by these pathognomic lines, are in harmony with the results of direct experiment on the organs. The organ of Consciousness, however, in pointing outward, would seem adapted to exterior observation, unless we conceive that it bears relation to the opposite hemisphere, toward which it points, and thus prompts to self-observation or self-consciousness. Its co-operative, the meditative region of Ideality, clearly directs the attention inward and concentrates upon the subject of thought. Its influence upon the opposite hemisphere, concentrates upon the intuitive region. Thus the Ideal and Intuitive regions, with parallel pathognomic lines, are nearly identical in function, and the highest manifestation of the Intuitive power requires an Ideal, Spiritual, or Somnolent condition.

LECT. LXXVI.—CORONAL PATHOGNOMY.

The lines of the social sentiments point forward and upward, hence they belong to the checking, subduing faculties rather than to the impelling group. Their line is adapted, like that of Benevolence, to giving forth from our spiritual abundance, but not in so diffusive a manner as Benevolence, as their pathognomic line is less diffusive. The utterance of the voice and the ordinary gestures of unimpassioned intercourse, are in the line of the social sentiments. Their function is to impart to others an agreeable influence, and as every organ desires sympathy, they, of course, desire the society of persons who exercise the same faculties. Their pathognomic line is entirely incompatible with the downward and backward movements of Combativeness, and represses all harsh and hostile actions. Liberality, Sympathy, Expression, Sincerity, Faith, Politeness, Imitation, Mirthfulness, Pliability, Vivacity, Admiration and Friendship form a group, all of which tend to give gentleness to the voice, walk, manners and sentiments, as they are all incompatible with that downward action of our muscles which produces loud, harsh sounds and vehement manners.

The line of the social and kindly feelings is more elevated than that of the intellectual. That of Benevolence points upward, forward and outward, by which movements we sustain, advance and diffuse, or enlarge the objects of its action. (Fig. D. and Fig. A.) Liberality points more forward and less upward than Benevolence. It would, therefore, advance rather than sustain its object—its line of action is better adapted to giving than to upholding—both are accomplished by Benevolence. Friendship and Love do not point so far from ourselves—their line is more nearly vertical—hence their energies are exerted in sustaining more effectually than it is done by Benevolence. Unlike Liberality, they do not point out to objects at a distance, and are, therefore, adapted to sustain those *near to us;* hence they co-operate with Adhesiveness. The regions of Friendship and Sentimental Affection are the most anterior, and hence imply the least approximation—Conjugal and Parental Affection being more posterior, establish a more intimate relation. The strong attraction felt to the object of affection is the result not of Love, which of itself asserts no claim, but of Adhesiveness, which is on the occiput, so situated that its line of action necessarily attracts to us, as is seen in embracing and in gestures which beckon another to approach. (See Fig. F. on next page.) The acts of parental affection have heretofore been ascribed to an organ on the occiput, which has been called Philoprogenitiveness; but their pathognomy is incompatible with this theory, and coincides with the results of craniology. The principal act of parental affection—supporting the infant—carrying it in the arms—is not in the

line of occipital action, being an upward movement in the direction of Parental Affection, on the upper surface of the brain A horizontal, depressing movement adapted to rend or pull down, is entirely incompatible with affection, but strictly appropriate to the instincts of carnivorous animals, in whom this region is large.



F

The pathognomic lines of Hope, Philanthropy, and Religion, are nearly vertical, except that those of Religion are decidedly outward and expansive. Hope or Happiness is probably the most vertical organ of the brain; we suppose that the point of true verticality is in the organ of Mortality, the position of which would indicate that it inclines neither to the right nor to the left, and neither backward nor forward. Its function also being the loftiest, would coincide with its position, for the loftiest function of Humanity is to ascend by Death to the spiritual world of Immortality.

Philanthropy differs from Benevolence in being a more intense or energetic function, in consequence of its more posterior position, and in being more vertical—hence loftier. Its aims are higher, in consequence of position, and its spirit is more hopeful and serene, being adjacent to Hope and Patience. It inspires the lofty schemes of human happiness and greatness, which are called Utopian.

The organ of Religion points to the breadth of the Universe—to the upper world—and not to aught that is inferior or downward. The vertical influences of Philanthropy and Hope, or Goodness and Happiness, elevate man into the sphere in which Religion expands his sentiments. Its pathognomic line indicates that its objects are above and about us, and that we must ascend from the sphere of the inferior faculties to be in their presence.

The lines of the virtuous or happy sentiments being all more or less vertical, their influence is seen in an open, elevated and pleasing expression of the countenance, (see Lect. on Physiognomy,)—in an elevated bearing and gestures. The orator in appealing to our strongest and noblest emotions, throws his arms aloft; it is not by downward, backward or contracted gestures that he gives dignity to his theme or grace to his delivery. The highest religious fervor requires lofty, out-spread gestures, which every artist assigns the religious teacher or apostle, because they are natural under the influence of religious sentiments.

The physiological influence of the vertical organs is necessarily sedative and exhaustive to the body—attracting the excitement upward toward the upper part of the chest and brain, from the

muscles and abdominal viscera—hence liable to producing the dangerous congestion of the upper part of the chest, under which death occurs without apparent disease, and the congestion of the upper part of the brain by which the basilar organs are compressed and vitality extinguished. They tend thus to destroy all the grossness of the constitution, and diminish all excretions but those of the head, bronchial vessels, mammæ and skin. The general character of the superior region of the brain, is that of an anodyne sedative; hence, the highest degree of amiability is often found connected with a quiet and feeble constitution.

The upward direction of the organs of happiness and the downward tendency of their antagonists, the basilar organs, account for the common expressions, "elevating the spirits" and "depressing the spirits," which are physiologically true.

The organ of Patience, between Religion and Firmness, points exterior to the vertical line. (Fig. A.) It suppresses all violent, downward and inward movements, and diminishes the congestion of the heart and other internal viscera. It favors sedentary habits and a calm, healthy condition of the system. It produces sedentary habits, simply by diminishing excitement and by *co-operating* with the organ of Tranquillity, which is their actual cause. It is favorable to the exercise of the arms, in preference to the lower extremities—of the brain and upper part of chest, in preference to the muscular system, and favors a centrifugal rather than centripetal condition of the circulation.

Conscientiousness or Integrity acts nearly in the vertical line. Its position behind Love renders it an organ of greater energy, and better adapted to co-operate with the occipital organs. Its attitude is very erect, its gestures firm and lofty. It has none of the graceful bending forward, which belongs to the anterior organs of virtue. It produces an *upright* man. The attitude of oath-taking, with the hand upheld, is an illustration of the line of Integrity.

The influence of the virtuous organs upon the attitudes and movements, is extremely pleasing; the attitudes are erect, the arms easily and gracefully raised—the foot-fall light—the countenance open, elevated, bright, and attractive. The erect attitude which belongs to the virtues and energies, should be carefully cultivated to ennoble the character.

LECT. LXXVII.—OCCIPITO-CORONAL PATHOGNOMY.

The organs of the healthy energetic region point upward and backward—hence they give erectness to the head and body, and prevent everything like drooping. The muscles by which our limbs are elevated and the body kept erect, contract upward toward their origin, and hence act in the line of the energetic region.

The virtuous region elevates and throws somewhat forward—the energetic elevates and throws backward. It therefore produces a very erect attitude, the shoulders and head being thrown a little backward and well sustained.

The organ of Firmness produces an elevating and somewhat expansive effect, giving a firm, manly attitude. Pride and Self-esteem are also erect, but when the head assumes their line, it is slightly thrown back with an air of self-possession and dignity, which is more marked and imposing than the simple attitude of Firmness. The range of Ambition descending the occiput from Firmness has a more and more horizontal line as it descends; hence the movement is gradually less elevated or dignified and more horizontal, which renders it more assuming, selfish, vain and defiant. When the head and arms are thrown back in the line of the lower part of the ambitious region, there is a striking air of vanity, bravado and impudence. The lines of Self-esteem, Love of Power and Ambition are external as well as backward.

When we embody in our attitudes the various pathognomic lines of the ambitious region, we make a striking picture of the dignified, the distinguished, the ostentatious, vain, overbearing and domineering characters which it produces. The region of Hardihood, Health, Industry, Temperance, Energy, Playfulness, and Restraint is similar to Firmness, except that it is less expansive. Restraint is even slightly contracting, and being in the opposite line to the direction of innervation of the limbs, especially the arms, tends to paralyze their movement. The sustaining and bracing influences of Health are illustrated by its pathognomic line which is adapted to producing a general contractility of the muscular system, (with but few exceptions.) an erect attitude and expansive chest.

The line of action of the energetic organs is calculated especially to divert the vital forces from the abdominal region, which is their true effect; the energetic region arrests abdominal action. Hence Industry and Temperance are naturally associated. By diverting the vital forces from the abdominal region, the muscular, pulmonary and cerebral organs are reinforced, and the powers of the constitution greatly enhanced. A similar effect is produced by the contraction of the abdominal muscles which expel the blood and nervous forces from the abdomen, and thus energize the constitution. This compression of the abdomen occurs in every vigorous effort that we make, and is effected by muscles which act in the line of the energetic and the occipital organs.

We observe that at the outer edge of the energetic region, a paralytic effect is produced by the organ of Restraint. This is explained by the fact that the hemispheres connect with the body diagonally, each relating to the opposite side of the body, and consequently the line of transmission of cerebral influence is somewhat oblique—antagonistic to the pathognomic line of Restraint, which, therefore, represses the transmission of mental influence to the limbs.

Tranquillity, anterior to Restraint, exercises a similar influence, and is also opposed to progressive locomotion.

Cautiousness, which is also a paralyzing negative organ, has a line very similar to that of Restraint, but gradually assumes the horizontal as it descends to Fear. Its influence is not so sedative or paralyzing as that of Restraint, and is more exciting as its tendency is more centripital. The centripetal organs tend to repress outward manifestation, and to produce intense activity in the brain, lungs and heart. In Fear the line becomes a descending one, and the excitement becomes more intense but also prostrating, for it is opposed to the region of Energy, and therefore tends to enfeeble muscular action in the main, although it accumulates an internal excitement, which produces increased action of the heart and violent efforts, until the exhaustion prevails. The upper part of Cautiousness produces quiet, restrained movements with nothing expansive. The movements of lower Cautiousness are nearly horizontal, and have but little progressive force. They are seen in the unsteady vacillating gait of very cautious, timid persons and in the impulsive darting from side to side which is produced by Fear. The attitude of Fear is more stooping or crouching than that of Cautiousness, and instead of advancing, its impulse is rather to retire, or at any rate to change location—the accumulated excitement producing a high degree of restlessness.

The negative region generally, (viz., Cautiousness, Restraint, Coldness, and the unintellectual organs,) has a decidedly negative tendency as to manifestation. Its pathognomic lines would keep the limbs near the person, and prevent their being thrown out with any freedom, but while it has this negative paralyzing effect, it also tends to approximate us to surrounding objects, or to bring them to us ; the lower portion, especially, has the horizontal line, suited to the function of attraction, and this we find, by experiment, which proves the functions of Adhesiveness and Acquisitiveness to lie in this region of the brain.

The pathognomic lines of Adhesiveness point variously backward, and impel us to objects before us, as well as attract them to us. Its movement is seen in the act of *beckoning*, *embracing*, and shaking of hands. The latter, however, is influenced by so many organs as to render it very characteristic. Every movement of the hand in this friendly salutation is characteristic of certain cerebral organs. In shaking hands the hand should be sufficiently drawn toward the person to give the expression of Adhesiveness, and should be sufficiently elevated to produce the pleasing and kindly expression of the superior organs. In proportion as the hand is held down or held off, the impression imparted is disagreeable and repulsive. Every characteristic of the various organs may thus be imparted to the hand in this salutation, which is the natural expression of Adhesiveness.

The pathognomic line of Adhesiveness forbids all repulsive

movements, and enables us to grasp and hold on with power. It has no grand or expansive movements, but is opposed to all such, tending to concentrate the movements as well as thoughts near the person. It is selfish and unwilling to part with anything or see it go from us. Nevertheless it is favorable to the utterance of the voice, as it favors that action of the abdominal muscles by which the air is expelled in speaking. Speech, however, requires the co-operation of the social and moral group which permits the expulsion of air from the lungs by relaxing the diaphragm.

Adhesiveness forbids the drooping attitude of the head, produced by the intellectual organs and favors an erect carriage, the head being thrown somewhat backward.

Coarseness, intermediate between Ambition and Adhesiveness, has a similar backward pathognomic line giving it a place among the impelling organs, which invigorate backward movements.

Acquisitiveness, in its anterior portion, has a pathognomic line adapted to collecting and preserving objects, in its posterior portion, it is better adapted to their retention. Its pathognomic line being lower than that of Adhesiveness its objects are not so much cherished or esteemed as those of the latter.

LECT. LXXVIII.—ANTERO-LATERAL PATHOGNOMY.

The region of Debility and Disease anterior to the ear, which tends mainly to mental weakness or weakness of purpose, in the temples, and to bodily weakness in the lower temporal region, has pathognomic lines incompatible with exertion or progress, being exactly antagonistic to those of the energetic regions.

The region of Modesty and Reverence pointing forward and inward, antagonizing the Vanity, Ambition and Arrogance of the occiput, and pointing in its superior portion somewhat upward, checks every movement of advance and elevation for ourselves, though perfectly compatible with the progress of others. Hence, the modest man would retire and push forward others, the ambitious man would advance and pull others back in relation to himself. Such is the inevitable effect of the pathognomic lines of these regions. The temporal regions are necessarily sedative and relaxing to the muscular system, and the occipital stimulating and impulsive. The pathognomic lines of Modesty and Reverence show that, while they give softness and delicacy to the person, they increase the activity and delicacy of the internal viscera, rendering the heart more disposed to palpitate and the whole sensitive visceral life more acute. Modesty and Reverence antagonize the erect, swelling attitude of the Ambitious region, and tend to restrain the outward movement of the limbs and diminish the apparent bulk of the person. Modesty, Reverence and Fear make one feel small,

and unwilling to occupy much space. The outward, expansive lines of their antagonists suggest the idea of expansion and greatness; hence, the proud and ambitious desire physical magnitude and believe themselves larger than they really are, while the modest and timid feel small—and when one's pride is checked, he feels belittled.

The drooping tendency of the organs of the temple is shown in the act of bowing, which is their natural expression. A low bow springs from their lower portion, and would be in the line of Servility. The region of Politeness prompts only a gentle inclination, and would hold up the head. The influence of the temporal organs upon the attitude, keeping the limbs together and in front of the person—preventing broad, open, coarse attitudes and movements—exemplifies their relation to a modest deportment. In their action upon the eyes, they prevent gazing about, turning the eyes inward, and the most humble portion directing them downward.

The antero-lateral region from the Zygoma downward (marked upon the face,) antagonizing Energy, etc., points downward, in front of the person (see Fig. F.); hence it is prostrating—it would throw us upon the ground when in predominance, and such is the effect of Indolence and Disease. It might be supposed that these organs which thus point downward, would, in accordance with the general pathognomic law, repel us from the earth or protect us from falling, although they produce these drooping gestures and attitudes. But here a remarkable anatomical fact modifies the practical results of the great pathognomic laws. The muscular action by which we should be sustained or repelled from the earth, can not be performed in the line of the debilitating organs. The extensor muscles which act upon the limbs to sustain and repel us from the earth, necessarily act in the line of the energetic organs, their insertions being below their origins and their line of contraction consequently upward. The muscles on the front of the thigh, which straighten or extend the leg, contract in a nearly vertical line.

Even if we take the *Pectoralis*, which has a contraction downward in its ordinary action upon the arm, we find that if, when lying prone, we attempt to rise by bearing down and supporting ourselves with the hand against the ground, the action of the Pectoralis muscle is really upward, for the arm then becomes the fixed and the body the movable point which ascends. The anatomical construction of our bodies, therefore, compels the organs of Relaxation and Disease to exercise merely a debilitating and prostrating effect. This character extends to the whole lower anterior part of the middle lobe, including all the abdominal organs.

The organ just above Disease, is the organ of general Sensibility—this would coincide with the fact, that its pathognomic line seems to point to the region of the solar plexus and the epigastrium, or a locality adjacent to the stomach, which is the bodily seat of an acute sensibility.

The Conductor Organs, like all anterior to the ear, have the general character of tending to debility. In fact, exhaustion is their necessary effect—the exertion of some of our mental and physical powers may be invigorating, but the manifestation or display is exhausting, and compels us to pause by the fatigue, debility, or disease produced. Restraint, on the other hand, preserves our vital forces from waste, although it would allow them to grow sluggish from want of exertion. The pathognomic line of the Conductor Organs is quite anterior to that of the abdominal. There is probably a general coincidence between many of the conductor and the intellectual organs. The conductor organs being the organs for the transmission of nervous influence, their line should be downward and forward, as the transmission from the brain is downward to the spinal cord, and from the spinal cord downward and forward to the limbs and viscera.

The regions of Sullenness, or Melancholy and Mental Derangement, which point downward and outward, are included in the group anterior to the ear, the lines of which point more or less forward. At the posterior edge of Mental Derangement, the line pointing more backward, the function becomes more energetic, changing to Rage and Turbulence. In this case, lines which point anterior to the person, although they point downward, are necessarily debilitant, and in proportion as they point backward become competent to display energy. The line of the basilar organs not anterior to the ear, is downward, and hence coincides with the discharge of nervous influence from the brain down the spinal cord. The vitalizing of the cord by cerebral influence, is effected in the vertical line of descent, which belongs to the organ of Vitality, and those organs which act in this line excite the muscular system, and tend to give it a predominance over the cerebral.

When Indolence, Disease and Relaxation predominate, they give a drooping character to the attitude, depriving it of the erectness and firmness which are produced by the occipital organs. Alimentiveness co-operates in a similar direction, and is well adapted to bringing the mouth down to the plate.

The intellectual organs tend to produce debility, and their pathognomic line is such as to favor a drooping attitude, since bending forward necessarily carries the body downward. Thus, under the conditions of terrestrial life, excessive intellectual predominance necessarily runs into co-operation with the degrading basilar organs, while the anti-intellectual, which hold the head erect, co-operate with the coronal region in giving an elevated attitude. This co-operation is shown also by the character of their functions—Adhesiveness co-operating with Love and Friendship, while intellect tends to diminish our relations to individuals, and to lower our respect for them as we perceive their mental deficiencies. Superior intellects, turning to God and Nature, are necessarily separated from their cotemporaries, unless they have enough of occipital develop-

ment to come into contact with the ignorance and rudeness of society and enjoy it. It must be remarked, however, that the tendency of intellect to co-operate with basilar action belongs to the lower portion of the front lobe, which acts upon material nature and does not recognize elevating, progressive tendencies. The scientific intellect which coldly anatomizes man and society as they are, differs widely from the philosophic intellect, which recognizes his capacities and future career.

The region of Sublimity, lying between Reverence and Cautiousness, has a centripetal tendency concentrating excitement upon brain, heart and lungs, while checking outward movement. Its attitude is seen, when the arms are held aloft and brought together.

LECT. LXXIX.—BASILAR PATHOGNOMY.

The tendency of the basilar organs is downward or degrading—they pull down others and sustain self upon the downfall. Their pathognomic lines being all downward, whether forward, backward, inward, or outward, their necessary tendency is to degrade, crush, scatter and destroy the objects of their action.

These four modifications of the basilar influence may be selected to represent the elementary tendencies of the region. The backward influence enables us to approach, to advance, to assail, to resist difficulties—the downward to pull down, overcome and crush—the inward to collect, compress, excite, belittle, crush, annihilate—the outward to separate, rend, scatter, divide or destroy. The combination of these different tendencies in various proportions, constitutes the tendency of each basilar organ.

Those which point backward and downward being propulsive, give greater energy and eagerness to attack or resist, as is the case with Combativeness and Arrogance. Those which point outward and downward are calculated to tear, break, scatter and destroy in the fiercest and wildest manner ; this line belongs to the regions of Cruelty, Hatred, Turbulence, Rage; such a line must be influential in carnivorous animals. The line pointing downward and inward belongs to the region of Profligacy and Felony ; it combines the inward tendency which is acquisitive and selfish, with the downward tendency, which is violent and degrading—hence it produces a reckless violence for selfish purposes, leading to gambling, highway robbery, murder, etc. The inward line which belongs to Acquisitiveness, and the tendency of which is essentially collective, becomes modified as it turns backward and produces a selfishness, which is the necessary result of the line of collection, when combined with the line of appropriation, (backward and inward) be-

comes modified as it descends, by the greater degree of vioelnce thus produced, and thus changes from simple Selfishness to Felonious violence. But as it goes backward, losing the collective character produced by the inward line, it has a less special reference to property, and becomes adapted to contention or assumption—to encroaching on the rights of others, or defending our own. This line is combative and domineering. The fibres of Combativeness superiorly produce a less violent form of resistance, rather more fixed and less exciting or active, as stubbornness, disbelief, etc., lower down the resistance is of course more violent—the act of fighting belongs to the posterior inferior portion.

Anterior to the fighting region the fibres assume a more selfish cast, as they approximate Selfishness, but lose their intensity of violence and become adapted to the kind of opposition dictated by selfish intelligence, intrigue, jealousy, deceit, suspicion, etc.

The encroaching violence of Combativeness descends as the line points downward to the firmer and more gloomy violence of desperation, in which the evil passions reach the acme of intensity, and in which the object is evil or violence, without reference to acquisition or progress.

In the region of Turbulence and Degradation, on the neck, the line is downward and outward. Hence those organs disqualify for the pursuit of any object, and for any settled course of life; we fly with restless impatience from every place of pursuit, and are disqualified for any useful occupation. The line of the turbulent and restless region, as it turns backward, coincides nearly with that of the *cerebral crura*, which are the immediate channels for the transmission of the muscular impulse from the brain and the lesion of which produces paralysis on the side opposite the lesion, that is, on the side to which the fibres of the crus point.

The relation which the locomotive organs sustain to the crura, (their lines coinciding,) and which Vitality sustains to the spinal cord for a similar reason lead to the inference that the action of the crura in transmitting or emitting a cerebral influence along their fibres is the most thoroughly animal and impulsive function of the brain, and that the influence which descends the spinal cord is the immediate supporter of the functions of life.

In the organ of Baseness the pathognomic lines of Profligacy and Felony blend with those of the region of Fear, Turbulence or Relaxation, and hence produce the intermediate line of action unfitted for exertion or opposition, and fit only for feeble, timid and unprincipled courses. The line is downward and slightly forward and lateral. Embodied in the attitude, it produces an air of furtive meanness, which would tempt an officer to arrest the individual as a suspicious character, and which would prevent his winning the confidence of any society. The sidelong glance, the crouching movements, and the incapacity to stand with manly erectness, or to face another steadily, render the pathognomy of this organ quite

striking when it is predominant. The success of the base in their impositions arises from coronal and occipital organs which disguise the pathognomy of Baseness. For a full display of the pathognomy of the basilar organs we must seek the lowest classes of society, where intellectual and moral restraints are lost, or scenes of violence in which the passions have full play. The line of Combativeness and Arrogance is seen in the menacing arm drawn back to strike or to defy, and in the whole attitude of the angry combatant, or in the movements of the wrestler. The pathognomic line of the organ of murder is perfectly displayed in the position of the assassin, crouching to stab his prostrate victim. Acts of violence not otherwise intelligible may probably be solved by reference to the pathognomic line of the conductor organs.

The location formerly assigned the organ of murder by Dr. Gall is not only erroneous in point of fact, as a little observation will show, (being too elevated) but is incompatible with the true pathognomy of murderous acts, which indicates a lower position; the line must point decidedly downwards, to suit the attitudes of the murderer.

The position heretofore assigned the lower part of the occiput near the median line is the most incompatible of all with the pathognomic line of the part. Its pathognomic line in the lower portion indicates cruelty, destruction, harshness, &c.; it is peculiarly adapted to the act of *rending* and *tearing down*. If this were the organ of any gentle, kindly emotion, the principles of pathognomy would be reversed in this instance, and the science of man would fall back into a confusion which never exists in the beautiful and simple order of creation. There is no necessity for supposing any such anarchy. The facts that the lower posterior portion of the occiput is almost invariably among the predominant and active organs of the worst murderers, that it is a predominant organ among those famous murderers, the Thugs of India, that it has been found large in infanticidal mothers, (as Margaret Gottfried,) and that it is generally larger in carnivorous than in herbivorous animals, and as large or larger in male than in female crania, sufficiently show that this portion of the brain acts strictly in accordance with the universal pathognomic law.

That portion of the organ which lies farther above the tentorium, the upper portion of what Gall called Philoprogenitiveness, is adapted by its line to acts of authority or arrogance and subduing others to our will. It finds a pleasure, of course, in the presence of inferiors which it may govern, but it produces none of the kindly, sustaining acts of parental love:—authority, not love, is its tendency.

It might be supposed that movements in the direction downward and forward could be calculated from the antero-basilar organs, and that these movements would sustain the person in a haughty attitude, but such results are entirely forbidden by the

anatomical conformation of the body. Muscles acting in the antero-basilar direction could only operate to pull down the body, as there are no limbs with which they could produce an elevating effect; consequently, the antero-basilar organs have a degrading tendency. But as we do display our pride by repelling that which is before and below us, as well as our pugnacity by assailing objects before us, which we are certainly not tempted to assail by the organs of Intellect, Disease, Modesty, Fear, &c., this remarkable fact requires an explanation to show that our acts are in harmony with the pathognomic laws.

In inflicting a blow upon an adversary, we take the arm which is hanging down in a basilar attitude and direct its extremity forward, applying its exterior, hostile surface to the enemy. In this blow the propulsive power of the arm is derived from a contraction of its extensor muscles, *which in striking operate in the lines of the lower occiput.* In assailing with the feet, we raise our lower limbs from their actual position as supporters of the body, and by applying them to our opponent, change our relations, placing him, as it were, beneath us, in the direction of our basilar forces.

When we observe the anatomy of the downward movements which express the tendency of the basilar organs, we find that downward movements are not always produced by muscles contracting in the same direction as the movement. On the contrary, they frequently result from muscular contractions in the opposite or nearly vertical direction. This exhibits the truth of the proposition, that the region of Energy and Firmness co-operates with the basilar organs. In fact, each is accessory to the manifestation of the other—without the basilar organs the nervous energy would not descend into the muscles, and without the region of Energy, &c., the necessary reaction for their upward contraction could not occur—there would be that lack of tone which is produced by extreme excitement of the passions. Irritability and Desperation, the common sources of acts of violence, produce complete exhaustion and prostration in their excessive action. These basilar organs by overpowering the region of Firmness and other coronal organs, diminish (in such extreme cases) that vertical contractility of the extensor muscles of the lower limbs, by which we elevate ourselves and crush what is below us. The downward action, although performed by a part of the body corresponding to the basilar organs (and requiring the basilar organs to produce the action) is nevertheless connected by its pathognomic lines with the posterior coronal energy.

LECT. LXXX.—PHYSIOLOGICAL PATHOGNOMY.

The explanation of physiological and pathological phenomena by the pathognomic law, is no less simple and satisfactory than that of the phrenological. The physiological explanation has already been partly given.

Every organ determines the currents of circulation and nervous influence throughout the body in accordance with its pathognomic line. The superior organs, pointing upwards, determine circulation and excitement upward, thus giving a predominance to the brain, lungs and arms—leaving the digestive organs torpid, and the extremeties cold and feeble. Such is the effect of intense mental and moral excitement, which is an exercise of the superior organs. The basilar organs, pointing downward, diminish the mental and moral energies of the brain, and throw its excitement into the basilar region at the expense of the coronal. They give a predominance to the muscular system and the digestive apparatus, thus producing a gross, sensual, muscular and thoroughly animal appearance, coinciding with the brutish character which the basilar organs produce.

The violent passions of the basilar organs produce a great perturbation in the body—the circulation and muscular action have an almost convulsive energy. The calm and kindly influence of the superior organs subdues this animal excitement, transferring the activity of life from the body to the mind. In fact the coronal organs transfer man entirely from physiological to psychological existence, as they include *Mortality*. The passions then (the sources of evil,) appear to be necessary to animal life. (Yet animal life is not *necessarily* associated with the display of evil passions, for the superior organs may and should overrule and elevate the inferior into a higher sphere. Thus, under the coronal influences, the organs which, unmodified, might produce gluttony, drunkenness and rape, produce the most unexceptionable and pleasing acts.) A certain amount of passion is therefore obviously necessary to the perfection of the body, which without the due supply of cerebral influence degenerates into an unworthy instrument of the mind.

While the basilar organs generally, and the organ of Vitality especially, direct the cerebral energies into the body, all the cerebral organs exert a modifying influence over the corporeal excitement. The tendency of the lateral organs, as they point inward, is centripetal, and that of the median organs centrifugal—the former sustain, in consequence, a more direct relation to the viscera, and the latter to the limbs. The range of organs relating to the viscera is found on the side of the head from the temporal arch extending down the head and face. These organs consequently contribute little to the vital energies, and when we examine their

psychological functions, we find that their mental influence is also debilitating to that energy of character which gives control of our fellows. This might be anticipated, for it would be absurd that any mental power which contributes to the force of the character should be thwarted by its tendency in the body, or that a trait which enfeebles the strength of purpose should mould a constitution for steady and untiring action.

The basilar organs which are located upon the neck, extending to its junction with the head, correspond with the lower limbs. The middle organs of the occiput along the median line—extending from Firmness down, correspond with the arms. That department of the brain which is marked upon the neck may therefore be called the *crural* region, and that corresponding to the arms, the *brachial*.

From the brachial region to the organ of Cautiousness, the organs of the occiput sympathize with the back. The frontal half of the head sympathizes with the frontal half of the body.

In all these sympathies, the pathognomic lines indicate correctly the correspondent regions. The brachial region points outward to the arm, upward to the shoulder and downward to the hand. The crural region points downward and outward to the leg. The cephalic region attracts upward and inward to the brain; the pulmonic inward and slightly upward to the lungs; the cardiac inward and downward to the heart; the hepatic inward and downward to the liver; the abdominal downward to the stomach, intestines, spleen and kidneys; the cutaneous region of the chin outward to the surface.

None of these visceral organs can be considered antagonistic to each other as to their pathognomic lines, or as to their functions. The nearest approach to an antagonism is that of the cutaneous and pulmonary organs. This coincides with the fact that a remarkable inverse sympathy exists between them; a chill of the surface producing a congestion of the lungs, a suppression of perspiration, producing a cold or pulmonary disease, and warmth of the surface relieving the lungs, are familiar occurrences. To some extent a similar relation exists between the skin and the abdominal organs, but it is less marked than with the lungs.

The organs of antagonistic lines to the cephalic are found in the crural region. The legs therefore are the physiological antagonists of the brain. This is strikingly demonstrated in the relief which warm foot-baths give to congestion, pain or excitement in the head—in the sudden thrill of excitement which is thrown upon the brain by plunging the feet in cold water—in the head-ache and cerebral determinations caused by cold feet, and in the effect of intense study and emotion, which leave the feet and legs feeble and cold—in the effects of pedestrian fatigue upon the mental faculties, and in the singular cerebropedal sympathy shown by tickling the soles of the feet. The cerebral and pulmonary organs being near to-

gether, the antagonists of the former would be very nearly antagonistic to the latter. Hence there is a great deal of inverse sympathy between the lower limbs and the chest, but less decided and specific than with the brain. The whole region below the knee is especially antagonistic to the brain.

The pathognomic lines indicate a more decided antagonism between the lungs, or at least their *anterior portion*, and the arms. I have not surveyed the boundaries of these sympathetic regions with any accuracy, but infer from experiments that the lower limbs generally antagonize the brain, while the arms, especially from elbow to shoulder, are the special pulmonary antagonists. The great amount of relief which pulmonary congestions receive from ligatures and from rubefacient applications to the arms and thighs, and the remarkable promptness with which a chill of the arms from cold air or cold water affects the lungs are obvious illustrations of this inverse sympathy. The sudden relief which is afforded in pneumonia by bleeding from the arm is owing to this antagonistic relation. The flow towards the arms whether produced by a local stimulus, or by the lancet, produces the same effect as to the depletion of the lungs, and the facility with which this is accomplished by the lancet has prompted to a very frequent and injurious use of it.

The pathognomic line of the organs acting on the heart antagonizes that of the upper brachial region of brain, corresponding to the shoulders. This inverse sympathy explains the fact that pain in the shoulder is one of the diagnostic symptoms of heart disease. The pathognomic line of the hepatic organ also antagonizes that of the shoulders, and the existence of pain in the shoulders as a symptom of liver disease is a very familiar fact.

The pathognomic line of the Gastric organ antagonizes that of Temperance, which, from its position in the body, holds an intimate relation to the brain as well as to the shoulder. The very intimate sympathy between the stomach and the brain, which is universally observed, is a consequence not only of this inverse pathognomic relation, but of the fact that the latter is the recipient of sensation from impressions made upon the former, and hence sympathizes with the stomach as with all other portions of the body. The inverse sympathy which pathognomy indicates is seen in the stupifying effects of excessive eating, and the beneficial effects of temperance or abstinence upon the intellectual faculties, when it is not carried so far as to enfeeble the individual. It is equally seen in the destructive effects of hard study and mental excitement upon the digestive powers. Universal experience shows that overloading the stomach hinders cerebral action, and that overworking the brain destroys the digestive health. The pathognomic line of the lower bowels is still more nearly antagonistic to Energy and Playfulness, and is not very far from that of Insanity. Hence any accumulation of excitement in the lower bowels, or from fecal

matter or structural disease has only a pernicious effect upon the brain, beclouding the intellect, deranging the moral faculties, and rendering the individual incapable of enjoying life, but produces a general impairment of nervous energy. The great mental relief experienced from the operation of laxatives and the peculiar clearness of the intellect up to the last, under the attacks of Asiatic cholera are illustrations of the same principle. The upper portion of the lungs being intimately connected with the brain, participates, to some extent, in these sympathetic relations with the alimentary canal.

The pathognomic line of Sanity throws some light on the philosophy of Mental Derangement. It is a nearly parallel line with that of Firmness and lies between those of Tranquility and Restraint. Hence it appears that mental soundness is intimately connected with quietness and self-control, or in other words, that all wild and uncontrollable excitement is destructive to the mental soundness. Perhaps the best test of Sanity would be the question, to what extent are the passions and faculties beyond control. The pathognomic line of Sanity coincides nearly with that of the cephalic organ, but points further back. Its tendency, therefore, is to produce a predominance of the cerebral organs over the corporeal apparatus, but also to give a slight predominance in the brain of the upper occipital over the frontal half, and to render Firmness the paramount organ, thus giving a steadiness of purpose, a healthy soundness of action and a power of resisting external influences whether physical or moral, which deprives them of the ability to disorder the mental action. The line of Sanity indicates a certain amount of cerebral determination to be necessary to mental vigor and soundness. We know, from the common principles of physiology, that a sanguineous determination to any organ is necessary to its vigor and activity. The fact of a sanguineous determination to the brain being necessary, not only to its activity but to its functional soundness, as is indicated by pathognomy, must, if a true principle, be sustained by pathological facts. Pathology does sustain this proposition, by showing that a deficient supply of blood is the cause of cerebral *rammollissement*, or softening of structure, and also of irritability of the nervous system. (This brief work, not being designed especially for the professional reader, details and arguments drawn from the physiology and pathology of the alimentary canal and brain, are necessarily omitted. The mere enunciation of the doctrines is as much as can be expected.)

The Pathognomic line of Disease coincides so nearly with the position in the body of the portal circulation, as to induce us to consider the latter its corporeal region. The physiological character of the latter would be sufficient to maintain this opinion, without pathognomic evidence. The portal circulation is the region in which we find the greatest departure from the conditions of health. The blood in the portal circulation is more degenerate and desti-

tute of the characteristics of a vigorous healthy vitality than in any other part of the body. The influence of any accumulation in this region is also known to be highly morbific. It is therefore clear that the portal circulation in the body corresponds to the organ of Disease in the brain. The pathognomic line of Health indicates the shoulder to be antagonistic to the portal region, and proves the upward to be more healthy than the downward tendency. Hence the erect attitude, with the shoulders thrown back prominently, is universally recommended for health, and drooping attitudes are condemned as the source of disease.

The pathognomy of *Sleep* indicates that it is one of the faculties designed for self-preservation, by hindering the waste and injury of the vital powers. It lies between the restraining and selfish groups. The highest intuitive faculties tend to abolish selfishness, and sleep, if indulged to excess, and even to endanger Sanity.

The pathognomic lines of the external senses point to their spheres of action—vision forward, hearing lateral, feeling forward and downward to the region where we use the hands principally in examining objects before us by touch.

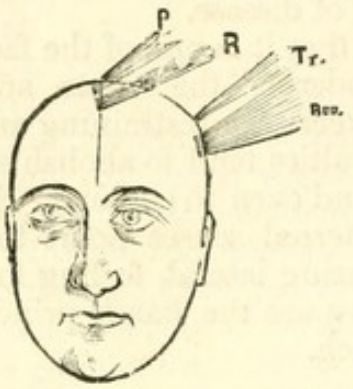
LECT. LXXXI.—ORGANIC CO-OPERATION.

The existence of corresponding halves of the cerebrum, each complete in its spherical relations, establishes interesting connections between the hemispheres. Certain lines in one hemisphere will be parallel to certain lines in the other. The organs acting in these parallel lines must, therefore, on the pathognomic principle, coincide in the tendency of their functions, and yet they are very different organs. Does experiment point out any such coincidence in different organs, and are the organs, which thus coincide, so situated as to have corresponding or parallel pathognomic lines? If we find cranioscopy, experiment, and anatomy to coincide in showing that the organs which have similar lines, although organs of distinct faculties have similar functions, the result will be highly gratifying.

By experiment we find a very remarkable correspondence and similarity between the organs on the median line and those on the temporal arch:—anatomy shows their pathognomic lines to correspond, and observation shows the striking similarity of their gesticulation and physiological influence.

The organs of the temporal arch point inward, those of the median outward—they are consequently nearly at right angles to each other—yet the organs of the median line, though at right angles to the organs of the temporal arch of the same hemisphere,

are parallel to those of the opposite side. Hence the organs of the median line of one hemisphere coincide and co-operate with the organs of the temporal arch of the other, and unless their functions prove upon experiment to be coincident, the pathognomic principle would be subject to very singular exceptions. Coincident lines must, if they determine the functions, produce coincident acts. This principle is, however, too well established by the uniform coincidence of gestures and pathognomic lines, under our daily observation, to be invalidated even if exceptions should occur.



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The coincidents in this case are very remarkable; thus, we have Patience upon the median line, corresponding to which, upon the temporal arch, is Tranquility. (See Fig. G.) These differ only in the fact that the former is more interior and mental—the latter affects more decidedly the body. Religion on the median line corresponds in pathognomy with Reverence on the temporal arch—functions so similar as to be continually confounded. Spurzheim incorrectly substituted the term Veneration for the religious sentiment of Gall. The religious sentiment is of a spiritual celestial tendency—Reverence is more external in its relations, and is rather terrestrial. Benevolence appears to coincide in function with the outer portion of Love, in junction with Reverence and Modesty—the region of social affection—and with the region of Spirituality. The descent from Benevolence along the median line internally, through the organs of Intuition, presents us with pathognomic lines according with those of Spirituality, Imagination, and Ideality—the coincidence of function here is striking. The former is the organ of the highest powers of mind, and the avenue of inspiration—the latter is the source of the most profound, original and brilliant manifestations of genius.

Continuing our observations, we find that the whole circle of organs of the median line coincides remarkably in function with that circle of organs in the other hemisphere, which presents coincident lines. Thus we find the following remarkable group of organs which have been demonstrated by experiment and craniological observation, coinciding in function and pathognomy.

Patience.	Tranquility.
Religion.	Reverence.
Benevolence.	Spiritual Affection.
Intuition.	Ideality.
Shade.	Somnolence.
Psychological Sense.	Impressibility.

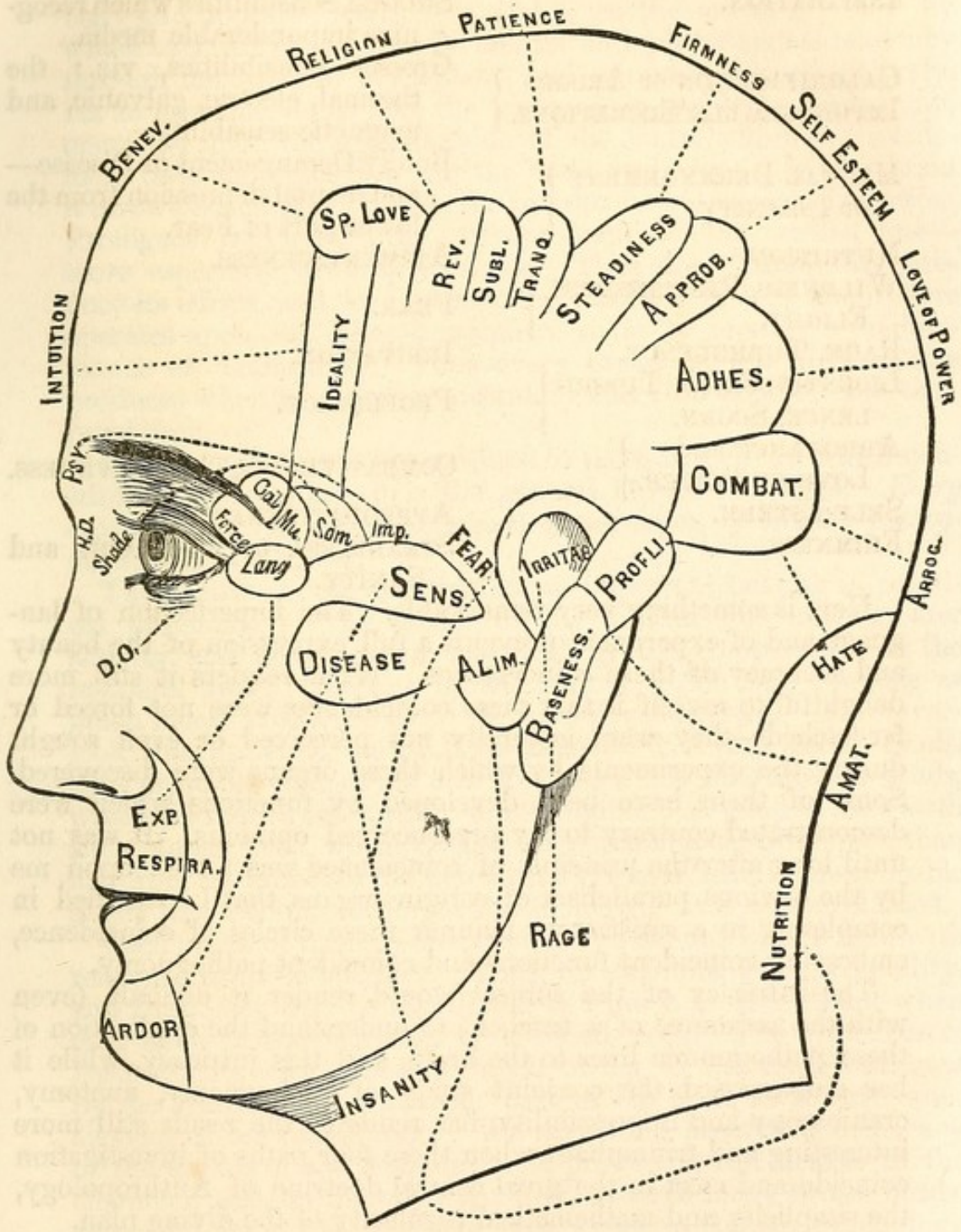


Fig. G.—Organic Cooperation.

SENSE OF HEIGHT AND DEPTH.	MUSIC.
DIRECTOR ORGANS.	SENSE OF FORCE.
EXPIRATION.	LANGUAGE.
INSPIRATION.	Subtlest Sensibilities which recognize imponderable media.
CALORIFICATION or ARDOR. / IMPONDERABLE SECRETIONS.	Grosser Sensibilities, viz.: the thermal, electric, galvanic, and magnetic sensibility.
MENTAL DERANGEMENT or INSANITY.	Bodily Derangement or Disease—and mental depression from the lower part of Fear.
NUTRITION.	ALIMENTIVENESS.
WILDNESS, RESTLESSNESS, FLIGHT.	FEAR.
RAGE, TURBULENCE.	IRRITATION.
LICENTIOUSNESS, TURBULENCE, SCORN.	PROFLIGACY.
ARROGANCE and LOVE OF POWER.	COMBATIVENESS, ADHESIVENESS.
SELF-ESTEEM.	APPROBATIVENESS.
FIRMNESS.	STEADINESS, or RESTRAINT and SANITY.

Here is something very remarkable. The imperfection of language and of experiment prevents a full expression of the beauty and accuracy of these coincidences. What renders it still more delightful to myself is that these coincidences were not forced or far-fetched—they were generally not perceived or even sought during the experiments by which these organs were discovered. Some of them have been developed by functions which were demonstrated contrary to my preconceived opinions. It was not until long after the principle of coincidence was forced upon me by the obvious parallelism of certain organs that I succeeded in completing in a satisfactory manner these circles of coincidence, embracing coincident functions and coincident pathognomy.

The intricacy of the subject would render it difficult, (even with the assistance of a teacher,) to understand the application of these pathognomic lines to the brain, and this intricacy, while it has embarrassed the conjoint study of pathognomy, anatomy, cranioscopy and impressibility, has rendered the result still more interesting and triumphant when these four paths of investigation coincide and meet in the great central doctrine of Anthropology, the simplicity and mathematical regularity of the divine plan.

The discovery of these co-operative organs, and the laws of co-operation between the hemispheres, not only serves to explain various affinities, and laws of association between the organs, but goes far to explain the final cause of the existence of two cerebral hemispheres, in this diagonal connection with the body. Each hemisphere acts upon the opposite side of the body controlling its

muscularity secretion, circulation, &c.—consequently *each hemisphere controls the other*. It is a beautiful study to apply the Pathognomic lines of one hemisphere to the opposite side of the body and opposite hemisphere, and trace the *modus operandi* by which each organ executes its mental and physiological tendency through the opposite hemisphere, and opposite half of the body. As an example, let us take the organ of Tranquility. This organ, operating upon the opposite side of the body, withdraws excitement from the limbs, towards the brain and chest. In the brain it throws the circulation from the inferior lateral organs (Irritation, Profligacy, &c.) toward the superior organs of the median line—more especially towards Patience. Thus does Tranquility produce its effects, and in like manner Patience in one hemisphere operates upon the other hemisphere so as to produce a predominance of Tranquility. Thus every organ on the median line produces when in action a secondary effect or echo on the temporal arch.

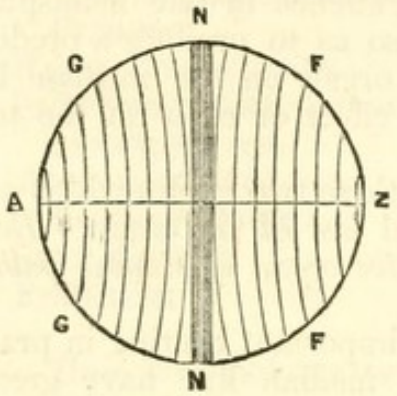
This co-operation is not confined to these two circles which constitute our examples—it is the general law of the brain. *Every organ of each hemisphere has a co-operative organ of similar pathognomic line in the other.*

The doctrine of co-operation has an important bearing in practical phrenology. The organs of the median line have greater activity and power when sustained by the co-operation of the temporal arch. Hence, a broad, coronal region may produce as much moral excellence as an elevated developement. If we overlook this principle, we shall do injustice to many broad heads. This principle enables me now to explain the character of heads, which in 1840 were entirely unintelligible. A good citizen with a low, broad head, worse, on the old phrenological principles, than any from the gibbet or the penitentiary, was so utterly inexplicable a fact, that I could not forget the anomaly. It is now explained.

Each organ of these co-operative circles should be observed with reference to its co-operator. Thus, for example, Fear, Irritability, and Profligacy may be manifested to a much greater extent when they have the co-operation of a broad neck. The cowardice of Demosthenes was perhaps as much owing to the traits indicated by the breadth of the anterior part of his neck, as to any other element of his constitution. We may often observe a deficiency of the organs of the temporal arch, producing sad defects in the character, and, on the other hand, we observe many broad heads, especially among the German race, to which Gallian phrenology was far from doing justice.

LECT. LXXXII.—CEREBRAL HARMONIES; OR LAWS OF CO-OPERATION.

The cerebral organs have innumerable relations to each other, arising from the laws of antagonism, co-operation and contiguity. Every shade of difference from perfect co-operation to perfect antagonism exists between each organ and the whole of the remaining organs. For example (see Fig I) we may suppose the organ A has a direct antagonist on the organ Z.—It will have a zone of organs neither decidedly co-operative nor decidedly antagonistic, but modifying, as NN,—an immense number decidedly co-operative as GG, and an equal number decidedly antagonistic as FF, and so on *ad infinitum*. The countless number of organs, sustaining these numerous relations, require to be so arranged in the brain as to produce the proper relations by their positions, and thus to form a systematic whole, suitable for unitary action. The intricacy, beauty and harmony of these complex relations is beyond anything that has ever been attained by the philosophical invention of man. Their exposition in full would constitute a voluminous treatise.



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The fact that neighboring organs have the sympathy of contiguity and consequently must have a similarity of function, originates an interesting set of relations between the organs, and of correspondences between the cerebral structure and the arrangements of the exterior world. The causes in the external world which influence man *sustain relations to each other similar to the relations of the cerebral organs.* Hence there is a correspondence between the inner and outer world, by means of which each may be said to illustrate the other. For example we may refer to the connexion between

Coldness and	Sleep.
Ardor	Respiration.
Tranquility	Coldness.
Relaxation or Debility	Disease.
Hardihood	Health.
Hope	Firmness.
Chastity	Coldness.

In these instances the connexions are obvious between the functions and between the causes that promote their action. It is equally obvious between all neighboring organs or portions of a convolution. A review of these connexions would be a complete

survey of the brain. In my experimental surveys of the different regions, I have found an inexhaustible source of interest in studying these connexions and in observing the manner in which the different spheres of the organs in nature connect and act upon each other.

The relations arising from contiguity are simple in principle, though complex in detail. The countless varieties of co-operative and antagonistic action are also matters of voluminous detail, rather than of philosophical precision, but there is one co-operative relation, which arises from the co-relations of the two hemispheres, which may be called the *dual* co-operation. It is the co-operation of organs in *inverse positions* arising from the duality of the brain.

The two hemispheres occupy inverse positions. The internal of one corresponds with the external of the other, as when two persons face each other, the right hand of one corresponds to the left of the other. Hence organs of the left hemisphere pointing inwards, correspond to organs of the right hemisphere pointing outwards. Thus we perceive the pathognomic line of Patience in the left hemisphere corresponds with that of Tranquility in the right and vice versa. In accordance with this principle, we have a range of organs on the median line, co-operating with the range along the temporal arch—an internal circle and an external circle of organs in dual co-operation. (Fig. H Page 313.)

This principle is applicable to all the cerebral organs. Every organ has its *dual co-operative*. Those which are vertical in their line of action are identical in the two hemispheres in other words the organ co-operates with itself. All organs lying on the same meridian with those of the vertical position are likewise self-co-operative because the lines are the same in each hemisphere, (see Fig A.) but all others co-operate with organs distinct from themselves.

A singular coincidence is observable among our organs which may be explained I think upon mathematical principles. We find some of those in the basilar region manifesting faculties so closely similar to the nobler faculties of the moral and intellectual region, that we are tempted to regard them as the same power perverted by direction to baser purposes. Thus the organ of FICTION or IMAGINATION, the source of harmless and amusing romance—coincides singularly with that of LYING, in the region of Baseness. Their action is indeed occasionally confounded by ignorant persons who look upon the play of fancy as wilful lying. SPECTRAL ILLUSION coincides still more nearly with INSANITY; SPIRITUALITY coincides with SUICIDE as it introduces us to Spiritual society—it holds in abeyance, but does not directly destroy the vital principle. LOVE coincides closely with AMATIVENESS or the sexual impulse with which it is intimately connected. The organ of MIRTHFULNESS coincides with the organ of LAUGHTER, a portion

of the EXPIRATORY region; EXPRESSION coincides with the organ of SPEECH in that region, and SYMPATHY coincides with the organ of INSPIRATION in that portion which produces SIGHING; LIBERALITY coincides with the wasteful character of the CARELESS region. FIRMNESS coincides with COMBATIVENESS, and the stubborn pugnacity of the latter organ is often confounded with the firmness and high toned courage of the former. JUSTICE coincides with REVENGE or HATRED which suggests retribution or punishment, and with CONSCIENTIOUSNESS, which condemns every departure from duty. ENERGY coincides with VITALITY. SELF-ESTEEM coincides with SELFISHNESS, and AMBITION with ACQUISITIVENESS.

When we observe the locality of these organs, we find that a continuous range of organs on the upper part of the head extending from Imagination to Ambition coincides in function with another continuous range in the basilar region extending from Baseness to Acquisitiveness on the inferior surface of the brain.

CO-OPERATION IN ACTION.—The tendency of the organs to establish a co-operative or united action is most obviously illustrated by experiments upon Calorification. Whenever this organ is excited, the developement of heat is determined by the function in predominance at the time. By exciting the various organs we may cause the heat to be developed in the upper or lower limbs, head, chest, or internal viscera. It is upon the same principle, that whenever an inflammatory diathesis exists, it will be found to concentrate upon that organ which is most active or excited.

The same tendancy to co-operation which is manifested by Calorification, is manifested by all other organs, when brought into simultaneous activity. If, for instance, Ambition prompts to intellectual pursuits the intellect acting in connection with Ambition as modified by its associate, and an ambitious style of thought is the result—a prompt, energetic, showy intellect is produced, calculated to impress and attract attention, while Ambition itself, modified and refined by the intellectual influence, becomes a gentler and less impassioned element. Love, when excited in conjunction with predominant moral and intellectual organs becomes a gentle, happy and delicate sentiment—when associated with predominant basilar organs, it becomes an excitable, anxious, fierce, and jealous emotion. Not only are the manifestations thus different in character, but the action of the organ of Love is itself different in these cases. The organ being modified in its functional operation by those with which it is associated.

These remarks might be extended to every organ, and would then constitute a key for the explanation of every remarkable character—the art of portraying character successfully, depends largely upon the power of thus unfolding the details, and showing how the action of every individual faculty is modified and directed by those which predominate.

LECT. LXXXIII.—MATHEMATICAL RELATIONS OF MAN TO MAN.

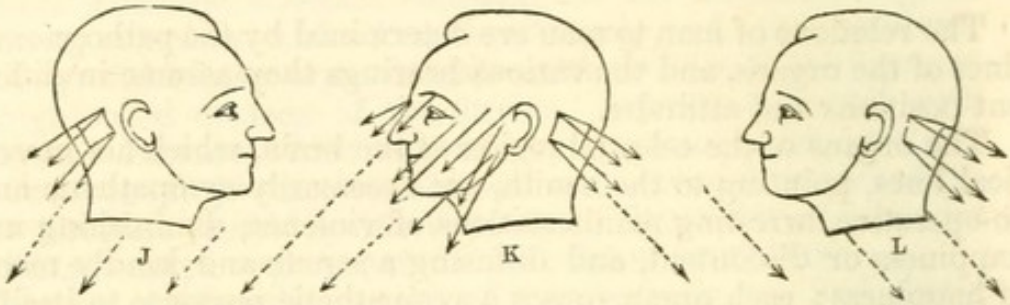
The relations of man to man are determined by the pathognomic lines of the organs, and the various bearings they assume in different positions and attitudes.

The organs of the celestial region of the brain, which act in vertical lines, pointing to the zenith, are necessarily sympathetic and co-operative, arresting manifestations of violence, diminishing unhappiness or discontent, and diffusing a serene and kindly mood of happiness; each organ rouses a sympathetic response to itself.

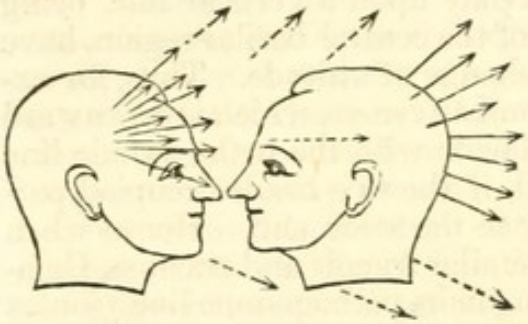
In like manner the antagonists of the celestial organs belonging to the basilar or destructive region, and having the opposite pathognomic line, are impersonal in their relations, and operate by diffusive sympathy to produce violent passions and gloomy sentiments.

But those organs which do not play upon a vertical line, being neither of the central coronal nor of the central basilar region, have relations which vary with every change of attitude. Thus, for example, the pathognomic line of Combativeness, which is downward and backward, would entirely coincide with the pathognomic line of Combativeness in another head, if the two heads occupied parallel positions—*i. e.* were looking to the same end. Hence when two persons have similar objects, similar friends and enemies, Combativeness in one (strictly coinciding in its pathognomic line,) rouses Combativeness in the other, and the relation of the organs is that of direct sympathy. But when the two stand in antagonistic positions, the pathognomic line of the Combativeness displayed by one, instead of coinciding with the Combative line of the other, crosses it nearly at right angles, and rouses the anterior basilar region of the brain—the region of Fear, Irritability, Servility, Relaxation, Disease, Melancholy, the conductor organs and the perceptive organs, all of which have lines similar to those of Combativeness in our antagonist, and consequently are roused by its action.

Hence it is that hostile Combativeness if exerted with sufficient power to make a controlling impression upon us, excites our fears, prostrates our resisting energies, renders us servile and submissive, depresses our spirits, and even renders us sick and sensitive. The abject and often punished slave becomes a servile wretch, broken in spirit and incapable of anything manly. Parents and teachers, by the exercise of their authority in a hostile manner in harsh punishment, seriously enfeeble and degrade the character of their children, as well as injure their constitutions, and render them liable to disease. At the same time they are rendered more sensitive, impressible and submissive, and the power which we thus gain may be employed for good purposes. A moderate exercise of Combativeness or Firmness, not degraded into Violence, may thus

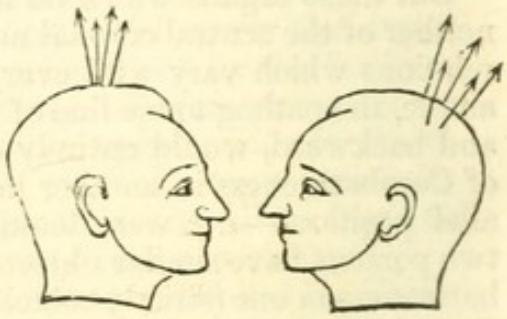


Figs. J, K, and L, exhibit the relations of combativeness in coinciding and in opposite attitudes. K and L, looking in the same direction, their combativeness coincides and sympathizes; but J, looking in an opposite direction, his combativeness coincides with or excites the perceptive organs and the timid, sensitive, morbid region of K.



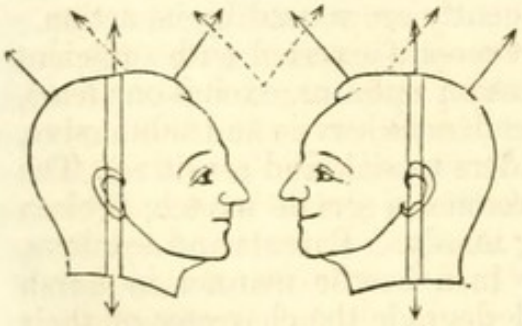
M N

In Fig. M we observe the pathognomic lines of the organs of the temples, (the regions of Reverence, Modesty, &c.,) which coincide with those of the occipital organs, from Pride and Moral Ambition down to Arrogance, as shown in fig. N.



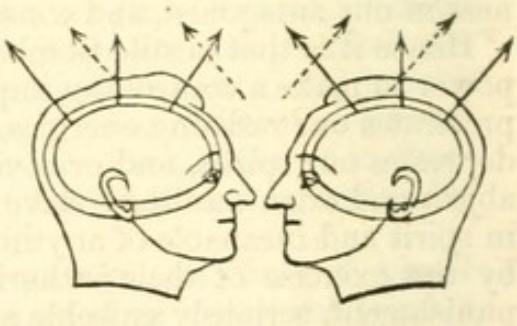
O P

In Fig. O we observe the pathognomic lines of the region of Religion, on the median line, which coincide with those of the regions of Dignity and Restraint.



Q R

In Figs. Q and R we observe that a vertical zone in the two opposite heads coincides in all its pathognomic lines; while the anterior organs of one head coincide with the posterior of the other.



S T

In Figs. S and T we observe the coincidence of a zone of organs running around the head anteroposteriorly. In this zone the superior coincides with the superior, and the inferior with the inferior; but the anterior coincides with the posterior.

answer a good purpose in procuring submission. But as the evils in the characters of children do not arise so much from the region of Firmness and Pride, as from that of Stubbornness and Violence, the true antagonistic line to their evil passions is that of Dignity, Firmness, Justice and Love.

It is well known that Combativeness, when not exerted with sufficient energy to terrify or conquer, commonly rouses Combativeness in the assailed individual. This is because Combativeness conflicts with the organs of Firmness, Pride, &c. in the assailed party, and these organs being too powerful to be overcome so easily, have roused their basilar co-operatives in the region of Combativeness. Thus the brave man becomes combative when attacked, while the man of but little Firmness is paralyzed or frightened.

Combativeness in an antagonistic position, powerfully excites the perceptive organs by coincidence of tendency. No one when vigorously assailed can avoid noticing the assailant, and there is no keener exercise of the perceptive organs than that which occurs between two antagonists in duelling or pugilism.

The fact that the exercise of Combativeness, if successful, tends to debase and paralyze our opponent, as well as to render him submissive, indicates that it is seldom justifiable to bring the whole force of this organ to bear upon a human being. It is only the superior occipital region which possesses the power of subduing the evil passions of another by direct antagonism. Thus we know that a man of great firmness, dignity and elevation of character at once subdues all resistance to his authority. If a teacher, his boisterous pupils at once become orderly in his presence. If a parent, fretful and disobedient children become pacified and obedient; when he approaches a public assembly, he subdues disorderly manifestations, and quells the violence of the mob.

Does the organ of Self-esteem or Pride act simply according to the law of diffusive sympathy? No!—on the contrary it produces many effects which are entirely distinct from its own character. The proud man commands *respect*, and often excites admiration—he occupies a standing and wields an influence which cannot be occupied or wielded by one of less intrinsic dignity. This is all explained by reference to the pathognomic lines of Pride, and the relation which they bear to the organs of another brain.

In order to make this comparison, let the reader stand erect and throw up his right arm in such a direction as to assume the pathognomic line of Pride, while another standing before him, face to face, assumes a pathognomic line of *parallel* direction with both his arms. The latter will then be found to present the pathognomic lines of the co-operative regions of Religion, Reverence and Modesty. Hence it is that Dignity in man invariably and inevitably commands the respect and deference of fellow beings, as it directly rouses the organs of respect.

Let us next assume the attitude of Firmness, and we shall find

its parallel response to be in the region of Sublimity, and at the junction of Patience and Religion. Hence true Firmness produces a dignified calmness in an opponent, and heroism commands the respect of the most inveterate foe.

Let us assume the attitude of Patience, and our parallel response will be found in about the same position, embodying Patience and Tranquillity, or perhaps receding a trifle further back. Thus calmness, or patience and serenity, reproduce themselves in all around. These co-operatives are not mathematically uniform, as a slight variation of the general carriage may vary the pathognomic correspondences between two individuals. As, for example, the Patience of a haughty man will more nearly coincide with Firmness, the pathognomic line being changed by the attitude of his head, and the Patience of a mild intellectual man will resemble Religion and Benevolence in consequence of the anterior droop of his head. But usually Patience will evolve Patience and Tranquillity.

Religion will next give us an attitude, the response to which is an attitude of Firmness, Dignity and Restraint. Hence it is that in entering a temple of religious exercises, our demeanor becomes calm, dignified and restrained. The freedom of action and impulse which is indulged in social parties, is felt as entirely inappropriate under religious services.

Let us now go backward. The region of Self-esteem, Love of Power, and Ambition exhibits pathognomic lines which call forth a response anterior to Religion—thus the most posterior organs have the most anterior responses, and, *vice versa*, the same anterior organs, in action, have posterior responses.

The response to Self-esteem, Love of Power and Ambition comes from the parallel regions exterior to Benevolence and Truthfulness, viz.: Reverence, Modesty, Ideality, Imagination and the outer portion of Sociability. This will be more apparent as we examine the special functions of the different organs. In the social region we have Faith, Imitation, Friendship, Admiration, and Pliability. Hence it is that those who pursue the elevated career to which the organs of Pride, Ambition, &c., lead us, become the objects not only of the reverence, but of the admiration, friendship, faith and imitation of the rest of mankind. The great leaders of thought in the different spheres of human progress secure to themselves an amount of submissive and almost passive faith, which enables them to control the opinions of many generations. The careers of Alexander, Cæsar and Napoleon still call forth the admiration of mankind, and Aristotle and Galen each held control of European intellect for a thousand years.

Such is the tendency of the ambitious region of the brain, and such is the ardent desire of those who are governed by that region. They desire to attract to themselves the admiration and friendship of society, to have their dicta received with implicit faith, their examples followed, and their presence recognized by

the most deferential politeness. In proportion as these organs are more energetic, they give us greater power to realize their aims, and to receive admiration and influence in society. Indeed however we may disapprove the conduct and principles of those who are governed by them, we cannot withhold a certain amount of approbation and admiration from the demand which they make upon us.

Hence phrenologists have given to a part of this region the name of Love of Approbation, or Approbativeness, and we perceive that the frontal region from which the approbation comes, responds by mathematical necessity to its demands. The region of Pride coincides by its parallel pathognomic line with Reverence, and we observe accordingly that proud men demand especially the *respect* of their fellows. Ambition coincides in its line with the Modest and Ideal region anterior to Reverence, and accordingly desires the deference and admiration which its displays are calculated to elicit. Thus Vanity desires to be admired for beauty, and elicits that admiration from Ideality. The lower portion of Ambition and Arrogance coinciding in tendency with the servile region, tends to reduce others to the most abject condition, and Turbulence coinciding in line with Fear, necessarily rouses excitement and alarm in those against whom it is directed.

The higher portion of the lateral occipital region called Approbativeness coincides more nearly in its pathognomic tendency with the social region, with Admiration, Imitation, Politeness, Faith, and Friendship, while the lower portion called Adhesiveness, coinciding with more anterior responses, desires the intellectual recognition, the permanent recollection or the temporary notice of our fellow beings. The lowest form of this kind of ambition is that which merely seeks notoriety and attention. A higher form addresses the recollective faculties, and desires to be permanently remembered—a still higher form addresses the reasoning faculties and desires to be understood, ("Strike, but hear me,") while the highest form desires approbation and admiration, and seeks to call forth the pleasant social emotions.

The region of Coarseness or practical energy evolves the action of Scheming, Invention, and Order, which are necessary to direct it, while the Adhesive and Approbative organs desire to win the admiration of mankind.

Below the Adhesive range, Combativeness acts especially upon the conductor organs, rousing immediate impulses of action and quick perception, producing injury, disease, exhaustion, heat, passion, &c., while the most violent of the contentious passions produce absolute Insanity. Every organ adjacent to the conductor organs is roused, producing keen perception, hurried respiration, increased heat, turbulence, passion, melancholy exhaustion and disease. Hence an occasional combative encounter, though injurious to others, might be beneficial to those in whom the combative and

conductor organs are rendered inactive by Restraint. Those possessing large Restraint, Health and Firmness, would be qualified for combative encounters, being able to resist and prevent these effects. To determine the special portion of the hostile region which particularly tends to the production of Insanity would be a difficult mathematical problem, but from the character of the functions we may suppose that the region of Jealousy and Censoriousness (the antagonist of Admiration) would have the most deranging effect.* One of the most certain modes of degrading any one is to vilify his character and thus to wound his feelings, lower his self-respect, depress his spirits, and keep up an agitation forbidding any peace of mind. An excellent illustration of this is afforded by the insanity which results so often from denunciatory preaching, which represents the poor hearer who has not adopted the preacher's faith, as a total reprobate, destitute of all moral worth and prepared for infinite punishment. Below the combative range, the organs approach so nearly to acting on the vertical line, as to respond to each other directly. The entire range running around the head from right to left through Patience, Turbulence, &c., will act by diffusive sympathy, as not only the vertical lines but the horizontal lines (which are at right angles to the vertical and also at right angles to the antero posterior diameter of the head) act in mutual co-operation. Thus we may describe a vertical plane, extending through the ears and the anterior portion of Patience upon which plane the organs of different heads are disposed to co-operate, and command each other, while the organs behind that plane will command organs as far before it (the upper commanding the upper and the lower commanding the lower.)

If we should draw upon each hemisphere an antero–posterior meridian, intermediate between its interior (the median line) and its exterior (the temporal arch,) the organs upon that line would respond to each other according to the above formula, and the organs of the interior and exterior arches just mentioned being co-operative with each other, would respond to each other before and behind the vertical plane as above mentioned.

Thus far I have considered the mathematical relations of the organs, when one is acting directly upon another face to face. But when manifestations are made before us, not especially addressed to ourselves, the mathematical principles are equally applicable in determining the impression which they must make upon us.

Evidently the impression must be different. Our feelings are very different in witnessing a combat and in being attacked personally—in witnessing an act of generosity, and in receiving ourselves a generous offer. The spectator of a tragedy feels very differently from the actors in a similar scene in real life. Correspondent sympathy is not the law in such cases, nor is the reciprocal parallelism just described, the guiding rule.

* The true coincident of Insanity is Irritability.

To obtain the mathematical solution of this problem, let us place the parties before us in action, and compare *their* pathognomic lines with *our own*, which respond. Thus, when a combat occurs between two parties before us, their pathognomic lines in action correspond to our Excitability, Fear, Restlessness, Turbulence, Ardor, and, to some extent, the Conductor Organs and Intuitive perception. Hence we become very much excited, restless, apprehensive, and quick in perception. Our combativeness is moderately excited with the other basilar organs, but if it be an organ of predominant activity in our character, it becomes fully excited.

When we witness an exhibition of Benevolence or Generosity, the pathognomic lines which correspond in ourselves are those of Reverence, Sublimity, Patience, Religion, Devotedness—hence an exhibition of Benevolence produces a serene pleasure, a lofty reverence and ennobling of our whole nature.

When we witness an exhibition of intellect, the pathognomic lines of which are less elevated, the parallel response can be given only by our internal intuitive region, which we exercise in grasping the thought or spirit of the speakers, and by the region of Ideality which we exercise in meditation and in admiration of the beauty or perception of the spirituality of the discourse. It also impresses with equal or greater force our Modesty and Reverence. Hence the pleasant, calm, reverential and refining influence which we experience in listening to intellectual conversation and harangues. In a public audience, all is calm, modest and deferential, and the more so in proportion as the language used is more intellectual and elevated by the influence of the moral organs.

When we witness an exhibition of Pride, Self-Esteem or Ambition, their pathognomic response in our own heads is from the entire lateral range of organs above the horizontal, producing cautiousness, coldness, restraint, tranquility, reverence, &c. Hence we run into coldness and stiffness of manners in the society of proud ambitious people. This influence extends as far forward in the temples as the region of Modesty and Ideality.

The lower occipital organs of the median line sustain nearly the same relation to us in their mere exhibition, as combativeness does in its personal application to us—*i. e.* they coincide with and therefore arouse the conductor organs, and give us a disposition to act forthwith. Now, if we observe this region we find that it contains Arrogance, Tyranny and Cruelty; and it is remarkable that wherever we see oppression and cruelty practised, we are excited and tempted to interfere by remonstrance or by action, not so much on account of our sympathy with the oppressed as on account of the indignation excited by cruelty. The cry of distress from the persecuted and oppressed, always rouses action in their behalf. Even among hogs the cry of one in pain soon rouses the whole herd. Some of these lines of cruelty coincide nearly with the region of Disease; hence the sickening and fainting at the sight of cruel punishment or bloodshed.

The organs of the same range, higher up, excite the intellectual and ideal organs. The region of Dignity and Moral Ambition coincides with that of Imagination and Benevolence as well as Reverence.

The explanation just given of our excitability by acts of cruelty and our admiration for distinguished men, is based upon the particular attitudes of those before us. If the objects of our attention are advancing from us, having surpassed us in the career of life, then we sympathize directly with their occipital manifestations, as all our pathognomic lines become parallel. Their greatness stimulates our pride—their ambition and progress render us emulous—their harshness renders us harsh. Thus the army imitates its general, and parties follow their leaders.

The general law of pathognomic reciprocity may be thus expressed:

1. Organs acting in the vertical line upward and downward, sympathize directly—and all organs, in proportion as they act in upward or downward directions, do *to that extent* sympathize with each other as to the amount of elevation or depression they produce. In other words, the entire amount of upward and downward tendency, in any brain, however manifested, sympathizes with the entire amount of upward and downward tendency in any other proximate brain, with which it is in sympathy. Hence, in ascertaining the reciprocal action of any organ, we may simplify the enquiry by giving it a direct sympathy for the degree of ascent or descent which its action implies.

2. In proportion as organs have an anterior or posterior direction, their reciprocity is simply inverse. The anterior rouses a posterior response, and the posterior produce an anterior response.

Hence when two individuals associate, they maintain a direct and uniform sympathy as to their tendencies to good and evil—the good man benefits, and the bad man injures, his associates. But in reference to the occipital and anterior organs, a different law obtains. The man of occipital energy does not energize, but pacifies. He excites the anterior organs of intelligence and submissiveness. Hence it is necessary to those of great force of character, to meet others of corresponding gentleness, whose anterior organs could give them freedom of action. Men of pride and ambition would be in a very discordant position if there were not reverence, modesty, kindness and reason to prevent collision and to gratify their feelings. In man, the strength of the occipital energies is usually gratified by the yielding nature of woman, whose force of character is less developed by her mode of life, and who therefore yields to the influence of the occipital organs, which exact devotion, attention and submission.

In like manner the gentler characters, governed by the front head, desire strong occipital characters to which they may pay their deference and admiration, and in which they may feel a lively interest.

In unions among persons of full and symmetrical characters, the reverential faculties of one must be sufficient to justify the ambition or self-will of the other, and the ambitious energy of each must be sufficiently strong to elicit the deferential regard of the other.

3. A third law remains to be illustrated. There are but three cardinal geometrical lines on which organs can act, from which three lines all other lines are compounded (as the various colors are said to be compounded of three, the red, blue and yellow). The first is the vertical, the second is the antero posterior, and the third line of direction is the horizontal, or inward and outward, or right and left, in reference to which latter the law of reciprocity is inverse; right producing left, and left producing right.

Finally, therefore, we may affirm that all reciprocity on the vertical line is sympathetic, while all reciprocity on other lines is anti-pathetic, or opposite.

THREE CUBIC LINES.

There are three lines of cubic dimension; length, breadth, and depth. The brain has its three lines of antero-posterior length, right and left or bilateral breadth, and vertical depth or height.

These three lines in their normal results are lines of *progression*, of *elevation* and *expansion*.

The antero-posterior is the line of progression—progression for all—(frontal organs)—and progression for the individual—(occipital energy).

In their abnormal or excessive action they become organs of retrogression. The occipital becomes the region of retrogression for the race toward barbarism, while the frontal becomes the organ of retrogression, of the individual toward poverty, insignificance, feebleness and death.

The VERTICAL is the line of ELEVATION—the normal function of the coronal being the *elevation of all*—the normal function of the occipito basilar being the *elevation of the individual*, or rather the support of his body. The abnormal or excessive action of the coronal resulting in the physical prostration of the constitution of the individual—the abnormal or excessive action of the occipito basilar resulting in the destruction or degradation of humanity, by despotism, cruelty and outrage.

The HORIZONTAL or right and left, inward and outward, or bilateral, is the line of EXPANSION and greatness in its normal action, or of contraction and diminution in its abnormal excesses. The region of the median line which has the outward or expansive tendency, is the source of greatness. It contains ardor or warmth, which expands as coldness contracts; Intuition, which vastly enlarges the sphere of the mind, as sleep contracts it to mere animation of the body; Pride and Will, which lift us to personal

greatness; and Love of Power, which extends our authority vastly, in opposition to Servility, Fear, and Reverence, which reduce us to personal insignificance. All of these influences which expand and develope the character, thus appear to be on the median line, pointing outward, while all of those which contract and belittle it, appear to be on the lateral region pointing inward—Sleep, Coldness, Indecision, Fear, Servility, and lower Reverence, are thus located, and we may add to these, Profligacy, Selfishness, Acquisitiveness, lower Cautiousness, and lower Sublimity. (An excessive sentiment of grandeur and grandiloquence on small occasions are characteristic of a feeble spirit, to which minute affairs may be great, as a cup of water is a vast lake to animalculæ.)

We may speak of these three lines as lines of

PROGRESSION AND RETROGRESSION—(Antero-posterior.)
ELEVATION AND DEGRADATION—(Vertical.)
EXPANSION AND CONTRACTION—(Bilateral.)

Or we may regard them merely as lines of progression, elevation, and expansion, susceptible of an abnormal developement in retrogression, degradation and contraction.

The reason that both these modes of expression are true, is that man consists of two opposite elements and tendencies—the material and spiritual—which move in opposite directions and continually tend to separation—the one ascending to the sphere of the Infinite—the other descending to the most finite state of matter.

These opposite elements may be developed harmoniously, or either in excess may encroach upon the other—whatever gives *excessive* developement to the one detracts from the other. The elevation of one is the depression of the other—the expansion of the one is the contraction of the other—the advancement of one the recession of the other—unless the two are simultaneously advanced. The superior organs, devoted both to the elevation, advancement and expansion of the spiritual, tend, if acting alone, to the depression, retardation and destruction of the body—the inferior organs, devoted to the invigoration, advancement, and expansion of the body, tend, acting alone, to the deterioration, contraction, and destruction of the spirit.

Hence, if we speak of organic action on any line, in reference to the *spirit alone*, that line becomes a line of spiritual elevation and depression, expansion and contraction, or progression and retrogression; and if we speak in reference to the body alone, we have the same opposite tendencies in each line reversed, (the elevation of the spirit being the depression of the body), but if we speak of the lines as lines of normal action for both body and spirit in conjunction, (the vertical line, for example, operating upward for the spirit and downward for the body, at the same time,) the three lines are simply lines of elevation, expansion and progression.

That the region of spiritual contraction is the region of corporeal

developement, remains to be shown. This region is certainly, through Sleep, essential to life, and through Acquisitiveness and Selfishness, necessary to the means of keeping life. It is also the source of excitement and activity, by means of which the spiritual energy is diverted from its higher functions to sustain the activity and developement of the body—excitement with the consequent action being the general means of developement, as it increases the circulation and organic activity of all parts.

The public speaker, by speaking in a strain of intense excitement and animal force, invigorates and developes his own constitution, and every active process of the body is accompanied by a certain degree of excitement. The spiritual nature is developed in serenity, and the corporeal in action or excitement.

LECT. LXXXIV.—HYDRAULIC LAWS OF THE BRAIN.

A large portion of the mental phenomena of man depend for their explanation upon a knowledge of the mechanical laws which govern the cerebral circulation, which laws being of a mathematical nature, belong to Pathognomy, the mathematical department of Anthropology.

The expansion of any portion of the brain in consequence of increased vital activity and sanguineous afflux, necessarily causes a diminution in the supply of other regions, which receive a proportionally smaller quantity of blood. It is obvious that the sanguineous expansion of the brain at any portion of its surface, must produce a pressure extending in every direction, which, if the entire brain were a fluid mass, capable of transmitting pressure instantaneously and equably, would produce an equal pressure upon all the organs, diminishing their activity and thus tending to an immense and indefinite increase of the local function of the hyperemic organ, at the expense of the entire brain.

The more soft or fluid the constitution of the brain, the greater the facility with which local excitement may concentrate an enormous and preponderating power in a particular organ, at the expense of the entire mass, thus producing a disorderly action, similar to monomania. But when the supply of blood to the brain is not excessive, and the texture of its nervous substance has a sufficient degree of firmness, no such excessive local hyperemia will occur, and the balance of organic power will be more uniformly sustained. Thus a brain of fine constitution will be liable to few excesses and irregularities of action.

As the brain is never in a condition which would yield to the laws of fluid equilibrium, but has always a moderate degree of

solidity, it follows that the internal mutual pressure of its various organs, will obey the law intermediate between that of solids and that of fluids. If the entire brain were strictly a solid mass, pressure upon one portion of its surface, would impel it in the opposite direction, and produce a corresponding pressure on the opposite portion of the cranium. The expansion of cerebral organs, although it occurs chiefly at the surface, undoubtedly extends considerably inwards, especially along the surfaces of the membranes lining the sulci; this expansion must therefore extend laterally as well as internally—compressing the neighboring organs, as well as transmitting a pressure to the opposite region of the brain. When the organic expansion is considerable, and occupies an extensive surface of the brain, it will be transmitted with considerable compressive force to the opposite surface. But the expansion of a small organ could not be transmitted in so definite a manner to the opposite locality. On the contrary, the pressure would be somewhat diffused and lost, producing a more indefinite result, unless its excitement should be diffused among its immediate neighbors, to such an extent as to cause a general expansion. But a sudden and extreme excitement located in any convolution, will not produce any corresponding expansion or excitement around it. On the contrary, the expansion of a convolution will be so much more rapid than the sympathetic expansion of its neighbors as to encroach upon them by lateral pressure, thus producing a circle of arrested functions, around every strikingly excited organ.

We may therefore lay it down as a general law arising from physical causes, that every cerebral organ, under sudden and powerful excitement, compresses and partially paralyzes its neighbor, although under a slower and gentler form of excitement, it gradually increases the cerebral determination to its own neighborhood, and tends to develope its own group by increasing their supply through the more active current in the principal blood-vessels.

To illustrate these principles, let us look over the brain and observe whether neighboring organs are capable of exerting this mutually controlling power—whether antagonism may be a function of neighboring as well as opposite organs. That neighboring organs in general possess congenial functions, and co-operate in most of their acts, is so obviously true as to need no illustration. A single glance at the cerebral map, will show a blending congeniality of the entire system of organs. Our illustrations may be taken from any portion of the map, as the law in question is the universal law of the brain. Let us take for example, the organ of Fear. Fear is connected with an anxious, indecisive, and cautious condition of mind, which belongs to its neighboring region of Cautiousness, with which it generally co-operates; but when Fear is powerfully excited, we are no longer anxious, indecisive, or cau-

tious. On the contrary, in the extremity of fright, we act with the greatest promptness and rashness, often running directly into danger. Fear is intimately connected with Irritability, and we know that unreasonable apprehensions and petulance usually go together,—but bodily fear is a remarkably prompt corrective of ill-temper. A threatened flagellation immediately suspends quarrelsome and ill-tempered manifestations. The timid usually feel the necessity for food and stimulus, and enjoy active appetites; but fright entirely arrests the action of Alimentiveness. The steady operation of fear, greatly increases our sensitiveness to pain; the dread of a surgical operation often overcomes the fortitude of the patient; but sudden and severe fright renders us almost unconscious of physical injuries, occuring during the paroxysm.

Fear co-operates with the neighboring organ of Servility, producing a servile and submissive disposition; but sudden terror overcomes all ideas of respect to persons, and breaks up the disciplined armies into a mob. The auditors of public assemblies, frightened by the cry of fire, rush out like wild animals, trampling each other to death. Thus Fear in strong excitement paralyzes all its neighbors.

The organ of Love, in its steady and healthful excitement, co-operates with the social and friendly feelings,—with hope, modesty, and reverence—producing a happy, delightful, and refined character,—and, with the organ of Integrity, producing an exalted fidelity to the responsibilities and duties of affection; but in the intense and passionate excitement of Love, it paralyzes all its usual associates;—instead of being social, confiding, and affable, the lover becomes jealous, stern, and solitary,—wishing to monopolize his love, and remove away from human observation. Instead of serene and contented hope, he enjoys his passion with a gloomy and desperate energy. Instead of a modest and deferential spirit, he becomes scornful to society, imperious and exacting in his requisitions upon the object of his love, and destitute of diffident modesty. Carried away by his passions, he disregards the rules of integrity, violates the rights of his rivals, and the just claims of authority of the family of his beloved. Thus may we explain the idea that the course of true love never runs smoothly:—the elopements and seductions, the jealousies and quarrels, the over-bearing and indelicate deportment, the moroseness and gloom, the desperation and violence, connected with passionate love, are all clearly explained by reference to the position and association of neighboring organs.

Without adducing any farther illustration let us now trace the consequences of the hydraulic law, which renders each organ in high excitement, incompatible with its immediate neighbors:—a law of the highest importance in explaining the associated action of the organs, and the ordinary workings of human nature.

As every organ is incompatible with its antagonist, its intense

excitement is necessarily a manifestation of its own increasing power and predominance, resulting in the absolute suppression of its antagonist. But as this increasing power is accompanied by a corresponding suppression of its immediate neighbors, and as the suppression of its immediate neighbors leaves their antagonists in predominance, it follows that every excited organ, being at war with its own immediate neighbors, becomes connected in action with their antagonists. In other words, every excited organ, naturally associates in its excitement with the neighboring organs or rivals of its antagonist. For instance, Fear, while it destroys Firmness by direct antagonism, and destroys Cautiousness by the rivalry of proximity, co-operates with Rashness. In like manner, as it destroys Irritability by rivalry, it co-operates with Patience,—fear rendering the most turbulent individual decidedly meek. Thus, excited Fear co-operates with Patience, Temperance, Hardihood, Self-Confidence, and Rashness,—as impassioned Love co-operates with Combativeness, Secretiveness, Ambition, Arrogance, Baseness, Turbulence, and Desperation.

Let us now review the virtuous region, and observe the interesting manner in which the highest and lowest faculties of humanity become associated in passional excitement. Let us take the region of Truthfulness and Secretiveness. According to the principle just illustrated, the organ of Truthfulness would frequently co-operate with the neighboring organs of Secretiveness, while the organ of Secretiveness would frequently be found in alliance with the neighbors of Truthfulness. The central portion of Truthfulness, the region of Frankness or Sincerity, antagonising the central portion of Secretiveness or Deceit, will exhibit this diagonal association. The truly deceitful and insincere, are usually polite and amiable in their manners, with a frank and easy address, and a great power of imitating whatever manners are necessary to accomplish their purposes. Indeed, a certain amount of frankness, is necessary to deceit.

In this, we perceive that the organ of Deceit, while suppressing Sincerity, co-operates with its neighbors,—Benevolence, Imitation, Sympathy, Expression, Faith, and Politeness,—which give to deceit its remarkable power of imposing upon all who are not protected against it by a sufficient endowment of Sincerity in themselves, to detect its absence in others, or by a sufficient endowment of Deceit, to appreciate its workings.

While the deceitful man thus wears the unvarying good natured smile of politeness and kind sympathy, the man of uncompromizing frankness, necessarily often sacrifices the polite, frank, good humored, and imitative qualities. He scorns to deceive by imitation, he violates politeness by uttering unpalatable truths, or he holds himself in entire reserve, because he cannot honestly sympathize with those about him. He must often appear reserved and stern, or gruff and harsh, where one of more Secretiveness, would appear perfectly amiable and polite.

Thus we perceive, as Deceit is naturally associated with Politeness, Benevolence, Imitation, Sympathy, and Expression—Sincerity or Frankness, forms a similar association, with the combative, reserved, selfish, and harsh organs around Deceit. Moral, intellectual, and social reformers, in warring against the falsehoods of society, commonly acquire this stern harshness of manner, which forms so great a contrast, to the perfectly deceitful smoothness of fashionable society.

The organ of Imitation, the next neighbor of Sincerity, frequently displays the antagonism of the rivalry of function. In the acting of the stage, it is essential to suppress effectually, the natural influence of Sincerity, and conceal the real thoughts or emotions of the actor, while he plays his part. Thus, in all our social intercourse, our imitations are highly successful only when frankness is suppressed, and Imitation co-operates with Secretiveness.

Anteriorly, Imitation connects with Mirthfulness. The comedian, who allows his Mirthfulness to act in his displays of imitation, spoils his performance. Hence, Imitation suppresses Mirthfulness as well as Frankness, and produces a certain soberness and moroseness of countenance, in its highest humorous manifestations. Those who are the most successful in setting the table in a roar, by their wit and imitation, or manner, preserve the most sober and immovable countenances.

The polite and friendly social emotions, which lie at the posterior and exterior borders of Imitation, are also suppressed by its activity. The hollow mannerisms of imitation, are incompatible with true politeness, and the expression of cordial friendly sentiments. Imitation is the organ of Mannerism,—and, although a certain amount of it is desirable for the most expressive display of our sentiments, any great amount, is highly offensive in friendly intercourse. In fact, a highly cultivated mannerism, entirely forbids the delicate relations of friendship and sincerity, and serves to repel any undesirable intimacy.

The antagonist of Imitation, the stubborn and contentious element of character, is perfectly compatible with frankness and expression. Contention, or argument, leads to a very free expression of our thoughts.

The organ of Religion affords one of the most striking exemplifications of the hydraulic laws. Surrounded by Patience, Philanthropy, Faith and Benevolence, one would suppose that Religion would always render men as it should, more meek, loving, confiding and kind—full of universal love, toleration and philanthropy. Yet, the entire history of the world demonstates that in religious excitements, the organ of Religion suppresses its neighboring organs,—Patience, Philanthropy, Faith, and Benevolence, —and, thus, co-operating with Irritability, Felony or Destructiveness, Jealousy and Selfishness, becomes in its practical manifesta-

tion, one of the most quarrelsome, jealous, tyrannical, and murderous, of all our faculties. There is no subject upon which men and nations quarrel more readily, none upon which they are more intolerant or unkind, or which leads more rapidly to violence and blood-shed. The religious wars, despotisms, and assassinations, which belong to the history of religion down to the present time, form a terrible illustration of these physiological principles, which show why a frenzy of religious excitement becomes so terrible a curse to a nation.

These terrific results are most apt to occur, when the moral organs are small in proportion to the animal, and easily become deranged by any inordinate excitement.

While Religion thus associates with moral corruption, war, and murder, its antagonist, Profligacy, forms corresponding moral associations, and, by suppressing Irritability, Selfishness, Acquisitiveness, Felony, Secretiveness, &c., gives to the profligate a character of patient good-nature, general kindness, liberality and frankness, which are remarkably pleasing.

Hence, we often find among gamblers, and other profligate characters, an open, friendly, benevolent, and confiding manner,—a liberality in the use of their means, a general kindness and generosity, and even good temper, which render their society highly attractive.

Thus, in the usual course of nature, a prominent vice in the character, becomes compensated by a group of virtues,—while a virtue, running to a passionate excess, becomes linked with a group of vices. The organ of Philanthropy, for example, when cultivated to excess, interferes with its neighboring virtues; and by suppressing the organs of Religion, Hope, Faith, Politeness, Patience, and perhaps Integrity, produces an irreligious and profligate character, ready to sacrifice moral rules, to attain the end of promoting human welfare; irritable and impatient in the attainment of its objects, desperate in overcoming difficulties, dissatisfied with the condition of society, suspicious and harsh in its criticisms. Such are the vices linked to great virtues, especially in brains too imperfectly developed to give a harmonious fullness to the entire moral nature. The pious become quarrelsome and cruel persecutors, the philanthropic become censorious, dissatisfied critics, and reckless destructive reformers. The former massacre mankind to the glory of God,—the latter, disturb social harmony, and produce bold or sanguinary revolutions, to accomplish their ends.

While the pietist and philanthropist, thus exemplify the law of diagonal associations among cerebral organs, the profligate and felon, exhibit the same law in another sphere. Profligacy associates with the generous and kindly qualities, as already stated, while Felony, or Destructiveness, associates with the neighbors and rivals of Philanthropy—with Hope and Love—Integrity, and a portion of Sociability. Thus, the duelist, soldier, or pirate, is sus-

tained in his fierce career, by the activity of Hope, and manifests a degree of firmness, and sense of honor, which are often lacking in the more peaceable members of society. Nothing is more common than for the warrior, to appeal to the protection of Providence—to advance with the most sanguine confidence—to believe himself in communication with the Deity, or under the especial care of Divine Providence—to manifest zeal in behalf of religious services—and, although nearly destitute of true benevolence, to exhibit in his intercourse with men, a polite and honorable bearing, which are highly attractive. Hence the caste of felons, or warriors, has ever been greatly admired by the mass of mankind, and has always associated in mutual sympathy and respect with the priesthood. Even the miserable felons who die on the scaffold, generally close their career in the midst of religious fervor.

These horrible associations of religion with felony, war, and massacre,—of philanthropy, with profligacy, violence, and scepticism, have been the order of nature up to the present time, but they do not constitute the eternal plan of humanity. They arise, simply, from that feeble and immature development, which permits excited organs to encroach upon and suppress their natural associates, and thus destroy the symmetry of the character. In the fuller, firmer, and ampler developement of man, which belongs to his future growth, this rivalry and confusion of organs, will cease to exist. The ample exercise of any moral organ, will not involve the paralysis of its neighbors; the firmer structure of the brain will resist such changes, and the passional excitement will not be sufficiently violent to produce hyperemic excesses, and the consequent disorders.

LECT. LXXXV.—CEREBRAL HYDRAULICS OF THE OCCIPITO-LATERAL REGION.

One of the most interesting and instructive applications of the hydraulic laws of the brain is found in the region of the unintellectual organs of the occiput. When these organs are in full play, antagonizing the entire group of purely intellectual organs, they necessarily become associated with the next neighbors of the intellectual, the organs of Sociability, Benevolence, and Truthfulness, above; the Conductor organs of Intellect and Sociability, below; Intuition, internally; the region of Ideality in the temples, and, if Ideality be included in the intellect, the region of Modesty. Hence, we see that the unintellectual region must be connected with social manifestation; in its highest and most vigorous displays, it becomes associated with kindness, social and playful humor, intellectual

sprightliness, modesty, refinement, grace, and freedom of manifestation. This justifies the character which has been attributed to the adhesive region, and shows why it may be regarded as a region of Friendship and Sociability.

A farther examination of its special antagonism to the various intellectual regions, may give us a more satisfactory and philosophic view of its function, than can be derived from experiment, since experiments upon this region are peculiarly difficult of comprehension, and difficult to harmonize with any philosophical system. The intellectual region being divided into three strata of perceptive, recollective, and reflective organs, its antagonists present precisely the same arrangement,—the lower region of the unintellectual organs, being antagonistic to the reflective, the middle to the recollective, and the upper to the perceptive.

It is obvious that the lower region is especially the region of Adhesiveness;—antogonizing the reflective group, it necessarily co-operates with the social, friendly, truthful, and benevolent organs, above, and the intuitive, conscious, and recollective organs, below,—thus producing, in addition to kindness, sympathy, frankness, and the most delightful social feelings, a vivid recollection of our past social intercourse, a disposition to dwell upon our past social emotions, as well as upon the recollection of the sentiment and character of others. Adhesiveness also associates with Ideality, Marvelousness, and Spirituality, in the temples, thus giving a ready mental receptivity if not credulity, in everything relating to our friends, or in receiving their assertions.

The range next above Adhesiveness, antagonizing memory, brings into vigorous operation the reflective and perceptive organs, including Consciousness, those producing accurate observation and discriminating judgment,—while, the organ of Time being suspended, the lapse of time is unnoticed. This unconsciousness of the lapse of time is more apt to be produced when the subject of investigation is one of a profound character, requiring intense exercise of the reasoning faculties. But when the subject of scrutiny requires merely the exercise of observation and sagacity, without especially taxing the reasoning powers, the organ of Time, which is situated more exteriorly, is not necessarily paralyzed,—but may be more perceptibly active, giving a more vivid perception of the duration of time, and making delay, therefore, appear greater and more intolerable.

That the antagonist of the memory should produce watchfulness, is the necessary consequence of its function. In the total absence of knowledge, we are compelled to rely upon our perceptions, to scrutinize eagerly, and study carefully, everything around us. From this necessity we are relieved by the accumulation of knowledge in our memory, which renders us familiar with objects around us, and diminishes our watchfulness. In this view I find a satisfactory explanation of the watchfulness which in my experiments I have found manifested by the adhesive region.

In the region antagonistic to the perceptive organs, I was much embarrassed at first, by finding a function of Approbativeness which did not appear to bear any definite relation to the frontal organs; but as the suppression of memory brings us to an ignorant and watchful condition, so does the suppression of the perceptive organs produce a peculiar frame of mind. The antagonist of the perceptives necessarily co-operates with the upper Conductor organs, and the organ of Memory; hence, it is connected with a consciousness of knowledge, and desire to show off what we know, with a complete unconsciousness of those about us, and of the resources and imposing powers of nature. Form, Size, Weight, Distance, and the psychometric sense being repressed, there is a supercilious unconsciousness of persons and their character, while immense distances, the grandest objects, and most overwhelming displays of power or knowledge, make no impression upon the mind. At the same time that external objects are thus depreciated, there is a vivid consciousness of our own resources of knowledge, derived from the organ of Memory, of our own physical powers, derived from the sense of Force, of our own mental strength, derived from the organ of Consciousness,—and, withal, a constant disposition to display our powers by the active Conductor organs.

In short the antagonism of the perceptive organs, tends to produce a supercilious self-importance—sometimes unconscious of the character of others, and easily imposed upon; but in other cases, in which the psychometric sense is not repressed, peculiarly vigilant in understanding their character.

An organ producing such manifestations would correspond closely with what phrenologists have described as Approbativeness, being self-important and supercilious, yet delighting in a superficial display of the social sentiments, but averse to dry, solid scientific studies. The study of mathematics and the physical sciences generally is quite adverse to Approbativeness, and produces an humble sense of our own insignificance, amid the great objects and powers of nature. A further illustration of the character of this region is derived from the fact that its pathognomic line qualifies one to elicit and receive the admiration and social regards of others, as may be seen by comparing its pathognomic line with that of the social region. Hence, as men of great dignity command our involuntary respect, those of strong Approbativeness have a peculiar capacity for forcing us into social relations and eliciting a sentiment of approbation or admiration.

That the manifestations of the lateral occipital organs should thus be chiefly displayed in connexion with the antagonistic frontal region, arises from the fact that our intellectual organs are necessarily in constant action while we are awake, and the cessation of their action arrests consciousness and all voluntary action. Hence, in studying the manifestations of the anti-intellectual region, we find it necessary to take them in that connexion indicated by the

hydraulic laws, as they cannot be found pure and isolated during our waking moments. No such necessity arises in reference to other organs, since their isolated action does not put a stop to our conscious existence.

With this explanation we perceive clearly why the description of the occipito-lateral organs is so embarrassing, according to the analytic system, which describes organs in absolute preponderance, since such a system reduces these organs to negative manifestations in their psychological character, and leaves them chiefly physiological in their action.

In following out the analytic system, we can but come to the conclusion that their action physiologically is restorative to the exhaustion and debility produced by the uninterrupted action of the intellectual organs—sustaining the function of nutrition and giving us renewed strength for intellectual labor.

With these remarks, I dismiss the subject of cerebral hydraulics, the full exposition of which in reference to all the organs of the brain would require a volume.

LECT. LXXXVI.—CHIROGNOMY.

As it has been already seen that all our muscular movements are governed by certain mathematical laws of the brain; and that each movement indicates the influence of a particular organ,—it follows that the movements of the hand in the act of writing may be as expressive of character as the movements of the face, or the attitudes and gestures.

The movements of the hand in writing are not merely mechanical,—nor limited by the mere purpose of forming letters of a certain shape. In walking, we design merely to effect progression; and in writing, to produce legible characters: but, in either case, the mode of effecting our object will be modified by the motives or forces under which we act. Under the influence of violent passion, for example; our gait will not have the same tranquility and mildness of movement, as under the influence of benevolence, love, or ideality: and in writing, it would require rigid habits indeed, to render our penmanship uniform under the influence of different passions, and different conditions of bodily vigor.

Every change in a man's cerebral developement gives him a new style of being which tends to express itself throughout his whole person, in every fibre, every fluid, and every movement. Consequently we might discover the whole man, if we possessed sufficient sagacity, from the consideration of any part of his person or any class of his actions. The physiognomy will reveal the whole

man to the skilful observer; the gestures will do the same; and the sound of the voice conveys irresistably an impression of the character and condition of the speaker. In the general contour of the body, if we were accustomed to observe it closely, would be found the expression of the man; and I have no doubt that the mere chemical analysis of the solids and fluids of his body, would, if chemical science were sufficiently perfect, illustrate his whole mental and physical constitution. That there are differences in the blood of different temperaments may be demonstrated even in the present state of our chemical knowledge. When the basilar organs are predominant, there is more of fibrin urea and bile in the blood, than when the coronal organs predominate. The more perfect our knowledge, and the finer our powers of observation, the less do we require as an index to the whole being.

It may appear an extravagant assertion,—and will doubtless provoke the incredulity of those who have no experimental knowledge of the subject, but it is nevertheless true,—that the smallest portion of the human body is sufficient to reveal the entire physical and mental conditions,—not, it is true, by any direct science that we possess, but by means of the sympathetic and perceptive powers. These powers at present go far beyond the regions of positive science; but science, slow-paced as it is, must in time overtake their lightning speed. It must in time discover the nature of those emanations by which the dog detects the footsteps of his prey or his master, and by means of which the Intuitive perception recognizes the character of beings long since departed, who have left the impress of their minds upon letters or other objects by personal contact.

The science of Chirognomy is one of the methods by which we may guide our perceptive powers with mathematical accuracy, in determining the expression of penmanship; but these mathematical deductions are far short of the brilliant perceptions of the Intuitive Intellect. Chirognomy simply professes to analyze the movements of the hand in writing,—to refer each movement to its cerebral source, and to infer from the predominant characteristics of the penmanship the predominant organs of the brain.

The term Chirognomy is derived from *cheir*, "hand," and and *ginosco*, or *gignomai*, "I know." It signifies therefore, the art of knowing or understanding that which relates to the hand, being analogous in its etymology and application to the word Physiognomy, which is popularly used to signify the art of knowing or understanding the expression of the countenance.

As we are natural Physiognomists, so we are natural Chirognomists. Every one supposes himself to be capable of distinguishing between the male and the female handwriting, and of inferring from the writing the age of the writer,—at least of determining whether he was old or young, a school-boy or an octogenarian. Those who possess habits of shrewd observation will even venture

to judge of the refinement or coarseness, the neatness or carelessness, the force of character, talent, &c., indicated in the penmanship of a letter. This judgment may be pronounced merely from empirical observation, unsustained by science. Any one of ordinary perceptive power, who would apply himself to the study of handwriting, would soon be enabled to perceive the leading traits of character indicated by a letter; but if instructed in the scientific principles of Chirognomy, he might in much less time acquire a much more accurate knowledge,—attaining the same superiority over the unscientific observer that the scientific physician has in comparison with the uneducated practioner.

It will be objected to Chirognomy that the handwriting cannot be very expressive, since it is often of an artificial character, and produced in a merely mechanical manner. It is true that the handwriting may be trained into an artificial stiffness and uniformity, by the efforts of the teacher; but whenever this constraint is removed, the writing will again become expressive. However stiffly the individual may have been trained, whenever he sits down under the influence of haste and passion to write a letter, it will exhibit but little of the primitive regularity of the teacher. In proportion as he is agitated by any strong excitement, his handwriting will assume a peculiar character, and will express more forcibly his mental condition: in this respect it is subject to the same laws as all other forms of expression. Children may be taught at school to wear a very demure countenance; but when any of their passions are excited, or any of their faculties called forth, the monotony of the countenance ceases, and the physiognomy becomes an interesting study. Men may be trained to a fixed and uniform style of marching, which restrains the natural peculiarities of their gait; but in the diversified movements of society, their natural style of motion will still be apparent, at least when under excitement.

We do not cease to study the countenance because it may be subject to some artificial restraint; nor the gait, because it may have been drilled into military uniformity; nor should we neglect handwriting because it may sometimes be schooled into a monotonous stiffness. Human nature continually tends to break through this artificial restraint, and to express itself in that universal language, which "he that runs may read."

It is sometimes objected that penmanship may be artificially disguised or counterfeited. But this is equally true of the traits of the countenance. People may counterfeit a character that does not belong to them in their face as well in their handwriting; and the counterfeit arises from the fact that there is an expressive original which they imitate, which it would not be worth their while to do if it had not a decided character.

The handwriting corresponds to the countenance in other respects. Its expression is highly variable, and, it may be said that

it does not, at any one movement, express the entire character Before we understand a man thoroughly, it is necessary that we see his countenance, not only in repose, but under the various feelings of which he is susceptible. In like manner in Chirognomy, it is necessary that we see the handwriting not only in the ordinary tranquil state, but in all the stages of excitement to which the individual is prone. Thus in seeing a variety of writings of the same individual, we see his entire character, when from a single specimen we might obtain only general outlines, or particular aspects of his character. Men of a stern, unpliable nature, generally have a countenance of fixed character, with but little play of expression; and for the same reason, they generally have a handwriting of a strong uniform character. But persons of a sensitive and variable disposition, change the expression of their features with every scene into which they are thrown. Such persons generally have a handwriting of a very variable character. Frequently in the different portions of a letter, we will observe a striking contrast—the expression of the handwriting varying as much as the sentiment expressed. We may in such letters trace the different emotions of the mind, under which the different passages were written, with as much ease as if we had been gazing upon the countenance of the writer.

The countenance changes from youth to age, and under the influence of different habits and associations: so does the handwriting. The graceful penmanship of the young man, engaged in literary and philosophical studies, full of romance and unused to the heavy responsibilities of life, is often a strong contrast to his autograph after ten years of labor and stern responsibility have hardened his character and frozen up the springs of romance and imagination. Contrast the handwriting of the inexperienced girl, and of the laborious matron,—or a letter from the manly, temperate and virtuous citizen, with one from the same individual when years of profligacy and drunkenness have prostrated his moral nature,—and the practised eye will see as great a contrast in the penmanship as in the countenance.

In fact the expressive power of penmanship is irresistible, and he is dull indeed who does not draw some conclusion from the first glance. For my own part, I consider penmanship one of the most striking means by which man manifests his nature. The cultivated and the uncultivated man, the philanthropist and the profligate, the gentleman and the rowdy, the genius and the dullard, are not more strongly characterized in their general personal appearance, than in their appearance upon paper.

A certain style of penmanship fills me at once with respect for the writer, and gives me a certainty of his intellectual power; other styles are merely pleasing; and others again indicate a coarse, vicious and repulsive nature. It is not the style that would please a mere writing-master, that indicates talent, or anything of an at-

tractive character. Nor is a careless, illegible style of writing, void of mechanical beauty, any evidence of inferiority of character. On the contrary, there are many specimens of writing which would excite the ridicule of the mere mechanical penman, which would excite the admiration and reverence of the chirognomist. As the great men may be recognized when trembling with infirmities or clothed in rags, so does a great mind make itself visible even through the imperfections of a slovenly penmanship. A defective penmanship is, however, no more an evidence of greatness, than a slovenly dress—neither is it of any greater importance as an indication of intellectual infirmity.

The principles of Chirognomy are strictly mathematical, and although in their application there is great room for the exercise of tact, and for those bold efforts of genius which reach at one leap the conclusion of innumerable mathematical processes—still the rules are but few and simple. It is but a special application of the general principles of Pathognomic science which have been stated. Every cerebral organ acts in the line in which its fibres point: every muscular action, in obedience to a cerebral organ, is in that line. The problem which Chirognomy presents to us is this,—How are the pathognomic lines manifested in the movements of the pen?

To solve this problem we must fancy the individual engaged in the act of writing, and sitting in a certain position, in reference to the paper. Let him occupy the ordinary position of a writer,—his paper before him, his head slightly drooping, his hand moving in accordance with the lines then operating. In this position, the lines of intellectual action will give upon the paper a progressive movement. More especially is this true of the intuitive, perceptive and prescient intellect. It follows then that clear, strong and vivid mental action will be indicated by an open progressive style,—the letters advancing across the paper, and the spontaneous or incidental movements of the pen tending forwards. The termination of each letter has a progressive appearance, and does not turn back or descend. Hence, under the most vivid intellectual excitement, when the ideas anticipate the rapidity of the pen, a few words stretch across the page, and the termination of each word frequently runs on into the beginning of the next, thus making a continuous connection. But when we write more deliberately, with a paucity of ideas, our letters are more fully formed and less expansive. In unintellectual persons, and those who are governed by the occipital organs, the writing instead of spreading across the page, becomes cramped and crowded together, devoid of the open advancing style which is characteristic of intellect.

Moreover, in the chirography of the intellectual man, there are generally a clearness, grace and facility, which strike us at the first glance. These qualities, however, are entirely distinct from the mechanical beauty of the well-trained penman,—as distinct as the

bearing of the refined lady from that of the drilled soldier. This intellectual elegance it is impossible to describe by words: it must be learned from observation.

When the intellect is the predominant element of character, the predominance of the intellectual movement producing an openness of style, will be very conspicuous. But when the other elements of style are more conspicuous than the intellectual power, the writing will not be remarkably open, but will manifest a proportionate tendency to openness, together with the clearness, ease and striking effect which the intellect produces.

The general pathognomic tendency of the intellectual organs upon paper, may be represented by a horizontally advancing line, that of the reasoning intellect slightly elevated above the horizontal, and that of the perceptive organs slightly depressed,—the tendency of these organs being to adhere closely to the lines upon which we write, neither descending much below, nor rising much above. The moral organs tend entirely above this line, and generally manifest their influence by giving elevation to the writing. They produce no long and heavy strokes below the line, but give altogether a light impression. Their antagonists, the animal organs, manifest themselves below the line, and by a heavy impression. The lines of the two classes are exactly opposite,—the moral line being upward, light and vanishing: the animal line, downward, heavy, and emphatic. It is therefore a prepossessing circumstance to observe the pen moving freely above the line; and an objectionable feature when the tails of letters below the line are elongated and heavy.

Not only do the tops and tails of the letters indicate the moral or animal forces; but in the spontaneous movement of the pen in the termination of each letter, and in the gratuitous flourishes or dashes we observe the predominant tendency. The animal organs give a tendency to finish each word by a downward or backward movement, the moral to finish it by a light ascending stroke. When the animal organs are inactive or overruled for the time by the moral, the upward movements preponderate so greatly over the downward, that the writing ascends above the line, or manifests a continual disposition to climb towards the top of the paper. In the opposite case there is a downward tendency, and the words frequently fall below the line, or the line of writing descends from its origin.

The pathognomic line of Benevolence, Religion, and Firmness, is upward and advancing,—Benevolence being the most progressive, which is nearly allied to the Intellectual Organs. The line of Love, Hope, and Integrity, is more nearly vertical. The lines of Cautiousness, Sublimity, and Reverence, point upward and backward, and thus tend to give a round, erect, open character to the writing. Ideality has a similar tendency, but is not marked by bold or elongated lines: its movements are light, small, and

delicate. The lines of Fear and Secretiveness tend directly backward, the former being heavier than the latter. The effect of organs which point backward, when their own movements are not conspicuously displayed, is frequently shown in preventing forward movements, and giving the writing a more compact character. Profligacy, Destructiveness, and Combativeness, tend backward and below the line. The region of Hatred and Violence tends generally downward, and bears upon the pen more heavily than the Selfish or Combative Region. The movements downward and forward indicate Restlessness, Arrogance, Disgust, and Impulsiveness.

The predominant organs are to be ascertained not merely by the movements which are positively executed, but also by those which are omitted; the predominant organs having a tendency to suppress those which are smaller or more inactive. There are many movements in which the different organs seem contending for the mastery, and in which we observe that the predominant organs take the lead and impart their own character. The finest powers of observation are required to ascertain in the combined movements of penmanship, which directions take the lead,—to discover in what proportion the elementary forces are mingled,—and to infer from these indications the prominent organs,—and from them again the character of the individual. Yet I know that it is practicable in this manner to ascertain the predominant traits of character,—the capacities, habits, craniological developements, and even physiological peculiarities. Not that all of these things will be determined in all cases, but the more imporant will seldom fail to be obvious.

We may often find a handwriting which is comparatively barren of expression, and which, like an unmeaning countenance, will be scarcely worthy of our examination; yet, even in this case, the common-place character of the individual will be distinctly indicated. We will also find many specimens barren of interest, because they have been written mechanically, as when we are making a copy of an important document. In this case the mind or character of the writer being inactive, but little expression or character is imparted to his writing.

To judge of this matter with facility we should place ourselves in the position of the writer—we should learn to associate the different movements of the pen with the feelings they express—then, as in imagination, we follow the course of his pen in writing, we will find that its movements spontaneously suggest to the mind the play of his thoughts, and the state of mind in which he wrote. As, if we imitate the walk or conversation of the man, we sympathize with his character, so by mentally following the writing we sympathize with the spirit, which dictated his peculiar penmanship. When this sympathetic tact has been highly cultivated in connection with clear mathematical perceptions, the re-

sults which we may attain are truly wonderful. I have been frequently astonished at my own success,—having detected in the writing the mental and physical constitution of the writer with an accuracy which would not in advance have been deemed probable, and which when accomplished seems impossible to repeat in a second instance: but this success was attained by a greater intensity of mental effort than I have known in any other investigation.

The data for our conclusions in Chirognomy are so delicate and complex, that a high degree of success and certainty in the practice of the art, is attainable only by assiduous cultivation and vigorous application of the mind. Still with a little practice any one may learn to understand at a glance those specimens of Chirognomy in which the character is distinctly marked.

Chirognomy will sometimes blend with sympathetic Psychometry, as the chirognomist if of an impressible temperament will gradually find himself speaking from impressions not derived from mathematical perception. The discovery of autographic psychometry has materially diminished the practical value of Chirognomy, but it still deserves to be studied as a valuable addition to our means of determining character.

The principles of Chirognomy were first discovered and systematized by myself in 1836 and '37, and during the first five years I made many applications of the principles with a success beyond my own anticipations; others to whom I have communicated the art or science, have informed me that their success in its practice was highly satisfactory; but since the discovery of Psychometry, I have given but little attention to the more laborious and intrir cate practice of Chirognomy.

LECT. LXXXVII.—PHYSIOGNOMY.

There are two sources of the physiognomical character of the face.

1. The *organic developements* indicated upon the face, as upon the cranium, by prominence.

2. The *muscular action*, controlled by the pathognomic laws.

Let us first apply the mathematical principles of pathognomy.

The tendency of the superior organs being good and that of the inferior evil, we may expect that the action of the muscles undecontrol of the former would give a noble or pleasing expression, while the appearance of the latter would be everything that is repulsive and undesirable.

Let us then construct a countenance in accordance with the pathognomic line of the superior organs, and observe its expres-

sion, in contrast with one constructed to embody the lines of the basilar organs.

The moral coronal act upward—hence they elevate the brow, the upper and lower eyelids, the alæ of the nose, the lips, the corners of the mouth and the moveable parts of the face. The same parts are depressed by the basilar organs—hence the coronal and basilar physiognomies make an extreme contrast. If, in drawing two profiles, we elevate all the moveable portions of one face and depress all the corresponding portions of the other, we immediately perceive that one is altogether noble and the other altogether brutal. Heads thus drawn serve to illustrate large coronal and basilar organs in contrast, and the forms of countenance which they necessarily produce. In the coronal head, the forehead is large in proportion to the face—in the basilar small and low. The brow in the latter is depressed, and also somewhat lower internally, near the nose, than at the external end. This gives an animal character to the countenance, as the human brow is distinguished from the animal by its horizontal position. The depression of the brow produces a frown which is universally regarded as the indication of angry, gloomy, stern, morose and unhappy feelings.

The upper eyelid drooping upon the pupil of the eye and the lower lid drooping below it, produce a remarkably repulsive expression, such as is seen in brutal characters, or under the beastly stupefaction from ardent spirits.

The eye, which is literally as well as pathognomically, the highest portion of the countenance, is larger in the coronal than in the basilar head, and the iris is more equally and fully displayed between the lids; it is also more moist, which contributes to its soft and pleasant expression. The lachrymal gland and eye are dependent upon the anterior organs, hence the occipital do not produce the large soft eye which is developed by the intellectual and amiable organs. The elevation of the lower lid, which is accomplished in the line of the anterior, superior organs, produces a very pleasant expression, and is often seen in social enjoyment of an animated kind, when mirth, friendship and joy are bursting forth.

The downward length of the nose is necessarily greater in the basilar than in the coronal head, while the predominance of the face over the forehead, and of the lower over the upper part of the face, renders it more projecting below than above, as well as longer downward, thus altogether approximating greatly to the style of the *snout* or true animal nose. The resemblance is rather increased by the depression of the alœ which comes from basilar influence. A slight elevation of the alæ always takes place in smiling and in pleasing expressions of the countenance—they sink under the influence of the bad passions. The inferior organs also compress the nose by muscular action, thus not only dimishing its prominence,

but rendering the dorsum narrow, producing a pinched expression not very prepossessing. The coronal organs sustain and shorten the upper lip, giving it a tendency to project slightly with a beautiful curve at the edge—a form seen in perfection among young and beautiful females. The basilar organs lengthen, depress and compress the lip, producing the long hard, thin upper lip, which is disliked by good physiognomists, and which is commonly thought to indicate a sour temper. The lower lip is elevated and lengthened by the coronal or upward tendency. It is firmly sustained and not allowed to droop. The basilar organs produce a drooping lower lip, short and tending to curve downward—its expression is extremely repulsive and depraved.

The proper elevation of the lips and angles of the mouth, produces that form which is recognized as the standard of the beautiful. The outlines of Apollo's bow, as it is called, are due almost entirely to the predominance of the elevator over the depressor muscles. The same elevator and depressor influences which act upon the muscles act also upon the growth or formation of the part producing a similar effect. The character of the mouth is so easily changed by muscular action as to render it a very correct index to the feelings, and to the changes of character through life. The striking difference of expression produced by elevating and depressing the angles of the mouth, is familiar to all painters and physiognomists;—the depression may be gloomy, sad, fierce, hypocritical or mean according to the details of its execution.

The ear being moveable by certain small muscles, and being modified in form by the pathognomic laws of growth is an element of physiognomical expression. The basilar influence tends to develope the lower lobe of the external ear—the coronal to develope its superior portion—the occipital to develope it backwards. The influence of growth in these directions is heightened by the pathognomic motion of the ear.

The contrast of expression in the coronal and basilar heads, is produced, not only by different muscular action, under coronal and basilar influence, but by the difference of craniological developement and facial growth. These principles may be illustrated with great force by taking a single head and altering the position of the features in accordance with the pathognomic lines.

LECT. LXXXVIII.—PHYSIOGNOMY—ORGANIC.

However valuable the biagnomic physiognomy (or physiognomy based on muscular action) may be, as a guide to expression in the general style, position and movements of the features, it is not capable of leading to the exact analysis of character or to any very accurate results. These must depend upon *organic developement.*

The most important method of physiognomical examination which we have is similar in principle to cranioscopy.

The conductor organs, or organs of manifestation, indicate by their developement the manifestation or activity of the organs which they represent—consequently the developement of the conductor organs is a valuable criterion of character. If, for example, the moral organs are large and yet their conductors very feebly developed, we may infer an inactive or restrained condition of the moral organs which should place them in the background in a portrait of the character. It may not be an indication of vice or crime, but it certainly indicates that these organs have not been nourished and stimulated into a condition of activity and copious manifestation, the finer emotions in such individuals are not so warm, active, vivid and outpouring. They may be sufficiently active to check any decided violation of the dictates of virtue, but they are not sufficiently glowing to impart much moral or pleasant excitement habitually to those around them.

The situation of the Conductor Organs being such that we mark them in the face, every portion of the face becomes expressive of some particular mental trait. This doctrine proceeds upon the opinion that the developement of the face corresponds to the developement of the organs behind it, which we should not be able to affirm if we were limited to mechanical views, for the convolutions behind the face are manifestly incapable of changing its form mechanically to any extent commensurate with the influence of other causes. The correspondence between the developement of the face and of the inferior anterior convolutions of the middle lobe behind it, is the result of the unity and harmony of the human constitution. The exterior developement of the cranium corresponds to the interior developement (of the brain,) not because this soft viscus can mechanically protrude the hard unyielding skull, but because the laws of physiology connect the growth of the soft parts with the absorption, removal and change of form in the hard parts adjacent. Through a similar but more circuitous functional connection, the facial developement and the subjacent cerebral action are associated. This, I assert, not *a priori*, but as a matter of general observation upon the human countenance. It is simply a question of fact, and each one has ample opportunities to ascertain its truth or falsehood in every face he meets by the application of the physiognomical principles of Neurology.

(This connexion is probably pathognomic and nervauric. The influence of the nervaura of each organ radiating through the face may possibly be the means of stimulating or controlling the growth of the part. The direct influence of the pathognomic laws must also modify the growth of the different parts of the face and the muscular movements which are governed by pathognomic principles also modify its form.)

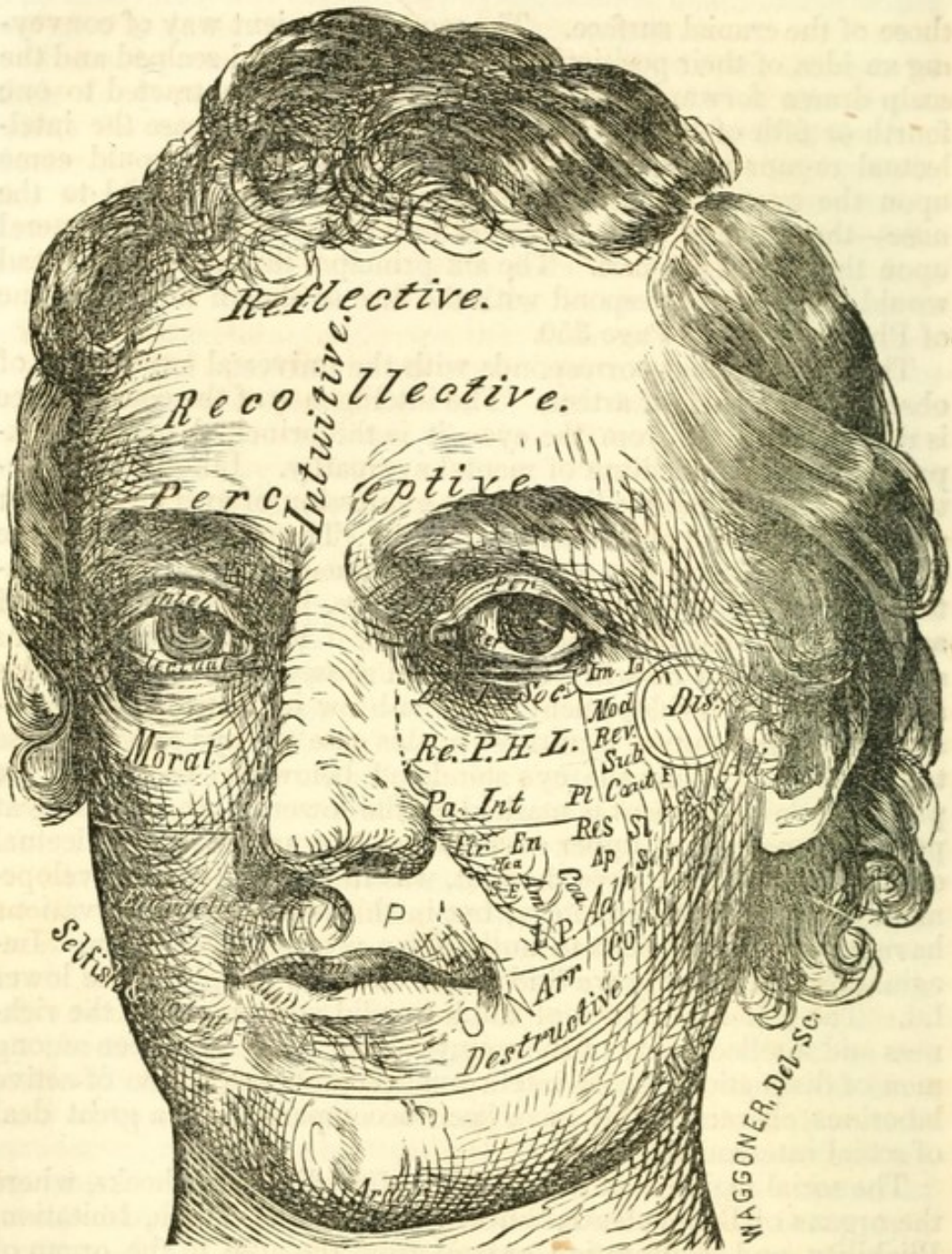
The Conductor Organs correspond in an inverted manner to

those of the cranial surface. The most convenient way of conveying an idea of their position is to suppose the head scalped and the scalp drawn forward down upon the face, and contracted to one fourth or fifth of its previous dimensions. In this case the intellectual organs marked upon the forehead and scalp would come upon the eyes—the moral organs upon the face, parallel to the nose—the occipital upon the lower part of the face, and the lateral upon the side of the face. The six principal divisions of the head would therefore correspond with the face as shown in the outline of Physiognomy. Page 350.

This arrangement corresponds with the universal experience of observers and rules of artists. The intelligence of the countenance is derived entirely from the eye—it is the principal organ of expression and the medium of mental sympathy. Like the intellectual organs it is the medium of the expression of every passion or emotion, but chiefly of thought and will. The general prominence of the eye indicates the activity and frequent manifestation of intellect. A full, prominent eye, therefore, indicates a person of active mind. He may not be profound, if his intellectual organs are moderate, but he will be ready and showy in proportion to his abilities. The developement near the brow indicates a predominance of the perceptive faculties—in this case the eye appears close to the brow. When the eye stands off below the brow, and the principal developement is marked on the lower lid, there is a great predominance of the upper over the lower range of the intellectual organs. Memory, I have thought, was indicated by the developement of the middle of the eye, but in this matter my observations have not been sufficient to authorize a positive conclusion. Imagination and Ideality we find at the external margin of the lower lid. The general fullness of the lower lid adds much to the richness and intellectuality of the countenance. It is often seen among men of distinction, whose intellectual pursuits have been of active laborious character, and have been accompanied by a great deal of social intercourse.

The social region is at the junction of the lids, and cheeks, where the organs of Benevolence, Sincerity, Sympathy, Mirth, Imitation, Pliability, and Admiration extend from the nose to the organ of Imagination near the outer angle of the eye.

Benevolence, Religion and Firmness extend along the nose from the eye to its wings, (*alæ*) and the organs which lie by their side upon the cranium have a corresponding arrangement here in their conductors. Philanthropy, Hope, and Love extend across the upper frontal portion of the face on the level of the middle of the nose, and Reverence, Humility, and Fear extend on the side of the face near Disease. Firmness, Hardihood, Energy, Conscientiousness, Sanity, Cautiousness, Acquisitiveness, extend across the face on the level of the alæ of the nose. Self-Esteem and the occipital organs extend from Firmness down the face. The criminal region



SYSTEM OF PHYSIOGNOMY.

CORONAL FACE.

BASILAR FACE.

will be found below a line drawn from the angles of the mouth backward and upward. On the side of the face from the level of the alæ of the nose downward, we find Cautiousness, Coldness, Sleep and Stupidity—the region of negative characteristics—and from the same level upwards we find the indications of moral and physical weakness and disease.

The most superficial observer cannot fail to recognize the truthfulness of these arrangements. Every artist or caricaturist knows that the beauty and nobleness of the face are derived from the upper portion, and that the lower portion is coarse and degrading in its character. In every figure designed to be beautiful and refined the lower part of the face is diminished and the upper more fully developed. The Nymphs and Graces, Venus, Diana, Juno, Psyche, Apollo and the Muses, furnish mythological illustrations of this remark, and every effort of a respectable artist to depict the beauful is guided by this rule. When a coarse or vulgar character is to be depicted, the breadth of his jaws, the fullness of his cheeks, the predominance of his mouth, and the general predominance of the lower over the upper parts of the face and forehead, denote the class to which he belongs. In accordance with these principles artists often flatter their sketches of the living or the illustrious dead, by increasing slightly the forehead and all superior portions of the face, or proportionally diminishing the lower portion.

In sketching the inferior class of characters, the most haggard, wretched and fierce expression is often produced by depriving the upper part of the face of its proper fullness, while the lower portion near the mouth is left sufficiently prominent to give a coarse fierceness to the expression.

The strength of the countenance is derived from the lineaments located anteriorly and below the level of the middle of the nose. When the surrounding organs are defective—when the negative organs of the cheek present a cavity and the upper part of the cheeks (the moral region) is depressed, the prominence of the part around the mouth becomes extremely striking, giving a harsh, fierce and strong character to the face.

In walking the street, most persons determine at a glance the comparative value of the persons whom they meet. A certain distinguished appearance immediately commands their respect—while thousands pass by unnoticed, whose faces class them at once with the commonplace multitude. This impression of a strong, influential, or superior character, is most frequently from the parts about the nose and mouth which indicate strength of purpose and efficient ambition. A career of energy and perseverance developes the parts near the alæ of the nose. In young men who have not yet entered upon the active duties of life, or occupied responsible stations, Firmness, Pride, and Ambition are not conspicuous in the the face;—these localities are flat and the face is therefore insipid and void of strong character. Subsequently, if Self-Esteem is

gratified by honorable rank, and Firmness exercised in the duties of life, the face becomes more striking. There is generally a striking difference in this respect between the face of the student and that of the eminent professional man. Those, however, whose pursuits place them in subordinate, dependent situations, in which the will has a more limited sphere of exertion, and in which self-esteem and ambition are not nourished by any external gratifications, continue through life with faces nearly as flat and void of character as in youth. I have often seen a contrast thus produced between the cranial and facial organs. For example, in examining a private class in '46, I found two gentlemen with small self-esteem, and two with the organs quite large. Those in whom the organ was large gave less indication of it in their manners than those in whom it was small. The latter two were physicians, whose professions had necessarily cultivated their self-respect and ambition; the former were mechanics of humble circumstances, whose self-respect had no extrinsic support. The facial developements in this case corresponded to their manners. The facial organs of Self-Esteem and Ambition were as prominent in the physicians as they were deficient in the mechanics.

The facial organs around and below the angles of the mouth which develope the fiercer and more violent passions are seldom seen prominent in females, and never in those in whom true feminine gentleness and refinement prevails. They are found in those of strong animal traits, vehement passions, great muscularity and corpulence.

The unintellectual region lies upon the centre of the cheeks. This indolent and sleepy region responds rapidly to the changes of character. Those in whom the intellect is overtasked, and whose duties deprive them of rest, soon show by the hollowness of the cheeks the fact that the organs of mental indolence have but little gratification. The organs of Relaxation and Indolence (which are not Conductor Organs) lie a little farther backward and upward, and generally coincide in developement with the region of which we are now speaking. This hollowness of the cheeks adds much to the general strength of the expression and is generally observable in men of strong characters and laborious pursuits. The smooth round face of the child never presents these depressions, for the child is a greater sleeper than the adult, and is not capable of the same laborious exertion. A hollow cheeked child would excite our compassion as a victim of disease or labor. But the same conformation in an old man, (who sleeps but half as much as the child) would be regarded as a matter of course. If the old man preserves the juvenile rotundity of face, he is presumed to have led a comfortable life, and to have escaped the harrassing mental excitements which plough the furrows in the cheek. The smoothness of the cheek bespeaks a life of ease, and is rather a pleasing feature, though not heroic. Too great fullness, however,

gives a grave, indolent or stupid appearance, especially if the region of the eyes is not well developed.

The breadth of the face, like that of the head, is enfeebling, unless it be in the lower occipital region. In the upper portion, near the cheek bone, it indicates the facial organs of moral weakness—as Modesty, Reverence, Humility, Fear, &c. This region of Modesty in the face is the region in which we perceive most readily the flush which belongs to that trait of character.

The region extending from Ideality, Modesty, Reverence and Sublimity, to the nose, is that of Virtue. Hence, it chiefly originates the softness and richness of our facial expression. A full development of this region is as characteristic and appropriate to a lovely woman as the development lower down (region of Energy) is to the masculine character.

As these are the organs of happiness, their development is indicative of a happy life, and of the power of diffusing happiness for others; while their depression, which gives a peculiarly wretched look, indicates that the enjoyment of life has been hindered, and that it has been a matter of exertion—not of pleasure. Guided by a true system of Physiognomy, how many faces do we recognize on which the seal of vice and misery has been stamped. Look at a haggard face selected from the lower classes of society. The hollow cheeks indicate undue toil.

The deficient organs of self-respect indicate that the individual has never been placed in a station of much respectability, but has been thwarted in his reasonable ambition. The deficiency of Hope, or Happiness, indicates a predominance of gloomy and restless hours over those of light and enjoyment. A deficiency in Friendship and Faith reveals the unfortunate experience which has destroyed confidence in his fellow-men and deprived him of true friendship. A deficiency of the social organs indicates a life of isolation. A deficiency of Love indicates the solitary old bachelor or maid; and a deficiency of the reflective organs shows a blighted intellect.

The comparison between the Conductor, or Facial organs and the Cranial, is extremely interesting. In the dead we may compare the external form of the skull with the internal marks of cerebral activity. In the living we compare the external indications of the organs with the facial indications of their activity, and thus learn much of the mental history and *actual* character of the individual. The character is continually changing through life, and the facial organs alone are capable of revealing these changes distinctly to the eye. The approach of age, which implies a gradually increasing predominance of the conscious organs over those of sleep, is indicated in the face by the increasing flatness or hollowness of the cheeks, and the increase of the marks around the eye —the same foot prints of time. A life of vexation, difficulty, and disappointment, is necessarily indicated by the furrows or the

meagerness of the face. Beneath the eye, the organs of virtue and happiness gradually diminish, if there are not enough of pleasures and kindly feelings to maintain their prominence. A life of bold heroism and energy produces a decided increase in those prominences around the mouth, which give force of character. How striking the contrast between the faces of a regiment of veteran soldiers and the same number of peaceful citizens, whose lives have been spent in sedentary pursuits! Here the same class of people—with similar cranial developments, are educated into opposite traits of character, and these are adequately displayed only by the facial organs—their crania are not sufficiently pliable to become true indices of the changes. The contrast between the bloated face of the sot, and the more becoming outlines of the temperate man, is very remarkable; even the internal examination of their crania would scarcely prove as striking.

The most remarkable change is that which occurs in every individual in the course of life. In infancy the facial organs predominate over all others, and hence the life is more corporeal than mental. The lower portion of the face is especially remarkable, showing that the animal nature is in the ascendancy. According to the indications of the infantile face, there is more of sleep than in the adult—more of perception than of reason—more of Adhesiveness than of true affection—more of Physical than of Moral force—more abdominal and respiratory action than mental. In the adult the proportions of these faculties are changed.

The changes of color and condition over the face form an interesting study. The hue of health and vigor is seen upon the cheeks, near the nose and mouth. The "bloom of beauty" hovers above this and approximates the outer angle of the eye. The blush of modesty is slightly exterior to the roseate hue of beauty. The flush of disease occupies a similar position, and extends upon the organ of Disease. This is particularly observable in the hectic flush of consumption. The cranial organs of centripetal visceral determination, which are marked upon the side of the head, have their facial conductor organs on the face, near the cheek bone, in which region the best sympathetic diagnosis may be affected, and at which the accurate observer may trace external indications of the condition of the viscera.

☞ These CUTANEOUS INDICATIONS are often of pathological and phrenological value. At every spot of the face, neck, and head, we may find superficial indications of the past conditions of the organs; the heat, tenderness, tension, numbness, pricking, throbbing, paleness, coldness, inflammation, pimples, &c., &c., which are often observable, indicate, in the majority of cases, some important fact in reference to the action of the subjacent organs.

LECT. LXXXIX.—MATHEMATICAL LAWS APPLIED TO PHYSIOGNOMY.

THE BROW.—Elevation of the brow coincides with the organs of Virtue, and is therefore a pleasing indication of all the amiable traits of character. Depression of the brow coincides with the downward tendencies of the basilar organs, and therefore indicates the stern, violent, and gloomy traits of character, as weobserve in the frown. It is to be remarked, however, that the organs of the anterior inferior part of the middle lobe, and of the base of the front lobe (the perceptive organs) have also a downward line, which might be expressed in a frown. There may then be a frown of debility and disease, or a frown of mere perception, as when we are gazing at any object. In these cases, however, the brow is rather drooping than depressed. It is not so forcibly drawn down as by the occipital base which produces the genuine frown of moroseness, anger, murder, and hostile resolution. The organs of the selfish, reckless, and profligate traits of character, point laterally as well as downward, and tend to draw the brows together at the root of the nose, thus giving them an oblique position, by no means prepossessing, and decidedly animalized. This form of brow coincides with a small depressed mouth.

The regions of Cautiousness, Reverence, Sublimity, and Ideality, also tend to approximate the brows at a higher point of union, not depressing them toward the nose, but uniting them across the forehead. A junction or close approximation of the brows, therefore, may indicate either a calm, cautious, modest and refined character, if taking place at a sufficient elevation; or it may indicate a gloomy, secretive, timid, petulant and selfish character, if taking place lower down; or if still lower, it may indicate great profligacy and violence, or even baseness.

The elevated separation of the brows coincides with the line of the organs, producing intuitive intellect, benevolence, religion, calmness, dignity and a strong elevated will. Hence, in the noblest forms of head the brows are elevated and open—there is a decided space between them. Yet if the separation of the brows be not accompanied by elevation, it produces a coarse, inferior character. It indicates an unintellectual, restless, violent, muscular, impulsive, bold, wilful, reckless, rude being—decidedly an animal, for separation and depression of the brows coincides in line with the organs of the neck, and of the lower internal portion of the occiput. The best illustrations of this, we find, of course, in animals, in whom this character is fully embodied. In the monkey, the dog, horse, hog, cow, &c. In birds, and in fish, we see still greater separation and depression of the brows, which in animals are depressed, diminished, and merged in the eyelids. It

results from these considerations, that the noblest form is that in which the brows are quite elevated above the eyes, and extend sufficiently from the eye toward the median line, yet leave a considerable space between them: of which form, a good example is presented in the portraits of General Washington. The influence of the intellectual organs tends to give the brow simple prominence, and cause the hairs to project more decidedly from the forehead. The pointing of the individual hairs upward or downward may indicate, with the position of the brow, the coronal or basilar organs; or it may merely indicate the relative influence of the superior reflective, imaginative reasoning organs, and the inferior organs of merely physical perception.

Wrinkles are produced by the movement of the brow—Horizontal wrinkles by its elevation. These are consequently among the indications of the coronal organs. Vertical wrinkles near the nose arise from the approximation of the brows, and may be higher or lower in position, according to the elevation or depression of the brows, consequently their significance is to be learned by referring to the approximation, of which they are the index, and which has been above described.

THE EYELIDS.—The opening of the eyes being effected by the lifting of the upper eyelid, is expressive of the action of the occipito-coronal quarter of the brain—especially of the region of Energy, and when the eyes are widely opened, in a wild, staring manner, the movement belongs to organs posterior to Energy, nearly half way down the occiput, and is therefore more indicative of animal excitement. The drooping eyelid manifests the line of Relaxation, and may co-operate with the basilar organs, which would give it a sullen expression.

The lower eyelid is raised under the influence of the coronal, especially the social and affectionate organs, and particularly at its outer portion. Generally, it has not much to do with expression, as its motions are limited.

THE NOSE.—The alæ of the nose are elevated under the influence of the coronal organs generally, and depressed by the basilar organs. They are expanded under the influence of the lower posterior occipital organs, and contracted by the antero lateral organs. Hence the broad open nostril has a coarse, defiant, energetic, generous, careless expression, while the narrow nostril expresses a more, refined, cautious, modest, and perhaps acquisitive character.

The body of the nose becomes elevated and broad under the influence of coronal organs, but sharp and depressed under the combative and basilar influence. The combative, acquisitive and intellectual organs in combination produce the prominent, sharp, narrow nose, which distinguishes the adult from the child, and the European from the Negro. The flat broad nose indicates the want of forethought and conservative energy, as well as the general de-

ficiency of the antero lateral organs. Napoleon was right in desiring a prominent nose for military officers, as this prominence, indicating a matured manhood, exhibits the greatest departure from the imbecility of childhood. The extreme prominence is more tolerable in man than in woman, as it gives a masculine expression.

THE MOUTH.—The position of the mouth, being elevated by coronal and depressed by basilar influences, approximates the nose or the chin, as good or evil predominate.

THE CHIN.—The fleshy portions of the chin being susceptible of movement, we observe in good faces a rounded fullness, especially of its upper portion.

THE TEETH.—The coronal tendency produces short teeth in the upper jaw, and long teeth in the lower jaw. The basilar tendency produces long teeth in the upper jaw, as in carnivorous animals, but short teeth in the lower jaw.

THE EAR.—The form assumed by the ear under the influence of the intellectual, coronal, occipital, and basilar tendencies, is quite diversified. The intellectual influence developes its fore part, the coronal its upper portion, the occipital its posterior border, and the basilar its inferior portion.

Under the influence of the cautious, lateral organs, it lies close to the head. The bolder organs of the median line give it a decided projection.

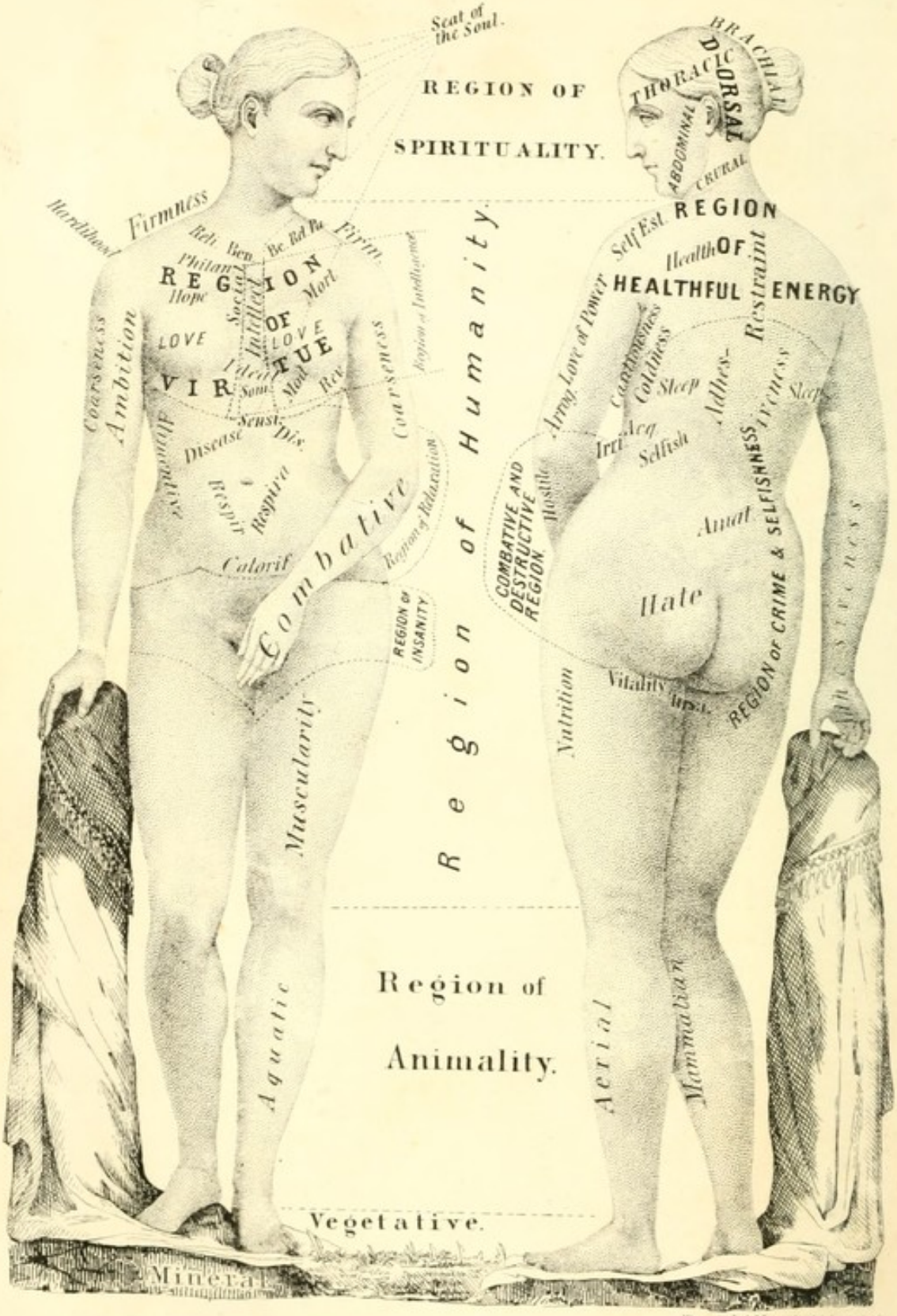
THE HAIR is susceptible of a great variety of expression. Firm and erect, it displays the line of Firmness and Energy, or of occipital force; flat and drooping it shows the lack of force of character. The erect, Jacksonian style, is appropriate to manhood, but is not found in woman or in children, as it evinces a degree of energy which they do not possess. The hair of man may properly stand erect, that of woman should droop.

Curls, which are the expression of Ideality, are most properly located upon that organ, which is the proper position for the display of diamonds, pearls, and other ornaments of the head. The varied arrangement of the hair and head dress may be made quite expressive, and a knowledge of the principles of Pathognomy is necessary to a correct taste in head-dress. For example, the gathered hair of the matron has a greater degree of dignity than the drooping hair of the girl. The helmet, for a similar reason, has a very firm, commanding expression, and the plume has an expression of lofty enthusiasm.

The cap or wreath which displays its ornaments across the range of Love, Ideality, Modesty, &c., is peculiarly appropriate to woman, and the crown on the posterior part of the coronal region is appropriate to authority. Pathognomy, indeed, gives us a complete science of costume, by showing the inevitable expression of any species of dress or ornament in which we may be arrayed.

PHONOGNOMY.—The science of the expression of character by the sound of the voice, is based upon the same principles as the Biagnomic Pathognomy. The muscular movements concerned in the production of the voice are to be studied, like other muscular movements, by the pathognomic laws, which give them significance. This subject is postponed to a future publication.

BUCHANAN'S SYSTEM OF ANTHROPOLOGY.



OUTLINES OF SARCOGNOMY.

OUTLINES OF LECTURES

ON THE

NEUROLOGICAL SYSTEM OF ANTHROPOLOGY.

PART IV.—SARCOGNOMY.

SARCOGNOMY is the science of corporeal developement, which recognizes the indications of mind in the bodily frame, and traces the entire correspondence of the body with the brain and mind—thus doing for the body what craniology has done for the brain.

LECT. XC.—SARCOGNOMY—THE CHEST.

The fact that the mind is connected with the body, and to a great extent controlled by its conditions, renders it necessary to investigate the nature and laws of this connexion. While their mutual sympathy and dependence are so well known and so often referred to, why have the nature and method of this sympathy never been ascertained? If such a connexion exists at all, it must exist in a definite manner, and through specific channels. That it is thus definite and specific as regards the brain, is well ascertained and admitted. Each mental faculty has a specific portion of the brain with which it is connected, but as the sympathetic relations of the brain and body have been overlooked, the relations of the mind and body have been left in a chaos of generalities which belong to no science.

Yet the observations of minute anatomists sanction the idea that each portion of the brain is connected with a specific portion of the body. The most learned and accurate anatomists affirm distinctly that the nervous fibres are entirely separate and distinct in their whole course between the brain and the body.

We do not need the decisive testimony of anatomy, for it is sufficiently obvious to the eye of reason, that the connexion between the brain and body cannot be arbitrary and void of law. It is as absurd to suppose that there is no particular organology of the body, connected with or corresponding to that of the brain, as to suppose there is no particular organology of the brain corresponding to the faculties of the mind. For the brain sustains to the

body the same relation which the mind sustains to the brain. This relation is one of correspondence, sympathy, and connected developement. To what extent the different regions of the body coincide with their corresponding regions of the brain, I cannot say:—I believe there is a constant tendency to corresponding developement, although various circumstances may impair the correspondence in the corporeal as well as in the cerebral phrenology.

This sympathetic correspondence is demonstrated by nervauric experiments. All the mental and physiological phenomena which may be produced by the application of the hands to the head for the excitation of the organs, may also be produced by the application of the hands to the body upon corresponding localities. The clothing does not very materially hinder these operations. The psychological effects produced upon the body are generally not quite so clear and distinct as those of the brain, though in many cases the difference is imperceptible. The physiological effects, however, are rather more satisfactory upon the body.

The correspondence between the body and the brain is such, that we may say the upper portion of the brain and the upper portion of the body correspond, and the basilar portion of the brain corresponds with the lower half of the person. The organs of the anterior half of the brain correspond with the anterior surface of the body, and the posterior half coincides with the arms and posterior surface. The organs of the neck coincide with the lower limbs, and the corresponding region of the arms is found on the median line of the occiput.

The corresponding region of the intellectual organs is found upon the anterior surface of the chest along the sternum, exterior to which are the virtuous organs, occupying the whole anterior surface of the chest. Benevolence, Religion, Patience and Firmness, occupy the highest thoracic surface, at the junction of the neck and body. Firmness extends upon the shoulders, and the gentler emotions lie anteriorly, Love occupying the mammæ, below which we find virtues of a feebler character, (as Ideality, Modesty and Reverence,) from which we descend through Fear, Alimentiveness, and Sensibility, to the region of Disease and Debility upon the abdomen.

The posterior surface of the chest is occupied by the organs of Health, Restraint, Sleep, and the unintellectual impulses;—the lateral surface, by Coldness, Cautiousness, Sublimity,—the inferior margin, by Fear, Acquisitiveness, Irritability, Profligacy and Selfishness.

The *rationale* of these locations is highly interesting and important. The upper, median, and anterior portion of the chest, appears to be the region of purely gentle, non-impulsive influences—of thought and emotion—while the lower and posterior portions are connected with organs of a very vigorous, exciting character. The

excitement, alarm, irritation, covetous desire, and reckless impulse, which these organs produce, rouse the whole constitution and impel to vigorous action, giving to the passions the most active play. That these exciting and impulsive faculties should be connected with the inferior portion of the chest, is explained by the facts of physiology. In all quiet, sedentary pursuits, in which the intellect and emotions are more exercised than the passions or muscular powers, the respiration is limited, and does not expand the lower portion of the chest. The sedentary attitude compresses the lower portion of the lungs, by forcing the diaphragm upward, especially in the stooping attitude of the student. But, when engaged in active, violent exertion, the expansion of the chest is great, the diaphragm descends, and the lower portion of the chest being much expanded becomes more protuberant; at the same time this great expansion of the chest produces a far greater oxygenation of the blood, and thus supplies a powerful stimulus to the whole constitution. Thus, we perceive, the lower portion of the chest, when brought into play, exerts much the same influence as certain inferior cerebral organs, with which it is associated; it imparts a powerful physiological stimulus to the body and the mind. A practical illustration of this is furnished by the fact that it is quite exhausting to speak long on a high key, or from the upper part of the chest alone, but it is quite invigorating to speak in a more energetic manner, employing the lower portion of the chest. The violent outcries of the fiercer passions—terror, rage, &c.—when contrasted with the gentle sighs of love, and the mild utterance of all the amiable or elevated emotions, afford another evidence that the higher faculties connect with the upper portion of the chest, and the inferior with the lower.

The connection of the basilar, invigorating, vitalizing organs with the lower portion of the chest, is so intimate that the depth of the chest becomes an important indication of constitutional vigor, and counteracts the predisposition to pulmonary consumption. This disease is favored by that form which is shallow in the vertical direction, but little developed backward, and full in the anterior superior direction—in other words, prominent in front, round and shallow. It is in the upper portion of the lungs that tuberculous deposits occur, and in the lower portion that pneumonic inflammations are found—a fact which indicates the former to have the asthenic, and the latter the sthenic character. The pneumonic inflammation and solidification of the lungs, which occur in the lower portion of the chest, are connected with a rich, fibrinous, highly vitalized state of the blood, and have been usually treated by bleeding—the tuberculous disease, which occurs primarily in the upper portion, is connected with an impoverished state of the blood, and is always injured by bleeding, but benefited by nourishment and tonics. The latter disease attacks feeble constitutions. and is alarmingly fatal—the former assails a more vigor-

ous class, and is seldom fatal, if rightly treated. Thus, we perceive, the lower portion of the lungs is more robust, even in its diseases and the superior portion in disease, has no vigorous reaction. It frequently produces, however, an intellectual and moral brilliancy, which is quite remarkable, and it is especially remarkable for the activity of Hope.

Hope and Mortality are located on the upper portion of the chest, above the mammæ. This would imply that morbific irritations of this region would exert an elevating, rather than depressing, effect upon the spirits, and that a high degree of mental pleasure and serenity might, in such cases, accompany the most rapid inroads of death. This is well known to be often the case in pulmonary consumption, and something similar occurs in cases of pulmonary congestion. This congestion often produces sudden deaths, called pulmonary appoplexy, and sometimes terminates life very quietly, without any appearance of disease. There is a strange condition sometimes occuring during or after pulmonary diseases, in which the upper portion of the chest becomes congested, a disposition is shown to bare the breast for freer expansion and ventilation; the eyes have an unnatural brightness, and there is no striking indication of disease or suffering; on the contrary, the functions appear tranquil and regular, and the pulse is so little affected that it has been styled *morbidly natural.* Yet this is in reality a condition of imminent danger, in which a few hours may terminate life.

There are many sudden deaths connected with pulmonary affections, which are rendered intelligible by knowing the peculiar physiological character of the upper portion of the lungs. The peculiar functions of the organ of Mortality, and its location on the head and chest, may explain a great number of cases of sudden death.

LECT. XCI.—SARCOGNOMY—INTELLECTUAL.

The location of the intellectual organs upon the sternum has a satisfactory physiological explanation. The fact of a sympathy between this region and the front lobe is illustrated in cases of bronchitis by the accompanying pain of the forehead which is produced by the bronchial irritation. It is illustrated also by the cerebral symptoms of hooping cough, and by the fact that engorgement and hepatization of the lungs, often precede and produce apoplectic attacks. The relation of the lungs to the body is similar to the relation of the intellectual organs to the brain. The lungs are the source of that influence which vitalizes the whole

system. Without their influence, sensation, muscular power, and every attribute of life, are promptly arrested. Thus, without the conscious intellectual principle, all cerebral action ceases—there is no emotion without consciousness—no passion without the conception of an object to develope it. The lungs receive their stimulus from an external source—from the atmosphere. The intellect receives its stimulus mainly from an external medium—light. The reception of air by the lungs is called *inspiration*, and the reception of intelligence by the intellectual organs, from the highest sources, is also called *inspiration*.

The vitality and perfection of the whole organism are somewhat proportioned to the reception of atmospheric influences by the lungs—in like manner the activity and energy of the brain are proportioned to the reception of ideas from external sources. By the lungs, the body is brought into communication with the external world, and receives its influences from varied and extensive sources; so, by the intellectual organs, we are brought into communion with nature. The lungs derive from the material world physical life—the intellectual organs derive from spiritual sources conscious or mental life. The conjunction of this material life and spiritual life, one coming through the lungs, and the other through the conscious mental apparatus, constitute the complete human life. This junction of the brain and body (or of psychological and physiological life) is effected through medulla oblongata, the section of which seperates our mental and animal powers and terminates human life. The medulla oblongata, which is the highest portion of the nervous system of the body, commencing immediately underneath the cerebrum, is also the source of the great pulmonary nerve, the pneumogastric, which exercises so important an influence over the process of respiration.

The cessation of respiration fills the whole system with venous blood—so the cessation of intellectual action leaves the brain in an inactive condition—a state of sleep; and diminishing the arterial circulation, gives a preponderance to the venous.

The general correspondence of the pulmonary and intellectual functions being thus established, the reasons which indicate the posterior inferior region of the chest to be connected with the inferior portion of the brain, and the superior region to be connected with the virtuous organs, indicate the remaining portion—the frontal—on the median line, as the special correspondence of the front lobe.

The location of the intellectual organs upon the sternum is such as to place the perceptive faculties most internally—the intuitive faculties superiorly—the deliberative and ideal inferiorly—the horizontal range of the forehead being vertical on the body. In consequence of this arrangement, sensibility is located upon the epigastric region. This location is illustrated by the fact that this is the region of the greatest sensibility of the body, a very slight blow

upon that spot being painfully felt, and a severe blow being fatal. It is the spot at which the endermic and epidermic application of medicines is most effectual. This extreme degree of sensibility, and medical impressibility at this region, is owing to the great amount of nervous apparatus which it contains—the plexuses of ganglionic nerves located near the stomach and the communicating filaments of the pneumogastric nerves, render this spot a focus of sensibility. Whatever accumulates excitement in this region, as, for example, gastric inflammation, greatly increases the medical susceptibility. In cases of gastritis, medical doses must be reduced to the smallest possible quantity, and often there is nothing which can be retained upon the stomach.

The epigastrium being the region of sensibility and impressibility, those passes which concentrate excitement upon it are well calculated to render the patient more impressible. Hence, a few passes from the shoulder to the epigastrium, followed by perpendicular passes upon it, will heighten susceptibility to an inconvenient or morbid degree in those who already possess it. Few highly impressible persons can bear the application of the hands in this manner.

The region of Somnolence, which is connected with the most extraordinary sleepwaking phenomena, is located just above sensibility, at the end of the sternum. Hence, passes, or manipulations towards the end of the sternum are rationally calculated to induce somnolence, and are generally used by magnetizers. Manipulations to this spot, from the head or from the shoulders, are calculated to produce the somnambulic condition, and establish sympathetic relations between the operator and subject; while every operation which disperses the excitement from the epigastric region and *scrobiculus cordis*, must necessarily rouse to an independent wakeful condition. Hence, the most rational procedure to terminate natural or artificial somnolence, is to throw the excitement, by manipulation, from the epigastric region to the shoulder or region of Firmness. The application of cold water upon the region of Sensibility and Somnolence, will answer the same purpose. The soothing influence which is often exerted over suffering patients by placing the hand upon the forehead or upon the region of Somnolence on the body, is now perfectly intelligible. We perceive also why, in natural and artificial somnambulism, there appears to be a partial transfer of the intellectual faculties in the body. The sternal and epigastric regions, being the corporeal seat of intelligence and impressibility, are certainly the only appropriate regions of the body for the transfer of the intellectual faculties. When, therefore, it is stated by the French committee that their subject read the printed words held before the epigastric region, and by the observers of natural somnambulists, that they appear to see by means of the same region, we are authorized, by Neurology, to pronounce the assertion plausible.

The connection of the lungs with the front lobe is farther illustrated by their extreme susceptibility to every species of influence. The influence of medicines is more perfectly produced by inhalation, than by taking them into the stomach. Ether never displayed its power of producing insensibility so well, as when inhaled —opium is a more effectual narcotic when smoked than when swallowed. Carbonic acid gas is deadly only in the lungs, and an inappreciable quantity of miasmatic emanation annually sends thousands to the grave. Asthmatic patients are affected by inappreciable circumstances in different localities, and their attacks brought on as if by caprice. A susceptible and predisposed constitution is seriously affected by being long in the vicinity of a consumptive patient, and breathing the same air. For several years I have not been able to attend consumptive patients without imbibing some of their symptoms in a very decisive manner. Even symptoms and sensations of which I had previously no knowledge or suspicion, have thus been made quite manifest in my own person, and contributed some assistance in the diagnosis. This has occurred when I did not come into direct contact with the person, and whether, as a consequence of inhalation, or of proximity, I cannot say—though it is probable that each was concerned.

LECT. XCII.—SARCOGNOMY—THE AFFECTIONS.

The location of the affections upon the chest is in harmony, not only with Physiology, but with the universal experience and intuitive consciousness of mankind. The orator refers to the emotions which swell his bosom. The breast is continually spoken of by writers, and orators, as the seat of every affection and incident of our moral nature—it is said to be disturbed, agitated, convulsed, troubled, soothed, calmed, &c.; and the idea conveyed by these expressions is that our *emotions* are affected in that manner. The breast, therefore, is recognized by these expressions as the seat or organ of our moral nature, and our mental consciousness.

The language of Shakspeare :

> "Cleanse the foul bosom of its perilous stuff."—

indicates that the bosom is regarded as the depository of our thoughts and of the various impressions which have been made upon our feelings.

Hence, the propriety of the gesture which places the hand upon the bosom whenever we refer to our emotions. Love, Hope, Honor, Benevolence, Patriotism, Reverence, are universally refered to the breast as their especial seat, and the hand is placed upon the breast, with a graceful propriety, whenever

such allusions are made. This is not an unmeaning movement. The man of strong feelings is really conscious of that agitation in the breast, and that swelling sensation of which he speaks—hence, the universality of the custom which refers the emotions to that spot in which we are conscious at the moment of a vivid sensation. Men are really conscious of emotion in their bosoms, and if it were not so, such expressions could never have become the universal style of animated speaking and writing. Our own consciousness and sense of propriety enforce the truth of this association; for while we are pleased with the propriety of action in the orator who refers to his breast, we should think him very ridiculous, if, in appealing to his honor or his love, he should place his hand upon his abdomen as their seat. Nor is there any other portion of his person, than the chest to which such an appeal could be appropriately directed.

To apply the hand to the head, with Phrenological accuracy, when making an animated appeal, would be supremely ridiculous. The lover who should thus attest his affection, or pledge his honor; would probably excite more mirth than sympathy by his craniological gesture. Mankind never have recognized the head as the seat of the emotions, and they never will. *They are right;* universal consciousness—universal common sense—seldom errs in a simple perception. The head is not the exclusive seat of the emotions, *when we view the entire constitution.* All the passions and emotions belong also to the body:—the brain is the seat of the pure intelligence—the guiding principle—the central directing power, in which, as in our consciousness, all our principles are concentred and represented, but which is itself, chiefly of a spiritual nature.

A predominance of the brain, as an element of the constitution, increases the intellectuality, but diminishes the power of the passions. The passions and emotions, which give strength to the character, require a proper condition and developement of the body for their vigorous manifestation. The chest and muscular system are important to force of character.

The fullness of the upper portion of the chest gives great beauty to the form, because it is associated with the nobler elements of character; the breadth of the lower portion is not pleasing. It is associated with inferior elements of the character, and, hence, degrades the beauty of the form, giving it a more vulgar character. The perception of this fact has given rise to the feminine fashion of diminishing the waist by the compression of tight lacing. (Of which hereafter.)

The beauty of a round fullness of the chest, in front, may be pleasing to the eye of taste, but it is by no means necessary to vigor of constitution. It is the posterior and inferior portions of the chest which are the source of physical vigor; high, broad shoulders, with a prominence backward, and depth of chest are the criteria of vigor—the elements of a powerful constitution.

The region of beauty in the human form, is the upper and anterior, in both head and body. In the body, it is especially upon the sternum, the mammæ, and the intervening space. The space between the neck and mammæ is also of a lofty, pleasing character. The shoulders, as the organs of Firmness, &c., indicate strength and dignity of character. For these reasons, it is obviously judicious, when we would perpetuate by painting or sculpture the images of those we respect, to select for representation the regions which we have just shown to contain all that is spiritual and noble in the constitution—the head, and the superior anterior portion of the chest. These are all that are most commonly presented.

The association of the mammæ with the sentiment of love, is very obviously true. They are more developed in woman, in accordance with the fact that love is a more prominent element of her character and life. Their developement is connected with the period of the greatest activity of that sentiment—and with the existence of children, upon whom the sentiment concentrates. The whole physiological history of parentage illustrates this matter very forcibly, and the psychological associations are nearly as decisive. Caresses of the female bosom excite irresistibly the amiable emotions, and the sight of the breasts in full developement excites the love of man. Loveliness is so essential to our conception of woman, that a full developement of the breasts is necessary to female beauty and attractiveness.

Were it not for this greater predominance of love in the female, children would fare badly, but the pleasure of this intense maternal affection, renders the duties of a mother comparatively easy and pleasant.

So dependent are the breasts upon the emotion of love, they are not only developed by its influence, and kept in action by maternal affection, but their secretion of milk is entirely deranged by the opposite influences. Violent passion has sometimes so great an effect as even to render the milk poisonous to the child, and produce sickness, convulsions, or death.

How admirably are these principles expressed by that familiar old phrase "*the milk of human kindness.*" A great collection of passages might be made from standard authors, all referring to the bosom, or breast, as the seat of affection.

LECT. XCIII.—SARCOGNOMY—ABDOMINAL REGION

The location of Disease upon the body is at the margin of the ribs, exterior to the epigastric region. The name given to this region shows by its popular sense that the associated faculties are rather morbific and depressing. The regions under the margin of the ribs are called the hypochondria, and the hypochondriac, or man controlled by the hypochondria, is regarded as the victim of fancied disease. He is thought to be subject to a morbid and melancholy imagination. All this is explained by the fact that along the margin of the ribs we have Irritability, Fear, Melancholy, Disease, and Sensitiveness, and just above the latter, lie Ideality and Imagination. It is obvious, therefore, that the mind which dwells upon the hypochondriac functions, or is controlled by the hypochondriac influence, must be filled with thoughts of disease and bodily suffering.

The anatomical fact which sanctions this location, is the existence of a portion of the body which may be considered the focus of morbid influences. The blood in passing through every portion of the system acquires a peculiar character from the physiological influence of each part—in the lungs, for example, the blood attains the highest degree of *vitalization*. As every secreting organ separates peculiar elements, and all other parts of the body are continually taking from the blood their appropriate nourishment and returning to it their effete material, there are greater varieties in the character of the blood in different parts of the body than chemistry has yet described. The blood of the portal vessel, which collects from the intestines to go to the liver, is more depraved and abnormal in its constitution than that of any other portion of the body. It is characterized by conditions, which, were they prevalent through the circulating system, would place the body in a state of universal disease, or even death. This very depraved blood undergoes a double purification, (by the liver and then by the lungs,) before it is fit to re-enter the systemic circulation. The accumulation of the blood in this region of physiological depravity, is one of the most common features of disease. In proportion as disease is more general and less strictly local, it is characterized by this portal congestion. Such congestion, being specifically morbific, rapidly prostrates the vital powers, and brings us to the brink of death, as we see in cholera, and in the most fatal forms of fever. Fear and every other mental condition which causes this congestive recession of the blood to the portal region, tends to enfeeble and invite the attack of Disease, while active exercise and everything which throws the circulation to the surface and into the limbs with equable distribution, contributes to maintain health. So prominent is the fact of portal congestion, that a

famous medical professor, (Dr. Cooke, of the Transylvania and Louisville schools,) has for many years taught and published the doctrine that this congestion was the most essential feature of disease, which might be removed with the congestion, by the influence of cathartic cholagogue medicines upon the liver. Portal congestion is incompatible with physical vigor; hence, wherever it is overcome by mechanical compression, as by a girdle, we feel braced or invigorated, and whenever the pressure is removed, the bracing influence is lost. We cannot make any vigorous exertion without the bracing influence of pressure upon the abdominal region, and in the usual course of nature this pressure is always supplied by our own muscles. We never run, walk, leap, or make any other vigorous exertion, without the assistance of compression by the abdominal muscles, vigorous in proportion to the energy of the effort. The compression in this case is effected by the assistance of the diaphragm, which is supported by the confined air of the chest. If we are prevented from closing the larynx so as to confine the air, our efforts are materially impeded. The experiment of cutting open the trachea, so as to hinder the confinement of air in the lungs, has been made upon dogs by a French physiologist, with the effect of materially diminishing their strength in leaping. It is certain, therefore, that the compression of the internal viscera invigorates the muscular powers, and that their congested condition is debilitating. The maximum of debilitating and injurious tendencies, we ascribe to the portal region, which we suppose corresponds to the function of Disease, as its expansion is necessarily morbific, and its contraction invigorating.

The region of Relaxation and Indolence, the source of debility and langour, is located upon the abdominal surface, below Disease. The connexion of these functions with the abdominal viscera is obvious in the fact that excessive eating produces an indolent, dull and languid condition. It is still more strikingly exemplified in the effect of malaria, which acts so powerfully upon the liver and other abdominal viscera, producing their enlargement and producing that general depravation of the whole constitution which is the legitimate effect of such enlargement. The connexion of a debased and depraved constitution, with enlargement of the abdominal viscera, (which we may discover in malarious regions,) proves the true tendency of the abdominal apparatus.

The organs which control the alimentary canal, have their locations upon the abdomen, in a crescentic line, extending from the lower portion of the ribs to a position between the umbilicus and groin. Manipulations along this line produce the same peristaltic acceleration as upon the same region of the head. The success of abdominal manipulations in the treatment of dyspepsia, is explained by their application to the appropriate locality, and by the imparted influence of the operator's constitution.

The Conductor Organs have their bodily location upon the

anterior surface of the abdomen, below Sensibility, and extending around the umbilicus toward the site of Calorification, which is located halfway between the umbilicus and pubis. The anterior projection of the abdomen, therefore, is rather an indication of the activity of the temperament or manifestation than of sluggishness. In this respect it corresponds with fullness of face.

The hypogastric region, between the umbilicus and pubis, is the seat of Ardor or Calorification, above which are the organs of Respiration. This location explains the sympathy of the lungs and lower part of the alimentary canal. Worms in this region may produce so great an effect upon the lungs as to establish a tedious cough, and even result in pulmonary consumption. Any foreign substance maintaining an irritation in this region may produce a similar result. Dr. Chapman mentions a case, in which the son of a distinguished citizen of Philadelphia, after swallowing a pin, was attacked by a cough and other pulmonary symtoms, and came near dying of phthisis, when the pin was extracted from an abscess in the groin, and he speedily recovered.

LECT. XCIV.—SARCOGNOMY—SELFISH REGION.

The selfish or evil propensities are located below the waist upon the lateral and posterior surfaces of the body. The organ of Irritability lies at the margin of the ribs, nearly on the level of the elbow; Profligacy and Selfishness extend from this toward the Spine, and from the latter, Combativeness descends upon the pelvis to the region of Hatred. The organ of Baseness lies along the posterior margin of the abdomen, and between the ribs and ilium, connecting above with Irritability and below with Melancholy, through which it approximates the region of Mental Derangement. The range of basilar organs Profligacy, Felony, Desperation, Hatred, finds its location upon the back just below Baseness, and extends to the thighs. These organs of the criminal region are the seat of great physiological and muscular power. Vitality Nutrition and Reproduction or Amativeness are located among the baser organs—Vitality at the junction of the thigh and body—Nutrition just below upon the lateral posterior surface of the thigh, and Amativeness upon the median line at the end of the spinal column where it unites with the bones of the pelvis—a location easily recognized by a slight depression which it usually exhibits. This location is a matter of great practical importance as the reproductive functions in either sex may be effectually controlled by local applications upon this spot. The intimate connexion of Vitality with the spot assigned it is illustrated by the serious effects

of blows and concussions upon that part of the body, such accidents are exceedingly rare but the effects they produce are quite alarming. The shock produced by slipping and falling backwards as if sitting down, is more violent than by any other possible fall unless we strike the head. Wounds at this spot are very dangerous. Hunters I have been told consider a shot in the upper part of the thigh of a deer from behind quite fatal. Amputations of the thigh are among the most dangerous of surgical operations. Out of 201 amputations in the Parisian Hospitals from 1836 to 1840 inclusive, only 74 of the patients survived. This location has a philosophical propriety—Vitality or animal life is one of the lowest elements of human nature and is a downward tendency—it is maintained by a continual influx downward of nervous power from the brain.

The character of the lower portion of the body renders its large developement by no means desirable—it lowers the beauty of the figure as much as it contributes to the strength, and in excess becomes odious and disgusting. Physiological excitement in this region, tends greatly to lower the moral and intellectual faculties. Even a stimulating plaster upon the back, may have a powerful effect upon the temper, and maintain an irritable pugnacious feeling, although not of an irritating nature in itself. The natural process of gestation is always accompanied by some loss of mental and moral qualities for the time. The mind is less clear and vigorous, and the temper more irritable or gloomy. Constipation and hemorrhoidal disease have also a gloomy beclouding effect upon the mind. They tend to deprave the temper, increase the antipathies and disgusts, and injure the structure of the brain. How great the contrast between the purifying elevating influence of the action of the lungs, the delightful sensation with which we inhale the fresh life giving breeze, and the debasing influence of every function in the region of the pelvis.

So strongly are the feelings of aversion unpleasantness and disgust associated with the lower part of the body, we studiously avoid all reference to it, and even the man of science hesitates in speaking of it, unless he knows that those whom he addresses have had their minds purified by previous familiarity with scientific investigation. The common mind in our Anglo-Saxon race is too active in its inferior elements, to survey the whole human form with the pleasant feeling which should be excited by that masterpiece of divine skill. It looks with pleasure upon the superior and more honorable portion of the person, but with aversion and disgust upon the inferior half. The latter is concealed—the former is displayed by busts and portraits. Science teaches us to look upon the whole passively as a matter of interesting inquiry—virtue teaches us to admire, love, and reverence the whole divine plan of the human form.

The harsher passions not only loathe portions of the human form, but destroy our kindly regard for the entire person.

LECT. XCV.—SARCOGNOMY—THE LIMBS.

The upper and lower limbs présent a remarkable analogy in their psychological character, which, for a long time, escaped my observation. They differ materially in their moral grade—the lower limbs appearing to be a copy, in a lower and less intellectual sphere, of the upper.

The arm to the elbow, appears to correspond to that portion of the occiput which is on the median line, extending from Firmness nearly to the occipital protuberance. The elbow is nearly upon a level with the organ of Irritability on the body, and the functions to which it corresponds on the occiput, are such as directly co-operate with Irritability—being very similar in their pathognomic line, though more impulsive. The thigh, which corresponds to the arm, except in its destitution of intellectual and moral character, appears to be calculated to execute that which the faculties of the arms may suggest. The posterior surface of the arm, corresponding to Love of Power, may be said to have its physical or executive counterpart upon the thigh anteriorly, in the region of Muscularity, the lower portion of which, being more violent, corresponds to the harsher faculties, near the elbow. Ambition, upon the anterior surface of the arm, corresponds to Turbulence, upon the posterior surface of the leg. The region of muscular labor, on the outside of the thigh, corresponds to that of Coarseness, upon the exterior of the arm; that of Idiocy corresponds with Hardhihood. The whole thigh and pelvic region together correspond in like manner to the arm and shoulder, or region of Health and Energy, the difference being that the superior limbs exert a power which is somewhat intellectual, and which is compatible with virtue, while the influence of the lower limbs tends to destroy both virtue and intelligence.

LECT. XCVI.—THE MICROCOSM.

The analogies, connexions, and mysterious relations, between man and the universe, are too obvious to have been entirely unknown heretofore, although it has been impossible heretofore to understand, with scientific accuracy, the nature of these relations.

The opinions of preceding writers, on this subject, I need not quote—nor am I sufficiently acquainted with them at present to state them correctly. It has been my desire to avoid borrowing from my predecessors, or being in any way influenced by their suggestions, hence I have avoided that literary research which

might have made me acquainted with many valuable confirmations of my doctrines, but which would have partially diminished the value of any coincidence of opinion, which might be detected between myself and those who have arrived at the truth by other paths and under different circumstances.

The universal relations of men are based upon the mathematical laws of pathognomy. Human nature may be represented by a sphere the radii of which point to all that exists—to every region of space. Cerebral organs acting in the lines of those radii, maintain the universal relations of man. Those things to which the organs are related, *exist in the lines of their organic action.*

The organ of the highest happiness, the organ of ascension from mortality to immortality, points upward to the highest heaven. The organ of deepest dejection and misery, points downward to the deepest hell. The organs of terrestrial life point around to the objects upon which they act. They point to the past, the present and the future—to things of beauty, and things of deformity to the material, and the immaterial, to the external, and the internal, to the universe, and to self—they point parallel to all the lines of terrestrial physical and moral action, and not only by their direct relations connect us with their different spheres, but by a great variety of combinations establish the most perfect and intricate correspondence between our mental life, and the world around.

The most astonishing of these relations, is that which shows the connecting link between man and the inferior world, below humanity. Man is a portion of the great animal kingdom of which he is the highest form. In him are found the elements of all that stand below him. It might be supposed that his organic faculties would be limited to Humanity proper. But as Humanity is merely the perfect evolution of that which is imperfectly developed lower in the scale, it contains at its foundation the same organic elements. There is nothing that we know, below the Divine plan of Humanity. It includes at its foundation not only the elementary forces of the animal kingdom, but the organic forces of vegetable life, *all of which I believe are included* in the vast plan. The world of inorganic matter too has its representatives in the human constitution, and it is by no means improbable that the most extensive and sublime geological revelations, may yet come from the self-conscious investigations of the *inorganic world of man.* Naturalists and Phrenologists have been accustomed to deride the Philosophy which sought to know humanity by sounding the depths of consciousness,—but true philosophy shows that we should admit both the exterior and the interior methods of investigation, and that each method is but in its infancy. How meagre and superficial the results of consciousness heretofore, in comparison with the limitless exploration, which is now within our power. And how little has been done by craniologists, and other naturalists, in comparison with what may now be accomplished by an investigation,

in which the brilliant light from Anthropology, shall guide our explorations of the physical sciences.

The experimental fact which gives the most remarkable illustration of the microcosmic relations of man, is this, that the region below the knee, appears to be a region physiologically *below humanity proper*. Below the knee, as in the corresponding region of the neck, we find a series of conditions below the human, corresponding to different grades of developement in the animal kingdom. The anterior surface of the leg exterior to the edge of the tibia, corresponds with the lower or cold-blooded divisons of vertebrated animals—to fish and reptiles. The next region passing outward on the external and anterior aspect of the leg, is that of the rest higher grade of the animal kingdom, corresponding to birds, and of the warm blooded active temperament. The class of mammalia corresponds with the internal and posterior surfaces.

Under the influence of these regions, the impressible human being is brought into their respective conditions, just as he is thrown into conditions of love, intellect, or selfishness, by organs of a higher location. For example under the cold blooded forms of animality, he acquires the senseless condition and peculiar instincts of the fish, losing the idea of locomotion by the feet, and being entirely adapted to the aquatic state of being. Under the warm blooded influence he is restless, perceptive, unintellectual, vigorous. Under the mammalian influence, he personates some quadruped, as the dog, or horse; or, under the various excitements, he may attain a state of being which he cannot describe, and which corresponds to no animal life within his knowledge.

In these animal conditions there is a great physiological value, as they are highly applicable to the treatment of disease. The aquatic or cold blooded condition is especially valuable, as an antiphlogistic agent in cases of inflammatory irritation, or excessive activity in the brain and lungs. It soothes and tranquilizes the respiratory organs in a very remarkable manner.

The *rationale* of these wonderful sub-human conditions, is furnished by *embryology*, which shows that in the formation of the embryo brain, it, like all other parts of the human body, ascends from a lower to a higher type of developement, passing in its anatomical structure, through successive conditions, corresponding to those of fish, reptiles, birds and mammalia, ending in the complete organization of man.

The fibres and globules of these rudimentary forms of the nervous system, do not cease to exist when they are hidden by the great superincumbent developement of humanity, and in experimenting upon the basilar region through the neck, I have brought to light these primitive conditions, which are more fully displayed in experiments upon their larger region on the body.

Below the leg on the foot we find a region corresponding with the vegetable kingdom and also with the mineral world. There

is much that is beautiful and curious in the exploration of these regions—the developement of which I must postpone to the future.

The comic relations of man appear then to be based upon his dynomic identity with the animal kingdom, the organic forces of which are represented in himself, and a similar connection with the vegetable and mineral kingdoms; also upon the fact that his nature is spherical in its relations, and capable of sustaining relations to all physical kingdoms, and to the spiritual world. But however extensive or grand the picture which such a statement gives us, it does not show that any little world in man corresponds to the great world without;—either to the Earth, the Solar system, or to the Astral system to which our Sun belongs; nor yet, to the universal system of which that is a part. Nor can we say that he presents a miniature world, corresponding to the spiritual world, except so far as this proposition is nearly true from the spiritual world being filled with human beings. Nor are we authorized to say that the spherical existence of man coincides in character with the great being from whom the universe proceeds. It is true we cannot well conceive a Deity, without giving to him the essential attributes of humanity, intelligence, volition, and affection;—and hence the various religions give to the Deity an Anthropological character—the only character which can readily be conceived by mankind. Yet, there is a radical difference between the human and the Divine.

Man is developed as a subordinate being, and lives upon a globe to which he gravitates. Upon this fact is based the distinction of his higher and lower nature—his energies, his guiding and restraining faculties. A being placed under no such limitations and restraints, is essentially different from man. Having no antagonizing moral and animal nature, with balancing frontal and occipital organs for a limited sphere, the faculties of a Divine being, must necessarily differ widely from those of man. Such a being from whom all things proceed, sustains all relations in every direction, and can be regarded only as an omniscient energy, from which proceed in all directions alike, the creative benevolence and wisdom.

ADDENDA.

AGE, SEX, AND NATIONALITY.

LECTURE XCVII.—AGE.

The difference between the young, the adult, and the old, are greatly elucidated by cerebral science. The brain of infancy is of a soft, pulpy constitution, and incapable of any powerful manifestation, the temperament of the infant being cephalo-abdominal. The most vigorous manifestations of the infant proceed from the basis of the brain; and if we critically observe the course of life, we shall find that in the successive course of developement, the cerebral action is at first confined to the base of the brain, and that, in the progress of time, organs are successively developed higher and higher, until the whole brain becomes mature and active in manifestation, which constitutes the perfection of adult life,—the highest maturity of the individual—after which, the organs which were the earliest developed begin to decline, and successively diminish from the base of the brain upward, until the vital condition of the individual is too much impaired for the continuance of life. Thus, in infancy we find that nutrition or active growth is the leading power. Anterior to birth, Nutrition or growth is almost the sole faculty displayed. The next capacity manifested, is that of muscular motion. The third capacity displayed (at birth) is that of Respiration, in connection with which necessarily arises Calorification. Next follow Alimentiveness and abdominal action, and at nearly the same time, the organs of the external senses, seeing, hearing, and feeling, come into activity. The basilar organs thus early developed, although not yet powerful, from the soft, semi-fluid character of the temperament, are predominantly active, in consequence of the fact, that the higher controlling powers are not yet vigorous.

The infant grows more rapidly at first than it ever can afterwards; its pulse is about twice as rapid in the frequency of its beats, as it will be at maturity; its respiration is proportionally frequent, and its appetite is several times more urgent, for frequent gratification. It is incapable of bearing the prolonged abstinence which is easily endured by the adult. As the whole basilar region is more active, there is of course very little firmness or energy, great restlessness, general excitability and irritability, general indolence and relaxation, and a strong tendency to disease. The immense mortality of infants under five years of age, amounting from 35 to 50 per cent. of all that are born, demonstrates that infancy is greatly defective in the healthful stamina of maturity.

In the next stage of developement, active perception, Excitability, Irritability, Fear, Combativeness, Acquisitiveness, and Arrogance, are displayed, producing a troublesome character—requiring the constant regulation of nurses and parents—but at the same time unconscious of the deference which it owes. It is true, Acquisitiveness is not shown in a systematic accumulation of property, as it is not associated with Industry; it is, however, definitely displayed in inordinate desires, and in grasping every object which pleases its fancy.

At a later stage of developement, the ideas accumulated by the perceptive organs, give rise to the activity of Memory, and develope a respectable knowledge of surrounding affairs. A greater intellectual activity and skill are displayed, and the frequent recognition of the authority of parents, developes the sentiment of Reverence, while Cautiousness is developed by accumulated experience of mishaps and dangers. Adhesiveness, too, becomes developed from the effects of association with parents, nurses and companions: while the spirit of Ambition, emulation, and self-will, becomes developed by competition and the perception of difference of rank.

This is the stage of boyhood, in which there is knowledge, but not wisdom,—reverence, but not of the highest order,—a certain degree of cautiousness, but not absolute prudence,—strong gregarious attachments, and social emulation,—all of which qualities, belong to the horizontal group of organs, running around the middle of the head, on the level of Memory.

The next stage of developement, which gives us the higher reflective faculties—wisdom, philosophy, and foresight, with the loftier range of thought, which belongs to Ideality and Sublimity, the higher degree of Reverence, which preserves the decorum and order of society, the patriotism, prudence, love of home, and power of self-control, all of which belong to the highest range of lateral organs on the level of the upper portion of the forehead, consummates the developement of adult life.

We may, therefore, speak of three distinct stages of developement, that of infancy, perceptive and animal—that of boyhood, knowing and active—that of manhood, judicious and calm. The adult developement, including the organs of the temporal arch, necessarily includes also, by the laws of pathognomic co-operation, a corresponding developement of Benevolence, Religion, Firmness and Pride. In other words, in reaching the adult developement, our benevolence as well as intellect, becomes more expansive—we realize our religious duties and social relations,—we feel our personal dignity, we pursue a determined course in life, and from the patriotic region we feel a general interest in the affairs of our country, as well as a strong local attachment. At this stage of developoment, with our powers mature and complete, we are recognized by law as responsible citizens. Prior to this time, we were recognized not as com-

petent and responsible persons, but as proper subjects for the guardian care of older persons. From this time onward, the highest range of organs, Philanthropy, Hope, Love, Integrity, Industry, and Sociability, become controlling elements of character, acquiring an ascendancy which subdues the restless basilar organs, and gives a calm dignity to our deportment. Ideality, Modesty, Imagination, and sentimental romance, belong to our early manhood, gradually yielding to the deeper feelings and obligations of Love and Integrity, as the duties and affections of a family surround us.

In the meridian of life, we have a long period of high physical vigor and moral enjoyment, and of increasing preponderance of the higher powers, until, from the increasing inactivity of the basilar organs, the diminution of passion and appetite, the loss of sensibility, perceptive power, and muscular activity, we find our physical efficiency impaired. Nutrition declining first, we cease to grow; the person becomes thin, and the surface shrivels, the animal temperature declines, the pulse becomes slow, and infrequent, Alimentiveness and sexuality are impaired, the muscular strength is diminished, and, as the moral sentiments are no longer over-ruled by the vehement passions, self-controlf or restraint becomes an easier task. Restraint and Tranquility give quietude to our muscles, while the organ of Mortality, at the summit of the brain, gradually predominates over Vitality at the base. The ambitious impulses and desires also decline; Memory takes the place of perception, which is becoming dim, and finally judgment takes the place of memory, which is becoming impaired, and we have all the characteristics of old age, thus developed by the gradual decline or exhaustion, commencing in the basilar organs, and going upward in the same order in which the organs were matured.

If the links which bind us to life are not soon broken, we may go on, losing all our senses, our appetites, our locomotive powers, our passions, and our interest in life, until we should feel that it was unnecessary to linger in the midst of a scene which had lost its interest, or to sit at a feast for which our appetite was exhausted. But before this extreme decay has occurred, Mortality commonly severs the thread of life, Vitality becoming too much impaired to hold body and soul together. The organ of Nutrition, having ceased to perform its duties, the continual dissolution of substance is not repaired, and the vital organs become incapable of performing their duties,—while the basilar organs of the brain are incapable of sending down sufficient innervation to rouse and restore the decaying apparatus.

Such is the healthful and natural termination of life. Life is a gradual ascent from vegetative growth, through restlessness, sensuality, and violence, to moral and intellectual enjoyment, terminating finally in the exhaustion of our animal nature, and the predominance of the moral faculties, preparing us contentedly to take our departure, and fitting us in spirit for that higher spiritual realm of tranquility, to which the organ of Mortality points.

LECTURE XCVIII.—SEX.

The sexual differences of the race are doubtless determinable by reference to history and daily observation. The entire history of the world exhibits the uniform ascendancy of the male in physical vigor and governing power. It also exhibits the fact that a greater amount of crime is perpetrated by males than by females, and that the violent passions and impulses, which are the source of crime, are far stronger in the male than in the female sex. At the same time, it exhibits the fact, that the intellectual guidance of the world is principally masculine, and its greatest intellectual achievements are from the male. The entire survey of animated nature corroborates this view of man, showing superior strength, energy, and violence among the males, and a general ascendancy of the male over the female.

While the entire history of the human race exhibits woman as occupying this more limited sphere, it also exhibits her as comparatively free from the crimes of the male, and mainly devoted through life to the performance of the duties of kindness and disinterested affection in the family circle.

Universal experience through so many centuries, and under so many varieties of circumstances, is probably sufficient to determine the relative characteristics of man and woman. Still, in consequence of the numerous exceptions to general rules, isolated facts may be easily adduced as arguments against their existence, and various doctrines may be maintained on this subject, as to the natural capacities and characteristics of the two sexes, unless we can find in the essential constitution of each, necessary organic causes of their different characteristics. The careful anatomist and physiologist could report much as to the different stature and conformation of male and female bodies, indicating their different sphere and capacities. The superior muscular and thoracic development of the male, indicates a much higher temperament as regards general energy and power of achieving practical results,—while the inferior muscular and thoracic development of the female, and consequently greater relative predominance of the cephalic and abdominal viscera, indicates her temperament to be more sensitive, yielding, placid, amiable, delicate, and refined; more delicate, but less powerful—more sympathetic, but less impressive.

In her craniological developement, woman is generally slightly inferior to man. Her stature being smaller, and her bones more delicately formed, her cranial measurements are somewhat less, although the brain, as an element of her constitution, is more influential than that of man. The differences of developement in the male and female head, are so small and so difficult to determine, in consequence of the immense varieties of individuals, which greatly exceed in amount

the differences between the sexes, that it would be difficult to make a positive statement in reference to the cerebral organs generally; yet certain fundamental differences may be mentioned with confidence. The conclusion at which I have arrived, from a large number of calliper measurements, is that the only conspicuous and general difference between the male and female head, lies in the superior developement of the basilar organs in the male, their depth and breadth being decidedly greater than in the female head. This difference is sufficient to account for the observed differences between the sexes; the superior muscular and vital force of the male, his greater sensuality and tendency to crime, his restlessness and greater adaptation to out-door life, and the remarkable adaptation of man to active courage, while woman excels in passive endurance.

The assertion commonly made by phrenologists upon theoretical grounds, that woman excels in the developement of the lower part of the occiput, (the so-called Philoprogenitiveness of Gall and Spurzheim,) is not sustained by the facts. The smaller development of the basis of the brain, particularly in the Combative and Destructive regions, may give to the middle part of the occiput in woman, an apparently fuller developement, but there is really no greater prominence.

Much of the differences between the male and female characters, is to be found not in the comparative size of organs, but in their comparative activity. In the sphere of feminine pursuits, the animal forces are less excited, while the organs of Adhesiveness, Inhabitiveness, and Love, are rendered much more active. This difference of organic activity, is displayed in a marked manner in the female countenance, which has in consequence more of symmetry and beauty than that of the male.

The anatomical differences of the male and female, necessarily imply a different organic activity in the brain. The mathematical principles of physiological pathognomy, indicate that the female brain must necessarily have a greater activity in the middle coronal region; and that, in consequence of this, the female countenance should present a fuller development and more roseate color, in its upper portion. The mathematical principles which demonstrate that proposition, I need not now detail; suffice it to say, that they clearly demonstrate the superior organic activity in the coronal region of the female.

The different spheres of the sexes, as a general rule, are therefore indicated by nature; the one more domestic, refined, and loving—the other, more adventurous, coarse and powerful. At the same time, the differences between the two are so moderate, that individuals of either sex, may often be found excelling in those things which are more characteristic of the other sex, when the customs and laws of the country do not forbid such spontaneous developement.

LECTURE XCIX.—NATIONALITY.

Guided by a true Neurology, the differences of races and nations, become far more intelligible and interesting. Craniological differences, which are the most important characteristics in the study Ethnology, constitute a comparatively meagre and mechanical study at present, as the science has been explored by naturalists. A few general remarks upon the characteristics of national crania, neurologically considered, may serve as hints in the prosecution of ethnological studies.

The just remark of Cuvier, that there is no exception to the stern law of nature, which condemns nations with crania depressed and compressed in front, to inferiority to those with a more favored organization, will scarcely be doubted by any one acquainted with national crania. Nations with receding foreheads, having heads of a moderate length antero-posteriorly, and with but little prominence in front of the ear, are necessarily of very moderate intellectual power. If the forehead be very narrow as well as receding, they will probably occupy the lowest grade of barbarism, being defective in innate refinement, and lacking the capacity to originate arts, sciences, and literature. The narrowness and the breadth of the front lobe, are perhaps the most decisive indications of the tendency of any race to stagnate in barbarism, or to advance to the highest state of civilization. According to a sketch in Lawrence's Natural History of Man, the front lobe of the African race is the narrowest, that of the Caucasian or European is the broadest, and that of the Mongolian occupies an intermediate position. The narrowest national developement which I have seen, was that exhibited in the skull of a New Hollander, a race occupying the lowest position as regards their ignorance of art, and incapacity for cultivation. Among North American savages, there are many specimens of fine cerebral developement, and I have noticed, especially among the Choctaws, many crania indicating a high capacity for civilization. The barbarism of the North American savages is not owing to a lack of intellectual ability or capacity for the arts, but rather to a deficiency in industry and love of indolence, owing to a strong developement of the base of the brain, and a fondness for rude or savage life, owing to the developement of the region of Coarseness in the occiput. Nations with a broad and prominent occipital development, are likely to adhere to barbarism, and progress but slowly, even when their intellectual ability, artistic skill and literary genius, would qualify them for rapid advancement in civilization.

A state of war, by exciting the occipital and basilar organs, powerfully contributes to maintain the spirit of conservative barbarism. Domestic factions, civil discord, and high political excitement, have a similar tendency. The progress of races in civilization cannot,

therefore, be inferred by intellectual developement alone, either by its prominence or breadth, as the indolence arising from the basis of the middle lobe, and the coarseness of taste produced by the occiput, are as efficient in retarding the progress of the arts as intellectual deficiency. As the tendency to indolence gives breadth to the middle and lower part of the face, it becomes a very satisfactory observation, to look at the skull from above, comparing the breadth of the front lobe with that of the facial bones. In the engraving given by Lawrence, the bones of the face project around the front lobe much more in the Mongolian and African than in the Caucasian.

If, on the other hand, the face be narrow and the front lobe broad, we have the indications of an active, nervous, and intellectual temperament, as in the head of Mazzini. Breadth of the forehead and upper part of the head, is one of the important characteristics of national superiority. A nation characterized by narrowness or lack of breadth across the upper part of the head, from the right to the left temporal arch, will be more addicted to the excesses of the animal passions generally, and less controlled by the higher intellectual and moral powers. This breadth at the temporal arch gives activity to the moral faculties, and general activity to the brain, indicating thereby a much more elevated character than belongs to the narrow head. Races having this broad conformation, are fitted not only for civilization, but for orderly and harmonious society. They make peaceable and patriotic citizens, and give but little trouble to a good government.

In the heads of middle Europe—the German, Polish, and Hungarian—this breadth of developement is quite remarkable, and indicates capacity for immense advancement in civilization, in art, science, philosophy, government, and social happiness. Races of narrower heads are more disposed to be factious, turbulent, meddlesome, overbearing, grasping, and tyrannical. Their domestic affairs are disorderly, and contentious, and they are best harmonized by being engaged in foreign war. On the contrary, heads broad in the coronal regions are inclined to peace, to domestic life, and the proper sources of enjoyment.

It is difficult to speak with confidence of national crania, on account of the immense number of observations necessary to form a correct opinion, but from the observations which I have made upon national varieties of developement, I regard the people of central Europe as better adapted than any other people, to the permanent establishment of a peaceful, stable, and happy condition of society. In what is called the Anglo-Saxon race, the elements are not so happily balanced, the occipital energies being less counteracted by the temporal breadth, the character consequently being more ambitious and aggressive. Hence, we observe in Great Britain and the United States, a remarkable spirit of enterprise and national aggrandizement, running into an overbearing love of conquest. This ten-

dency, however, in the United States is modified by the intermixture of various races, the results of which are still undecided.

The height of the cranium in different races indicates the strength of the moral sentiments, as well as the dignity and heroism of character. Upon this subject, we have not much satisfactory information, in reference to the different races. Heads that measure largely from the top to the bottom, indicate great strength, both in the moral emotions and in the passions, and consequently imply great force of character and moral influence. Heads that are remarkably shallow and narrow at the basis, indicate a feeble race, and will be found only among people of small or meagre physical dovelopement. Gigantic races will be characterized by great depth in the cavities of the cranium, breadth of the basilar region, largeness of the cerebellum, and the great size of the foramen magnum, and space between the petrous portions of the temporal bone, as well as a large develoopement of the foramina for the blood vessels in the basis of the cranium.

In savage races, the inferior portion of the middle lobe will present a greater relative developement, indicating thereby their indolence and sensuality; while in the civilized, the breadth of the face, bears a juster proportion to the elevation of the head in the region of Firmness and Energy. The breadth of the cheek bones in the inferior races of mankind, compared to the Caucasian, is what we might expect from their inferior energy.

In comparing the occipital elongation of crania, we may regard those nations most prominently developed in the occiput as the most grasping and ambitious, and hence most likely, if they have a sufficient amount of civilization, to exercise a leading influence in the affairs of the world. So far as I can judge from my observations upon German and French heads, they have less of this occipital elongation than we find in the English stock. The occiput in the French and Germans is broad and rather deep, indicating a considerable amount of impulse and energy, but not the intense love of conquest, display and superiority, which belongs to the elongated occiput. The love of glory in the French and German does not so decidedly demand the subjugation and humiliation of opponents, nor in the social life of the French and Germans so incessant a struggle for ascendancy, and so fierce a rivalry of rank, as prevails among those who speak the English language. The simple, easy, and natural politeness of their social intercourse, is quite a contrast to the stiffness and reserve of the English, a great portion of which has been transplanted to America. These differences are owing to the proportion between the occipital length and the temporal breadth, the former predominating in the English and American developement, the latter in the French and German.

If I should venture to speak from general impression produced by observation, and by the statements of travellers, I would say that

the English forehead is more characterized by prominence—the French and German by breadth. In the German head, the breadth is combined with the fullness of the reflective organs, giving a symmetrical developement, and in the French head the breadth of the forehead being associated with a more marked developement of the perceptive, but less developement of the reasoning organs. The breadth of the temples, gives to the French their skill in the arts, their taste, their natural refinement of character, their delicacy of sensibility, and their prompt excitability.

The habits of nations, in reference to residence and mode of life, depend much upon the Inhabitve region which widens the head at the upper part of Cautiousness and Sublimity. Nations broad at this region, are disposed to settle down steadily in industrial pursuits, and provide for themselves a satisfactory home. But those in whom this region is narrow and the occiput deep and broad, are inclined to wan ler about restlessly, and care but little for the attractions of in-door life. This is another of the important influences determini g the tendency to civilization or barbarism.

The tendency of races to political freedom or despotism, may also be judged from the occipital organs. Occipital elongation, although it may give a spirit of conquest and domination over others, gives also the love of liberty for ourselves, and makes us scorn to submit to any despotic power. This is the source of the love of liberty in England and America; and a more moderate development in the French and German races, qualifies them to submit more patiently to the decrees of arbitrary power. The mere love of liberty, however, will not secure political freedom without a sufficient Integrity, Patriotism and Philanthropy to sustain good government.

The adaptation of races to climates may be learned chiefly from the basilar organs. In cold climates, a higher degree of physical force is developed; the lower part of the face and the chin becomes more prominent, the region of Sensibility in the temples is diminished, and the occipital organs generally are better developed. In warm climates, the head tends rather to roundness of developement; the occipital and basilar organs are less prominent, Sensibility and Ideality are more fully developed, Alimentiveness is smaller, the region of Coldness and Cautiousness is fuller, and the lower part of the face, if prominent, has less breadth, and the chin is less conspicuous, while the lips are rather more prominent and the whole face has a smoother and more juvenile outline. Such at least should be the results in accordance with the known effects of climates upon the mental and physiological faculties of man.

Appendix.

VALUE OF ANTHROPOLOGY.

On the Utility and Practical Tendencies of Neurological Science in General and Anthropology in Particular.

In the "Outlines of Lectures on the Neurological System of Anthropology," I have presented a very brief and concise abstract of a boundless Science. Like a miniature engraving of an immense landscape, it will hardly yield even to intellects of microscopic and telescopic powers, any adequate conception of the great original from which it was taken. Hence I feel tempted to add a few words of commentary upon the scope, the value and the bearings of the Science.

The grand idea which is represented by the word Anthropology, the science of man individually and collectively, (embracing not only the relations of man to the elements of Nature, and the powers and destinies of the human soul, but the past, present and future nations) is still inferior in dignity and scope to the idea which is represented by the word Neurology, since the former is limited to man alone, while the latter embraces, in addition to man, all animated Nature. Hence the latter is the term which I have generally preferred to use in designating my researches. Nevertheless as the present treatise does not cover the entire ground of Neurology, but refers to man especially, I have adopted the title of Anthropology in preference. There is another reason for this choice in the fact that the public mind has become somewhat accustomed to the word Anthropology, in giving currency to which I have had the co-operation of many writers, but is still unfamiliar with the word Neurology (the use of which in its comprehensive sense has been confined to myself) and it is difficult to give that word in the popular mind its true meaning and dignity. Notwithstanding my frequent and careful definitions of the word in my popular lectures on Neurology, the public mind generally limited its meaning to the nervauric experiments for the excitement of the impressible brain—the *visible* experiments attracting far more attention than the *invisible* science, which they served to demonstrate. It was indeed a little provoking to find that educated gentlemen and even grave professors of medi-

cal science were not above this *peurility*. Nothing exhibits so forcibly the fundamental defects of our system of education, as the general incapacity or indisposition to investigate any subject of a philosophical character, and the extreme facility with which the most peurile and superficial ideas that can be suggested by prejudice or indolence become current, even among the most enlightened classes of society.

The leading motives of society at the present time are ambition and self interest. Hence, whenever one would sketch the great future of Humanity or delineate the grand truths by which that future is to be ushered in, the thoughts are so entirely foreign to the habitual mood of men's minds that they generally make little or no impression by their own strength. It is only in proportion to the eloquence and energy with which they are urged that they move even for the moment the dull inertia upon which they have to act, in the minds of the majority.

There is, however, an increasing class of those who are dissatisfied with the present and the past, who perceive the limited and defective character of our Anthropological sciences, and who are eager to receive from Nature her greatest and most beautiful truths, loving them all the more for the fact that they have so long been hid from mankind. To such this work is mainly addressed, and I cherish the hope that however brief and condensed my exposition of Anthropology may be, they will not be indifferent to that great future which is even now at hand, and to which these truths are the open portal.

After making a hasty demonstration of the fundamental principles of Neurology before a literary committee at New York (in 1842,) of which the learned Dr. Forry was the most active member, the opinion was expressed by the committee in their report that "they have had sufficient evidence to satisfy them that Dr. Buchanan's views have a rational experimental foundation, and that the subject opens a field of investigation *second to no other in immediate interest, and in promise of important future results to science and humanity.*" Yet are those "important future results" obvious to all minds, after reading a condensed synopsis of the principles demonstrated? I would fain hope they were, but the numerous questions that we hear in society, in reference to the practical utility of principles and discoveries of the most obvious importance may convince us that it is only those who receive a truth with cordial and genial appreciation, that realize its tendencies and its utility.

The tendencies and utilities of the Neurological System of Anthropology may be considered under the following heads.

I. EXPANSION OF THE MIND.

One of the great causes of the follies and miseries of mankind is the contracted developement which the intellect receives in the mere study of facts and effects without acquiring an adequate knowledge of causes. The constitution of man, a great epitome of sciences, being continually before the mind, with innumerable facts

to which the explanation is wanting, a habit is generated of resting contented with mere facts and ignoring philosophy. This is especially true in that unsatisfactory department of knowledge, the science of medicine, the influence of which as taught at present is by no means favorable to philosophy.

The constitution of man, mental and physical, being the master piece of creation, the mind is necessarily greatly expanded in its contemplation. The mind of man assimilates in character to the subjects of its thoughts; if they are simple and monotonous, as when one is confined within the four walls of a narrow cell, mental dullness and vacuity are the result; but if complex, profound and diversified, yet intelligible, the intellect is continually invigorated by such subjects. Of all subjects of human thought there are none so profound and so truly intellectual as the human mind; and I can declare from personal experience that I never have such clearness of mind, such facility of perception and fertility of thought as when engaged in the experimental investigation of the mind.

It has long been the habit of the world to discard without investigation new and marvelous facts merely in consequence of an incapacity to perceive how such facts could be reconciled with facts or doctrines previously established. A mind properly expanded by the study of a true Anthropology will seldom fall into this common error. The new modes of thought introduced by a true Anthropology prepare the mind for an indefinite amount of future progress, and, by indicating what may be expected in the future, prepare us to welcome new truths as they are presented.

II. SELF STUDY AND SELF IMPROVEMENT.

The Neurological system portrays character with remarkable minuteness by the details of Cranioscopy, but in addition to this, it gives us positive information of the power and condition of every organ of the brain by Caniological Psychometry. If one is in doubt as to what are really his governing motives, the Psychometer by touching over the various cerebral organs will determine readily which are the governing powers. If he wishes to know whether his mind has that harmonious balance which leads to the best results in character, the Psychometric diagnosis will enable him to ascertain it. If he wishes to know whether any predominant passion is liable to mislead or pervert his judgment—the Psychometric investigation will inform him. It realizes Burns' wish "to see ourselves as others see us," or rather enables us to see ourselves in a faithful mirror. How many are there, indeed, of the passionate men who lead and mislead society, who would be greatly benefitted by the dispassionate investigation and friendly advice of Craniological Psychometry. There is a great field of usefulness open hereafter to the true Anthropologist as a friendly monitor of society. When the science is adequately established in the public mind, the friends of any one who is following unwise impulses will lead him at once to the shrine of Philosophy for the correction of his errors. They will subject

him to Psychometric exploration, and the results attained will be received by all as the dicta of impartial and passionless truth. All who sincerely desire to do right will rejoice in the opportunity of obtaining this assistance and even these who are not strictly conscientious will feel a curiosity to know what is the result when their character and capacity are guaged by an accurate and truth telling science.

These results were never satisfactorily attained by the Gallian Phrenology, for aside from its inaccuracy and incompleteness, it had no power of penetrating beyond Craniological developement to determine the actual condition of the organs as modified by education and the circumstances of life. Hence to evil characters the old science told rather a flattering tale, informing them of their inherited capacities for goodness, but saying nothing of the degeneracy of those faculties produced by a vicious life, or of the morbid activity of their evil passions arising from their over indulgence. A system of so little accuracy and so little penetrative power, abounding, when practically applied, in flattery and error, could not rightfully assume that high function as a social monitor and moralist, which belongs to the Neurological system.

Under the new system, the Anthropologist becomes one of the important members of society,—not merely the gratifier of an idle curiosity, but a practical teacher of virtue and wisdom. His function is similar to that of the Clergyman, and in fact although the Anthropologist may not be formally a Clergyman, every Clergyman should be, for the fulfillment of his own duties, a thorough Anthropologist.

It is not merely in Craniological and Psychometric examinations that we may realize the influence and guidance of Neurology. When we are familiar with the localities of the various organs of the brain, we may watch their action by means of local sensations. In my own head, the local sensations are always sufficient to indicate the activity or inactivity of the organs, and not only do I find in this an additional certainty of the organic functions, but it gives me also an accurate knowledge of the condition of the brain. I never fail to recognize over every very active organ a sufficient amount of local sensation to indicate its condition, while on the other hand inactive organs are indicated by an entire absence of local sensation.

In self study we derive material assistance from the indications of Physiognomy. When changes are occurring in the character, it is highly interesting to be able to watch their indications in the face. An admonition from our looking-glass that certain traits of character are declining may prompt us to adopt the necessary plans for their cultivation and developement. If in the intense industrious exertion of our faculties in the pursuit of intellectual and moral objects we gradually exhaust and undermine the physical constitution, it will be a striking admonition, when we discover that we have thereby marred the symmetry of the countenance, and that the depressions which have occurred in the lower half of the face are a palpable

record of our Physiological decline—a record continually reminding us of our error, until by sleep, relaxation, agreeable exercises, &c. we have restored our constitutional symmetry and the regular beauty of the countenance. If, in the collisions and pursuits of business, our affections gradually decline from the absence of all lovable objects and the presence of much that is annoying or offensive, we are admonished by a loss of the roseate beauty of the upper part of the face, and by a positive depression of the surface, that much of the beauty of our moral nature is taking its departure. Early attention to this hint, by cultivating pleasant society and forming intimate attachments may restore the declining faculties and preserve the symmetry of our nature. The energetic cultivation of our various faculties is rewarded by a distinct expression of each in the face which is gratifying as a direct testimony to our success, and is also a proper reward, as the cultivation of the nobler faculties produces a great improvement of the facial expression.

It may be supposed by some that the study of character for self improvement could be prosecuted with equal facility independent of any Craniological or Physiognomic system; that self-scrutiny and the observation of society could teach us our own defects and lead us on in self-improvement; but in fact such unscientific observations are very inadequate to the proper criticism and development of character. Without an accurate science of the brain, the self-student is like a student of Geography without a map or globe; he may have considerable knowledge of the details of his subject, but it is in a very confused condition; the mutual relations of the faculties are not understood, and it is impossible that his knowledge should be complete or accurate. It is very common for the self-student, unassisted by Neurology to persevere with laudable energy in the cultivation of his character according to certain models, entirely unconscious that in doing so he is departing from symmetry, and decidedly mistaken as to the nature of the faculties that he is really cultivating. For Religion he often cultivates the organs of the sidehead, mistaking a reverential fear and cautious self-restraint, belonging to the group of cold and selfish faculties, for the warm ennobling influence of Religion. For Conscientiousness or Integrity, he cultivates a liberal commingling of Combativeness, Hatred and Disgust with the true faculty, mistaking his opposition and railing against evil, for the exercise of a virtue. For Firmness he often cultivates Combative stubbornness, losing the calmness and self-control of the former faculty; and acquiring an unamiable bigotry, if not a gloomy harshness.

How common is it, too, to suppose that we are cultivating the virtues, when we are only assuming the external forms or performing certain acts, without exercising the corresponding emotions. The mere performance of just or benevolent acts without exercising the corresponding emotions, produces but little real improvement of character, and does not elicit that gratitude and esteem from others which respond to genuine feeling. Neurology enables us to make

that critical survey of self, which detects the absence of the proper emotions which should accompany each act. The manners which we assume from a sense of duty or propriety are often an inefficient formality, productive of no good either to ourselves or to others. One may go through life, living up to his own highest conceptions of duty in his manners and acts, yet fail entirely to produce those satisfactory impressions on the minds of others, to win that social influence or to secure that esteem and gratitude which he deems his due. Unacquainted with the causes, he can but repine at his fate and reproach society for its insensibility to his merits; but with a proper knowledge of Anthropology, he perceives the true causes of failure in himself, he perceives that the vital warmth, the moral energy which belongs to a brain of symmetrical activity are lacking, and that his external failure is a mere consequence of his own internal defects according to the just and invariable laws of nature.

Neurology guides us in that profound criticism of self which shows that virtue consists not of external acts, but of the internal emotions and impulses from which the acts arise. In the common conception of virtue, external deeds alone are thought of, and moralists, while directing our attention to particular acts, do not teach us how to cultivate or how to recognize in ourselves the organic energies and impulses which constitute a superior character. One who has this superior character is more respected and admired while trampling on many of the rules of society than others of inferior endorsements in observing the strictest propriety. True goodness or nobility of character is superior to all rules. Anthropology alone gives us a just idea of this nobility of character and points out in detail the mode of cultivating and strengthening its development.

The accurate criticism of Neurology continually points out faults errors and defects in our life and conduct which the ordinary moralism of society overlooks for the want of a scientific knowledge of man. How common is it for example, to indulge in gloomy views of every subject, which produce unhappiness and render those about us unhappy, without being aware that in so doing we are making war upon some of the highest virtues? How common to lay aside the obligations of industry whenever our pecuniary circumstances are capable of sustaining us in idleness, without suspecting that our course is vicious? How common to seek a luxurious escape from the ordinary exposures and duties of life until the constitution becomes degenerate and feeble? And how common to indulge in wholesale expressions of contempt or censure against classes of society, against parties or doctrines, or even against unexamined truths, unconscious that we are violating important laws of our moral nature?

III. REGULATION OF SOCIAL INTERCOURSE.

Our deportment in society is governed either by our own impulses or by traditionary usage. There is no standard of the prin-

ciples of society to which we can refer. That standard must be found in the science of man. I find in Anthropology a distinct indication of the answer to all social questions.

If an inquiry arises as to the amount of deference due toward different individuals in society,—whether the oriental style of homage or the democratic Yankee abruptness is the more consonant with the dignity and elevation of human nature—we have several distinct principles in the science of man, by which the question may be answered. We have but to enquire, what is the legitimate function of Reverence, Modesty, and the social faculties; what it is that they demand when acting vigorously, but not sufficiently predominant to injure the strength of the character and constitution. Whatever is the legitimate demand of these faculties, should be complied with, whether it coincides or not with our individual taste; and as there are many varieties of deportment, in the matter of deferential politeness and personal honor, those who differ very widely in their taste, may learn to tolerate each other, by recognizing the legitimate varieties of character and deportment, which are compatible with rectitude and happiness.

The question—what relations persons of different character and social position should bear to each other, in society, would receive a different solution by every one, according to the character of his own mind; or, in other words, according to the proportional development of his organs;—and there is no possibility of harmonizing the various ultra democratic and aristocratic tendencies, except by a comprehensive science, which points out the merits of each code of manners, and shows the exact benefits and injuries arising from each. Democracy and aristocracy, must continue for ages to struggle for the control of society, Anthropology alone, can be their arbiter.

If a question arises as to the relative amount of gayety and gravi ty which should characterize our manners, and their relative influence upon society, Anthropology distinctly indicates the relative influences of the humorous or mirthful, the playful or cheerful, and the grave, morose, and melancholic moods. It indicates too, the importance to our health and happiness, of keeping up a certain sprightly gayety, through life, even in that advanced old age which many consider the proper time for gloomy gravity. Neurology, indicates clearly that an animated gayety should run through life, and that cheerful sports should constitute a part of the daily recreation of the entire community.

If a question arises as to the relations of the sexes, and the degree of familiar association which should occur between them, Neurology affords a satisfactory answer, by showing the influences which cultivate Amativeness and Love, and the influences which these organs exercise upon the whole character. The entire question as to the relative spheres of man and woman, is embraced by this science, which points out the peculiar characteristics of each

sex, and the proper mode of giving them their highest development, as well as the influence which each can exert upon the other.

On all of these subjects there is a great deal of traditional opinion, and conventional usage, which it not strictly founded in the laws of nature, and which would be greatly modified by the influence of science. Nations and communities differ widely upon all questions of social intercourse, yet there is but one science, which should regulate them all, and which must ultimately approximate the nations of the earth, in their views upon these subjects, to the standard of truth.

IV. EDUCATION OF THE YOUNG.

Anthropology indicates the entire plan of education;—shows what it really is as to its results, and what are its most important processes. It shows the sympathetic power of the voice of the teacher, and the importance of oral instruction. And while it shows that a proper education consists in the complete development of the entire man—which few would be disposed to question—it points out in detail what that development should be, and what are the proper exercises for the cultivation of each trait of character. It not merely gives the general plan of education for all mankind, but indicates by its critical survey of character, the modifications appropriate to the case of each pupil, in order to bring out his powers symmetrically. It explains to the teacher the defects of each pupil, and thus prepares him to overcome them. If, for example, he discovers that the backwardness of the pupil is owing, not to ignorance, incapacity, or wilfulness, but to the discouraging influence of the deficiency of the organ of Self-confidence, he will not sacrifice the capacity of such a pupil, by neglect or by harshness, but will encourage and sustain his deficient confidence, until he is enabled to do justice to his powers.

If he finds the dullness of a pupil, owing, not to any deficiency in the organs of the higher understanding, but to some lack of development in the perceptive organs, he will not confine him to mere lessons of descriptive details and denounce his incompetency, but will address his understanding rather than his memory and thus give a pleasing activity to his mind. If he finds his pupil deficient in those organs which give vital Physiological force, he will be warned against taxing too heavily, his intellectual powers, and will perceive the necessity of developing his character and constitution, by a more vigorous out door life, and by placing him in situations which will develope his force of character. If he finds his pupil deficient in the organ of Reverence, he will be careful to surround him with proper moral restraints, and to guard him with especial care, from associating with reckless, overbearing and turbulent spirits. If he receives for a pupil, one who has acquired a bad moral reputation, he will readily perceive whether this is owing to a fundamental deficiency of his moral nature, or whether his higher faculties are well developed, and need only vigorous cultivation, to throw off

previous evil influences. In short he will understand when and to what extent, to apply physical restraint or punishment, and the moral influences which develope the nobler qualities. If he finds in a youth of superior moral and intellectual qualities, a tendency to depression or melancholy, he will not overlook this, as one of the inexplicable mysteries of providence, but will institute a course of employment, and pleasant excitement to give preponderance to the cheerful faculties.

Education, guided by Anthropology becomes an exact process. The individual is educated to a definite end. If his natural capacities, and the circumstances of his parents, indicate any definite pursuit, he may be trained with exactness to excel in that vocation, and, whatever may be his natural failings, even such as would not be developed in childhood, he may be trained and guarded against them, from the commencement of his life, so as to counteract all his natural errors. The constitutional tendency to intemperance, and to gambling, are marked in the cranial development, and there can be no doubt that vicious tendencies, properly controlled and subdued from the first, may be prevented from displaying themselves in after life. The entire regulation of the character and constitution of the young is so complex a duty, that we need not be surprised in the present state of ignorance, to observe one half of mankind dying in infancy and the surviving half afflicted with vice, disease and crime. [The mortality of the civilized nations at the present time is much less than this estimate.

V. REDEMPTION OF CRIMINALS.

The educational powers which are adequate to rear the young for an honorable life, are also adequate to take the victim of neglected education, and materially renovate his character, by the systematic and vigorous cultivation of his higher powers, and a rigid paralyzing restraint upon his misleading faculties. I would hope to see the time, when the State shall no longer abandon her most unfortunate children, (the criminals,) but shall extend a parental care to that class, as well as to the insane and the sick—curing all that were curable, and providing amply for the efficient restraint of the incurable class.

The idea of the redemption of criminals, may seem visionary to those who look only at existing facts, without reference to the fundamental laws from which those facts proceed. These fundamental laws assure us that each human being, as he enjoys all the faculties of his nature, is capable of exercising all his higher powers, unless he has degenerated so far as to become an irrational and irresponsible being. They also assure us that when the temptations of the animal nature are withheld, the higher powers can be brought into predominant activity, by suitable motives and objects presented to them, or by the sympathetic energy of the same faculties in others. The voice of a warm-hearted eloquent man, if listened to for two or three hours each day, would exert great power over the inmates of

the State prison, and the presence of lovely women, continually calling forth the affections and sympathies, in connection with moral and intellectual training, would gradually change the nature of the sternest felon. An extensive course of oral, literary and scientific instruction, occupying two or three hours daily for a number of years would give such a predominance to the anterior half of the brain as would bring the vicious impulses under the control of judgment and conscience, if the moral faculties were strengthened by proper exercises.

VI. FORMATION OF FRIENDSHIPS AND MARRIAGES.

In the formation of friendships, our natural Psychometric capacity is generally sufficient to enable us to choose a suitable friend. Still there are many errors in the selection of friends, and many vague painful doubts of their character, from which Neurology might relieve us. The extent and novelty of the revelations which it makes beyond empirical observation, may be realized by one who has known a friend for years, by observation, and believes himself practically familiar with all his characteristics, but afterwards becomes thoroughly acquainted with the principles of Neurology and applies the science to the estimation of a character, previously known by experience. Such an application of science makes a wonderful improvement in our knowledge. It is like the rising of the Sun on a foggy morning—bringing every object into distinct view. However familiar our personal knowledge may have been, there are many portions of the character, of which our estimate is rather indefinite, and which we would be puzzled to estimate in the exact language of science. When we observe in the exact conformation of the head and face, indications similar to the character which we have known, but in all respects more definite, precise and satisfactory than our previous knowledge, we are impressed with the practical value of such a science. Indeed, so very different are the just and accurate conceptions of science, from the vague notions of common observation, that I frequently hear the confession from persons to whom I have given a minute phrenological description, that the account of themselves, or their friends, was more accurate than they could have given themselves. Although their actual knowledge was, necessarily, more thorough and minute, as to the daily habits of themselves or their friends, they were unable to give to that knowledge the systematic form, the clearness, precision, and accurate estimation, which belong to Neurological science.

If benefits so remarkable, may be produced in the ordinary investigations of characters, which we have had full opportunities of studying, how much more important must such a science prove, in forming the permanent alliance of marriage. It is difficult for persons of opposite sexes, whose intercourse is necessarily restrained by their relative positions, to have anything like that accurate personal knowledge of each other, which may occur between friends, familiarly associated in business, and, even if the most unreserved

intimacy existed for years, the parties are still, in an entirely different relation from that which they occupy after marriage; and in the relation of lovers, indulging pleasing anticipations of future happiness, their defects are mutually disguised, and their peculiarities effectually modified by this position. Hence, there may be a great deficiency of proper mutual knowledge, even after long intimacy, much more after the short acquaintance and courtship, which so often precede matrimonial engagements.

That thousands of unfortunate and unhappy connections, have been made from these causes, and that persons who might have been happy in other relations are thus often brought together to their mutual unhappiness, is a proposition which no one can doubt. Hence, I think there is an imperative necessity that Anthropology should be considered an essential part of every course of liberal education, since, without its assistance, we often advance under the guidance of a vague instinct alone, in the most important and critical undertaking of life.

In making the matrimonial selection, upon which our happiness is to depend, the hesitating, indecisive feeling, produced by a lack of satisfactory knowledge, is promptly removed by the definite information which Neurology affords, and thus we are enabled to advance rapidly in the research and discrimination which are necessary to a superior choice. Nor are the advantages of the science limited to personal inspection. On the contrary, a correspondence at a distance, aided by the power of Psychometric investigation, and the revelations of a daguerreotype, may insure a better mutual adaptation, than is frequently produced by personal intercourse.

VII. RENOVATION OF SOCIETY.

A society in which a true Anthropology presides over the education of the young, in which each is assigned his proper place according to organic development, in which families are formed according to principles of mutual affinity, and in which public opinion forms an accurate appreciation of each character, may be considered a well regulated community. But in addition to these individual operations, there are certain great principles for the organization of society itself, and the mutual relations of its members. There is a science of society which points to the different principles upon which it may be organized, and the different results which these principles produce, for each element of human nature, has its particular social tendency,—a tendency to organize society in a certain manner; and a complete Anthropology, pointing out all the forms which society may assume, under the influence of our different organic impulses will enable us to choose rationally, that form of society, and of domestic as well as governmental and commercial relations, productive of the greatest happiness and the most rapid advancement of mankind. What estimate Anthropology must form of individualism, guaranteeism, limited association, and special or general communism, I need not now express, as the subject is too

extensive for a casual notice, farther than to remark that each form of society appears to be the natural expression of a certain cerebral development, and consequently most appropriate to a people among whom that development is most prevalent. But as each form tends to educate mankind into a corresponding character, that form of society which belongs to the most elevated development, should be encouraged as much as possible, however impracticable it may appear in the present condition of human nature.

VIII. RENOVATION OF MORAL PHILOSOPHY.

Anthropology, gives us the same view of moral Philosophy, as of society; that is, it points out each doctrine, or system of moral Philosophy, as the product of a certain condition of development or organization. When each organ, or group of organs, has expressed its natural Philosophical system, we may recognize that as the true system, which belongs to the higher groups of organs, and the amount of selfish debasing influence, belonging to any particular doctrines, may be determined by the character of the organs which espouse them.

IX. RENOVATION OF THEOLOGY.

The same process which is applied to moral Philosophy, may be applied with equal success to theological doctrines. We may determine readily, which have the greatest intermingling of the basilar passions, and which is the purest expression of the truth and goodness implanted in the constitution of man, with which, all Divine truths, must necessarily be in harmony. If we discover that the perverting influence of the fiercer and more selfish or more profligate passions, prevalent in the past history of mankind, has been the means of developing particular Theological doctrines and views of the nature of the Deity, we shall be justified in discarding these gross perversions of Divine truth, and adopting views more nearly in harmony with that Divine light, which flows into the souls of all who are open to receive it.

X. RENOVATION OF HISTORY AND BIOGRAPHY.

The operation of Anthropology upon human knowledge, is not entirely prospective; its retrospective action will be rich in the curious and entertaining. Psychometric investigation is not limited to living heads, and recent manuscripts. Ancient manuscripts and other records of the past, furnish remote stand-points, from which the intuitive faculties may review interiorly, the characters of statesmen, heroes, and authors of the olden time, and even cast a prying glance into the hidden details of history. As the geologist finds in fossil remains, and geological strata, the early history of our planet, so may the Psychometric explorer, call forth from the material present, the historic past which it entombs.

That humanitarian history may thus be revealed, has already been demonstrated, by my own Psychometric explorations; and I deem it highly probable, that the same intuitive power may accompany the

researches of the Palxontologist, illuminating the vast and remote regions of science, which comprise the successive development of the vegetable and animal kingdoms, and the revolutions of mineral strata. As the individual when he has attained the adult development of man, understands the history of his own generation and infantile development, so I believe, will the race, when it has attained intellectual maturity, be enabled to comprehend its own origin, its primeval history and final destiny.

It will be deeply interesting to witness the first applications of Psychometry in determining the true character of such men as Cromwell, Napoleon, Calvin, Luther, and other historic celebrities, concerning whom different opinions are entertained by zealous partizans.

XI. RENOVATION OF MEDICINE.

That Neurology will ultimately effect a thorough renovation of medicine, and place it upon a Philosophical basis, will be rendered obvious by a few considerations. The art of medicine, consists in adapting remedies to our numerous infirmities and disorders. The difficulty, heretofore has been: First, that medicines have been selected not by a judicious and thorough exploration of nature, but merely by bringing into use such articles as happened to have been successfully tested in the treatment of disease. Hence, we are indebted for our materia medica, mainly to accident, instead of scientific exploration. Neurology, enables us by experiments upon the human constitution, to carry out a systematic exploration of nature, and select our remedies from untrodden fields, instead of depending merely upon what chance has given us. Second: when remedies have been introduced into use, their application has been based, not upon a philosophical view of their relations to the human constitution, as determined by accurate experiment, but mainly upon the empirical fact, that, certain remedies have been used with a certain degree of success, in certain diseases. So much of our science of materia medica, rests upon this empirical foundation, that the whole medical art, presents a very repulsive appearance, to minds which demand philosophical perspicuity and rational explanation. Medicine is often denounced as a chaos, or a medley of empirical observations, even to a much greater extent than is just. Much has been done from time to time, in ascertaining the relations of drugs to the human constitution, and removing this reproach. The followers of the homœopathic system, have been pre-eminently industrious in their explorations of the materia medica, and have made extensive contributions to its Philosophy; but their investigations have been too much controlled by a reference to a single principle, or Therapeutic law, and have been far less profitable and satisfactory, than they would have been, had they been assisted in their progress, by a system of Neurology, capable of developing the fundamental principles of correlation and sympathy between the various organs.

A course of experiments, elucidated by Neurology, and taking a comprehensive view of the relations between man and medicine, will furnish all we need, to render medicine a philosophical system.

XII. DEVELOPMENT OF DIETETICS AND HYGIENE.

The science of health and the science of diet, are rapidly acquiring an empirical development. Palpable facts in reference to the effects of food and regimen upon the constitution of man; are continually accumulating, but in this we have the same chaotic development, the same incompleteness, as in medicine, we have no satisfactory Philosophy of health and disease, and we have less philosophic knowledge of the effect of diet, than we have in reference to medicine. The Psychological influences of diet, are but little known indeed.

Upon this subject, a science has to be created, and Neurology points out the mode in which it may be done. Such a science would furnish us the means for cultivating any desirable faculty or trait of character, by the proper selection of diet.

Hygiene and dietetics, must ultimately take precedence of medicine, in popular utility and importance. They are grossly neglected in the infancy of the race, and overshadowed by medicine, but the time is coming when medicine will be restricted to a narrow space in the history of humanity, and when hygiene and dietetics will sustain mankind, in a position in which they will be inaccessible to any formidable inroads of disease. The knowledge of the laws of health, happiness, procreation, and education, which will be diffused among the masses, will render severe diseases or epidemics rare and remarkable events.

XIII. DEVELOPMENT OF RATIONAL THERAPEUTICS AND PATHOLOGY.

The establishment of rational views of medicines in their applications to the human constitutions requires a proper conception of the nature of disease in general, the relations of various diseases to each other, and the *modus operandi* of their cure. Our existing Pathology is certainly rich in its treasures of facts, and minute descriptions of disease. But our whole system of Pathology has no unitary bond in the science of the nervous system and central life of man. Hence, however voluminous and accurate it may be, it cannot be Philosophical; and for want of Philosophy it fails to indicate a just system of Therapeutics. At the same time, the existing Therapeutics, being principally based upon empirical observation, it may be affirmed that the entire science of medicine, defective and empirical alike in its Pathology, Therapeutics and Materia Medica, is incapable of completing its growth into a perfect science, because it is lacking in one of the essential elements of thorough science, lacking in Philosophy, lacking in central principles, lacking in a knowledge of the correlations and sympathies of organs and the modus operandi of Therapeutics.

In fact it is a brainless science, (having ignored the functions of the brain) and like other acephalous monsters, incapable of progressing to a complete development. That the development of the defective department of medical science, which supplies its Philosophy, will renovate and complete the whole, is perhaps, nearly a self-evident proposition.

XIV. PERFECTION OF ART.

Like practical medicine, dietetics and hygiene, the fine arts, have been mainly empirical. Without a science of Sarcognomy, and without scientific Physiognomy, there was no such thing as a scientific delineation of the human form. However perfect the artist might have been in anatomy, his knowledge of expression, was derived from casual observation and Psychometric or intuitive tact.

It cannot be denied that, highly gifted men, may thus empirically produce great works of art, just as gifted individuals and clairvoyants, may work out wonderful cures in the treatment of disease, yet, no one would decry the value of science, because genius and industry may accomplish much without its assistance. Guided by the principles of organic and Biagnomic Physiognomy and Pathognomy, the expression of character in the human countenance, in the person and in the attitude becomes as clear and accurate a science as its expression in the conformation of the cranium. Nor are the contributions which this knowledge will give to practical art, of trivial importance. It has enabled me, already to view the works of celebrated artists, from a totally different point of view from any occupied by critics, to point out errors which commonly escape notice, and to realize, how very far artists have fallen short of doing justice to their own powers by the lack of Physiognomic and Sarcognomic knowledge.

There is a far higher walk of art, for the sculptor than any yet have reached; and, painters, aided by Anthropological science will yet create a school of art, so new and beautiful, as to reveal by comparison, the barbarism, or rather, empiricism, of our predecessors.

It is not merely in reference to man, but in all the creations of art, that new canons of taste will be evolved. Pathognomy elucidates the principles which render architecture imposing, and which give dignity and beauty to the landscape; and the Psycho-chromatic science, based upon experiments on the brain, by which I have ascertained the relations of each color to the various emotions and faculties of man, shows how and why colors are expressive and beautiful, what are their harmonious relations, and how they may be made to elicit the human emotions.

This subject, (Psycho-chromatology,) has not been embraced in the present publication, because a subject of so beautiful and delicate a character, could not be judiciously presented in the brief limits, and upon the condensed plan, of the present outlines. The science of light and color, with the science of sound and music, I reserve for future publication.

XV. DEVELOPMENT OF ELOQUENCE.

If there be at the present time, in the world any scientific exposition of the art of eloquence I am not aware of it. There can be no such science, until the nature of man is thoroughly understood. We must understand the Pathognomy of each individual organ, the Pathognomic relations of man to man, the effect which the speaker produces by sympathy and by induction, and the mode of cultivating and developing in himself the various Pathognomic elements of eloquence. These are all furnished by Neurology. It is true that a brain, incapable of eloquence, in consequence of defective development cannot obtain it; but much may be accomplished by any one, whose organic development is not defective. Every symmetrical human being, should be capable of speaking with eloquence, if properly instructed in the science, which furnishes every principle and every detail that are necessary.

XVI. PHILOSOPHY OF MESMERISM AND PNEUMATOLOGY.

The host of wonderful facts developed and developing, in reference to the action of one human being upon another, the power of mind over matter, and the power of dis-embodied mind in physical and intellectual manifestations, are overwhelming to one who has no philosophic science to account for the phenomena, and give to each its appropriate place. To the thorough Neurologist, there is nothing in the phenomena of human nature, so strange as to be startling. Every thing falls within the scope of the fundamental principles of the constitution of man,—and spiritual mysteries, are beautifully elucidated, by the complete correspondence, and mathematical harmony, between the spiritual and material laws of our being.

To the thorough anthropologist, the "Nlght side of Nature," is not altogether a region of moon-light, shadows, mist and darkness. He sees distinctly, and understands satisfactorily, the mysterious facts of this shadowy realm, without feeling that he is lost, or that he has been lifted from a sure resting place on terra-firma.

XVII. UNIVERSAL ADVANCEMENT OF SCIENCE.

In conclusion, I would allude to the universal advancement of scionce, which begins with the establishment of Neurology. Existing sciences will advance by new methods of investigation, sciences unknown and unsuspected, will spring into being—and here I feel tempted to allude to dynamic sciences, of imponderable agents, and psycho-physical sciences, lying undeveloped, as well as to grand cosmic sciences, of which I have learned the fundamental principles; but I must withhold the magnificent promise, too much of anticipation and assertion, I have already given; but I cannot forbear giving, at least, a vague allusion, to the future, for the gratification of those who are looking onward—who have realized the steady security of the steps which I have already taken in demonstrative science, and who have faith in our future progress.

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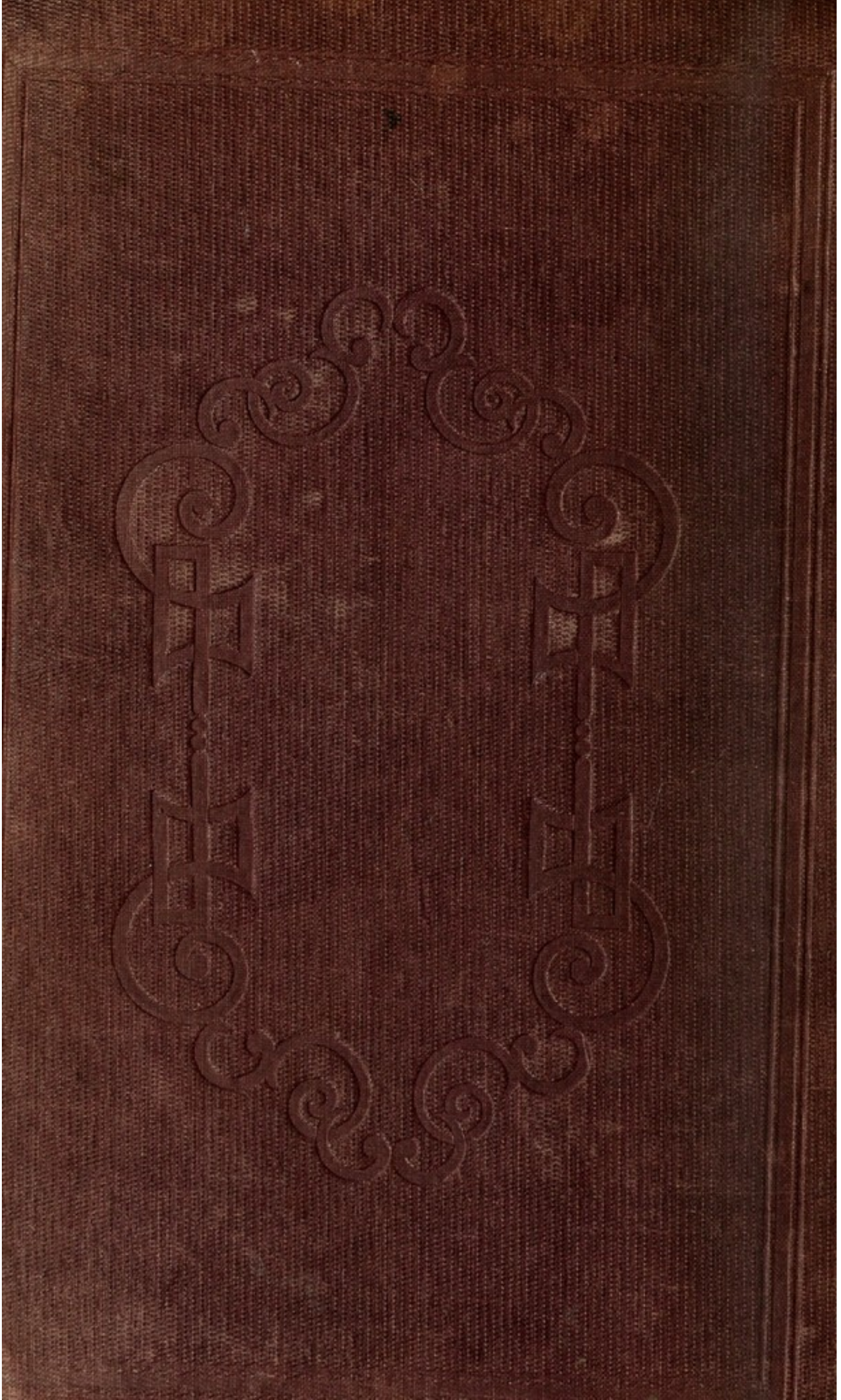
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