THE

PHYSIO-MEDICAL DISPENSATORY:

A TREATISE ON

THERAPEUTICS, MATERIA MEDICA, AND PHARMACY,

IN

ACCORDANCE WITH THE PRINCIPLES

OF

PHYSIOLOGICAL MEDICATION.

BY

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PREFACE

THE present time is unusually prolific of means proposed for the treatment of disease, and the volume here offered to the public would not have been written, had it been designed only to increase the list of remedies. Nor is there any deficiency in the claims to unfailing curative powers set up for each agent; and this book would have been a hopeless undertaking, had its purpose been to multiply the assurances of infallibility attached to every leading remedy.

But, in the midst of such abundant means and such glowing commendations, there is a general distrust of the prominent agencies employed. Prof. John Hughes Bennett, of the Edinburgh University, gravely says: "All those who have acquainted themselves with what is known of the structure and composition of the tissues, the laws of nutrition, and the pathological changes which occur in organs during disease, must feel astonished at the unfounded assumptions, want of evidence, and even unreasonableness, which characterize writings on the action of medicines." And the late Sir John Forbes, after an active professional life of more than half a century, openly declares of the prevailing system of practice: "Our estimate of this kind of treatment must be entirely of a damnatory character; the slight amount of good ever derived from it being counterbalanced by a huge sum of evil."

Remarks of the above tenor are quite common among the ablest teachers in the Allopathic or so-called "regular" profession. While this school has always deemed it heretical to question even its most unreasonable assertions, it has ever been employed in putting aside one set of measures and experimenting with another. Only by years of sad failure would its practitioners learn to free themselves from the blind confidence instilled into them during their college reading on therapeutics; and those failures, alas! too often meant untimely graves for unconscious patients. Three centuries ago, such articles as skulls, claws, newts, frogs, lizards, bed-bugs, and other vermin, were among the prominent remedies of that profession. These gradually gave place to blood-letting, antimony, calomel, the mercurials, arsenic, and similar means. At the present time, these latter agencies, which have been the pride of Allopathy for one and two hundred years, are being pushed aside to make room for opium, aconite, veratrum, bromine, bismuth, woorara, prussic acid, and strychnine. The past were found unavailing against disease, and received the condemnation of mankind; though the profession tenaciously clung to them as long as the people would consent to employ them. The present have been adopted out of necessity; and though they are as loudly praised as the past once were, they are equally repugnant to the commonsense of the world. Extravagance in laudation can not long sustain any course of treatment that proves lacking in curative efficiency; and the failures of Allopathy have been so numerous and so constant, as to challenge a rigid examination of every thing it may offer. When such a body of men so continually change from one untenable position to another one equally untenable, their vacillations furnish conclusive proof that vital and radical errors enter into their belief. And when, through so many generations of a monopoly in medical facilities, they fail to develop a Materia Medica upon which they can themselves place any reliance, they are in no position to lay claim to the public confidence. Such

is the status of the Allopathic school of physicians this day; and their confessions of their own uncertainties and their own failures, show that they have established nothing reliable in therapeutics, but are adrift upon the sea of experiment, with a list of poisons for sheet-anchors.

Remedies are to the physician what tools are to the mechanic; and while all known agencies are free to every man alike, the possession of a larger or a smaller Supply Table does not establish the skill of any practitioner nor the wisdom of any medical sect. The department of Materia Medica does not constitute a system of medicine, but is only the hand-maiden of Pathology. No deception can be more shallow, either to the medical man or to the public whose patronage he seeks, than for one to claim superiority on the ground of an acquaintance with the medicines used by all the others. For, while the study and the employment of all medicines can not be denied to any man, they can not all be used alike under the widely different doctrines in pathology and therapeutics that separate the several schools. Some medical men there are who would thus engulf all others in their own absorbing folds; and who pride them- selves on being qualified to select any agent, or to pursue any system of practice, that may suit the patient. Such vaunting claimants confess themselves to be without opinions; admit their readiness to accept every thing that each new comer tells them; and proclaim their willingness to be without scientific principles, providing such abnegation of manhood will bring them gain. The true physician will study, and select, and apply his means, according to the stand-point from which he views disease and its requirements; and any medical man who deserves to be considered above the pettifogger, settles his mind upon some definite views of pathology, and fashions his practice according to the convictions he has adopted.

When the cause of the failures of Allopathy are sought for, they are found in its false and untenable pathology. The central idea around which its fabric has revolved for the past two thou- sand years, is found in this expression of Prof. M. Paine: "*The substitution of one pathological condition for another, is the only contribution that Nature receives from Art.*" In other words, the Allopathic rule in treatment seeks the removal of one dis- ease by making another disease in its place. This, as Prof. R. Dunglison says, "is the ordinary medical practice;" and this doctrine permeates every thing that comes from Allopathy. Out of this springs its other proposition, *Ubi virus, ibi virtus* — where there is poison, there is virtue. If disease is to be made, poisons must be used for the purpose; and it is only on this ground that calomel, antimony, arsenic, blisters, iodine, opium, veratrum, gelseminum, strychnine, and other destructive agents, were introduced as remedies. Every change in the Allopathic Materia Medica has been from one baneful list to another; its agencies are extolled on the ground of their being able to "make disease;" and most of its new and boasted remedies are more potent for mischief than many of the old ones which have been rejected. And to such an extent do these doctrines prevail in that fraternity, that it fails to understand the true nature of harmless remedies; and entirely mistakes the time and place of their application, because such a pathology can not make use of a sanative Materia Medica.

So long as such doctrines prevail, it would be impossible to make any radical improvement in the treatment of disease; for an attempt to do so would be too open a

censure on all that Allopathy had ever done. Hence, while that school has made much progress in Anatomy, Physiology, Symptomatology, Diagnosis, and kindred topics, it has steadily conformed its Materia Medica to the rule of using poisons; and its entire numbers and influence have ever been used to oppose every suggestion in practice that did not accord with its primeval pathology, and to crash oat every such proposition with the most bitter persecution. Thus it has ever been a strange fact that the improvements in practice that the world has witnessed within the last thousand years, have all met with the most violent opposition from the self-styled “regular” profession; and have been accepted by them only when they could no longer resist the popular clamor, and then only just so fast as they could smuggle the improvements into their own ranks without giving proper credit to the discoverer — who, perhaps, had already been hunted to his grave by Allopathic malignity. Those who taught the circulation of the blood, the use of Peruvian bark, vaccination, and nearly all similar useful medical knowledge, were in turn defamed and reduced to beggary by that profession; which has in the same manner persecuted the discoverer of lobelia, and all those who aim to benefit mankind by making a radical change in medical practice.

The school of Physio-Medicalism, in whose interests this volume has been written, adopts a pathological and therapeutical basis entirely different from the above. It teaches that disease can be cured only by the use of such agencies as conform to the laws of Life and assist the powers of Nature. It rejects poisons of all kinds, and refuses a place in its Materia Medica to any article that tends to cause disease. It denies that the skill of man can impart a curative power to an agent that God has stamped with a power to destroy. It does not reject the old merely because it is old, nor accept the new because of its being new; but reads the open Book of Nature as the one grand source of earthly wisdom, and weighs every thing in the balances of Nature’s truth. This volume is designed to elucidate the doctrines of therapeutics held by this school, and to give an account of the" many remedies that harmonize with its pathology. The introduction of a few remedies constitutes but a meager portion of this system; for its remedies are so numerous, and are possessed of such desirable and unequaled curative powers, that a correct description of them is a labor of no inconsiderable importance.

The design of this volume has led to a free discussion of the tenets of other systems. While we may not assail upright men because of differences of opinion, all public teachings are legitimate objects of fair criticism. It has thus become necessary to show that Homeopathy is no improvement upon the doctrines of Allopathy, though it directs a superior hygiene; for it uses all the Allopathic poisons in conformity to the idea of making one disease to cure another — only stipulating that the new disease shall resemble the original one, and that the poisons shall be given in small doses and in palatable forms. It has also been a duty to expose the pretenses of Eclecticism; a school which offers no principles of its own in either pathology or therapeutics, which uses the most virulent Allopathic poisons with a recklessness unknown even to Allopathy, and which prides itself on always stepping in to appropriate as its own the laborious discoveries and hard-earned honors of others — a sect without a tenet in science, and claiming a merit for the number and bold- ness of its conflicting plagiarisms. The little good it contains, lies in the few remedies it has surreptitiously

taken from Physio-Medicalism. The remainder of Eclecticism is Allopathic doctrines and practice; and the same poisons will work the same disasters, no matter by whom administered.

This volume has been written in the midst of active college, editorial, and professional duties; therefore some indulgence is asked for the literary defects which the eye of criticism will readily detect. But however limited its polish, it is hoped that its facts and teachings will be of use to the profession, and of value to mankind. When the humane principles of this system prevail — as in the nature of truth they eventually must — they will revolutionize the sciences of pathology and therapeutics, place medicine in harmony with the other sciences, and confer such a healing blessing upon the human race as has not been equaled by the whole medical researches of the Christian era. It will be a sufficient honor to know that this volume has been of any material value in hastening that happy triumph of a purely sanative medication.

William H Cook

Cincinnati

February 25, 1869

THERAPEUTICS

DEVELOPMENT OF SCIENCE.

1. SCIENCE literally means, *accurate knowledge*. The word is used to distinguish true and reliable information, from all forms of mere speculative or perverted statements which either are not true at all, or true only in very small part. In its most common usage, this term embraces the idea of accurate and positive knowledge arranged in an orderly manner; and specifically includes an acquaintance with the powers which produce various phenomena, and the laws or modes according to which those powers act. ART is an application of the facts and principles of science, for the procurement of some desired end.

2. In itself, science makes no laws; but merely studies and organizes the facts and laws that are presented in Nature. In many of the affairs of life, men devise certain plans which either facilitate their labors or gratify their tastes; and when these plans are widely accepted they pass under the name of SCIENCE. Thus, architecture is classed among the sciences; because men have agreed to follow certain general styles of building, which present graceful and pleasing outlines to the eye. The rules of Parliamentary and Congressional debate are called science, because they aid in securing harmony and justice in the conduct of legislative bodies. But the rules of architecture are not established in Nature, being merely the devices of man for his own enjoyment, and therefore they are arbitrary, and may be varied or entirely laid aside, at pleasure. Congressional rules of order are also but human conveniences, and may be change or abrogated at will. All such laws as these, are merely *artificial sciences*; and should be very carefully distinguished from *Natural Sciences*, which are established by God in the very constitution of the creation. Man may use artificial sciences at his pleasure; but he must himself submit to the influences and powers which make up the Natural Sciences.

3. It is important that this distinction between natural an artificial sciences should be clearly defined. It is quite to common for men to confound them; and to look upon the arbitrary regulations of man, as of equal weight with the establishments of God. From such confusion it soon follows that, as the roles of man may be disregarded at will, so the laws ingrafted on creation may be disobeyed with impunity. By carefully distinguishing between the work of man and that of the Almighty, the mind will at once comprehend that there is all the difference of an infinity between a violation of the one and an attempt disregard the other.

4. In obtaining an insight into a Natural Science, it is first necessary to observe facts, and then from these facts reach an understanding of the established laws of that particular science. The facts do not make the laws, but merely illustrate them; and all research is thus based upon the conviction that the laws Nature are definite and unchangeable. Each fact is the same as a definite result of some fixed cause; and as the repetition of any one phenomenon is found always to proceed from the same cause, the influences and modes which determine the phenomenon become the text of one of Nature's unvarying laws. Taking a stand at any point upon the earth, it is observed that the sun rises there at a given moment; but that this moment changes from day to day, yet is the same on any stated day any succeeding number of years — allowing for the fractions time. These observations point toward a law of

motion in the universe; and as the phenomenon of a rising sun occurs with such exact regularity, the power or law which produces its rising can not be other than an absolute and unchanging law. From the known, regularity of this law, the precise moment the sun's rising can be calculated for any locality, for any number of coming years or centuries.

5. All science, then, is knowledge obtained through observation. As it can not be called science till it has been made accurate, or till the knowledge itself is complete and true without any admixture with error, it becomes necessary to observe the reputed facts with scrupulous exactness. And it can not be expected that any law of Nature will be established by a few observations, however judicious they may be; but that a large number of separate facts shall be associated in the elucidation of the law. Thus, observations need to be multiplied greatly, and generally to be made from very different standpoints, and each to be confirmed by the concurrent testimony of others, before a single law can be pronounced to be known or proven. This course is slow and toilsome, but is the only one upon which reliance can be placed. Astronomy is one of the most exact of the sciences; yet it required thousands of studious observers, in different quarters of the earth, devoting their entire lives through many successive centuries, to establish its laws and demonstrate its phenomena on principles.

6. Facts and observations must not only be numerous; they must also be made with great exactness. True science, in nearly all its departments, has always been retarded and injured by men. coming to large conclusions from a limited number of observations, or from facts and observations incorrectly recorded. And the more complex and extensive the science, the more tendency does there seem to be to forego patient labor in its development, and to reach conclusions on very meager premises. Too generally is it the case that certain opinions are first adopted, and then all observations are thrown aside except such as can be forcibly manipulated to sustain those opinions. In this way, the most common facts are deformed and discolored till they could not be recognized, or would not even recognize themselves. All such distortions are but so many forms of falsehood; for science, like the law, requires not only the *truth*, but the *whole* truth, and *nothing but the truth*. It admits of no concealments, and allows no additions. It requires that each fact shall be sifted and tried, till it stand isolated, freed from all extraneous associations, and pure in its own naked verity. Such a fact is a treasure to the seeker after science; but all others are dross and rubbish and corrupting waste, and do immense mischief to the world. And yet there is such a fascination in being the author of some new and ingenious idea, that too many hasten to seize upon such crude observations as suit their purposes; and from these as data, go on to the propounding of whole systems of what they are pleased to call science. The several parts of their scheme may harmonize, and its details may seem to fit into each other snugly enough; but the data being incorrect, the conclusions must be false; and soon these conclusions will be found unstable under the test of other observations, the world of other facts will prove them to be untrue, and they and their promulgator will be swept out of sight by the storm of derision that will arise to confound them. Had the ingenious speculator been as faithful in adding to the common stock of knowledge, as he was in trying to sustain his own ill-founded

fancies, he might have been an ornament among men, instead of delaying science and making himself a laughing-stock.

7. The ill consequences of crudity or insufficiency in observation, are seen in every walk of knowledge. Less than three hundred years ago, chemists spent their days and their fortunes in researches after the "philosopher's stone," which was supposed to be a mysterious substance that would turn into gold every thing it touched. Chemical changes are very numerous, and many simples become of great value from admixture with other simples; but the schoolboy of today knows that the philosopher's stone was a whimsical impossibility, and the ancient chemists might have learned the same truth, had they be more accurate in their observations. Those same old chemists also spent fortunes in trying to find the Elixir of Life — a supposed something which would prolong existence forever, despite laws of God and the experience of ages. It was for a long time the belief that the world was a flat surface, and rested on t back of some monster; and even later was it the belief that the earth stood still and the sun revolved around it. Now we know by the light of more advanced knowledge, that those old opinions were foolish; yet the arguments by which they were sustained, seemed to be facts. We laugh at the absurdity of such old-time notions, and can readily see that they were entertained merely on the authority of limited observations which were asserted to be facts, but which wider observations proved were not facts. It would be entirely premature, however, to suppose that the ancients alone were thus misled by inaccurate statements. It only a few years since a learned English physician was astounded, during a popular discourse on Physiology, by a gentleman rising in the audience and saying he knew of a woman giving birth to a child, one-half of which was entirely black. Not wishing to seem ignorant of an explanation, for even such a monstrous phenomenon, the lecturer proceeded to state the laws according to which it probably occurred; when the same gentleman in the audience arose and said he had forgotten to state that the other half of the child was black also! It was noticed, in the early part of the present century, that the gatherers of sponge and kelp on the Scottish coasts did not suffer with goiter. Iodine was the principal ingredient for which those substances were gathered, so it was concluded that iodine kept away the goiter. Next it was presumed that this was done by iodine acting as a stimulant to the absorbents; and from this grew the practice of employing this article as a promoter of absorption under nearly all circumstances — a practice that started in a wild supposition, that did not grow out of the observation of a single well-attested fact, and which to this day has nothing beyond supposition for its support. (See *N. Y. Med. Rep.*, Jan., 1868.)

8. The investigation of science, therefore, demands that every fact should be observed in all its parts, and upon all its sides; it nothing should be added to it, nor aught taken from it; that it should be stated in company with all its connections, and s results implicitly abided by. And facts should be verified experience — which is but another class of facts. This experience, also, should be scrutinized with the same care as the facts themselves; for there is everywhere a remarkably strong tendency to misconceive the purport of one's experience. And this experience, to be of any value, must be positive, and not negative. If a large number of men, of reliable character and careful statement, acting quite independently of each other,

concur in recording a unanimous experience on any question, the greatest weight is due to their testimony. That is *positive* evidence; and is not to be controverted by any one or any number of men saying they have not had the same experience. The latter is *negative* evidence; and results from either overlooking, withholding, or concealing, some of the conditions connected with the observations of the others. And yet there is an almost universal tendency among men either to reach conclusions through an experience that is utterly exaggerated, and which can not be verified by the simplest tests; or to uphold some preconceived opinion of their own by refusing to accept the accumulated experience of others on the plea that *they* have never seen it. This latter coarse is on a parallel with the King of Siam who threatened to imprison the British officers as common liars, when they told him that water would sometimes become a strong solid in their country. He had never see such a thing; and hastened to take his limited experience as a standard for the whole world. Many medical men act as absurdly as the presumptuous king, by contending that opium an other poisonous agents are not hurtful, because *they* have not seen them produce death — thus, by their trifling negative experience, attempting to set aside the positive testimony of thousands of men in all parts of the world. Such a course betrays the narrow insincerity of a charlatan, and is a hindrance to the progress of all real science. (§29.)

9. Nothing is more thoroughly established in science, than that Nature never suffers any variations either in facts or principles. All her operations are harmonious; and when a phenomenon is observed to occur under certain definite conditions, the same thing will always occur when the same conditions are repeated. It is because these rules of action are thus definite and fixed, that knowledge is prized; for if the operations of Nature were subject to change, no value could be attached to her laws, and her processes would be mere questions of accident. But in no department of science is such confusion found o exist; for a law once clearly demonstrated by exact observations, is found to be always the same, and always capable of the same exact application. The laws of mechanics having once been elucidated, maintain their exactness throughout the world; and scholars everywhere can calculate their application to the closest fraction. The laws of optics being unraveled, suffer no shadow of change; but are precisely alike through all age and in all climes. The laws of gravitation being once known suffer no variableness — whether studied in their relations to a falling feather, or in their applications to the motions of heavenly bodies through the inconceivable immensities of space. And thus on every hand, the same positiveness in science prevails; and gives the stamp of eternal truthfulness to Him "with whom there is no variableness, neither shadow of turning." His laws are the same "yesterday, today, and forever;" for whether those laws were discovered by man recently or long ago, they were established by His hand at the Creation, and will unquestionably remain unchanged while time shall last.

10. In the applications of Science to the purposes of Art, success depends entirely upon the clearness with which those laws are understood, and the closeness with which they are obeyed. All God's laws will yield their several appropriate triumphs or failures, according as they are followed or disregarded — the moral laws in the moral world, and the physical laws with equal

positiveness in the physical world. To violate any of them, will insure defeat in all the ends therein aimed at; but humble and minutely scrupulous obedience, will reap a certain and most honorable reward. The mechanic does not hope to raise blocks, move steamboats, drive locomotives, or perform any other mechanical labor, except by strictly conforming to mechanical laws. The optician does not hope for success in preparing spectacles for the eyes, or in making telescopes with which to penetrate the heavens, unless he closely follows the laws of optics. The chemist does not expect to produce the simplest combinations of matter — not even to prepare so coarse an article as soap — except by obeying the laws of chemical science. To disregard these several classes of scientific principles, is to reap nothing but failure; while the most noble achievements are made possible by submission to them. Submission, in fact, is the highest evidence of true knowledge; for there can be few greater displays of ignorance than for one to know so little of natural laws as to imagine that he can act independently of them, or that he can lay any of them aside as not having an absolutely binding force.

11. In the course of scientific research, it not unfrequently occurs that new facts are met, which seem utterly to contradict all previous knowledge. Thus, it is a current fact that water will extinguish flame; yet phosphorus may be ignited under water; and sugar may be prepared so as to burn freely, though submerged. Again, water falls by gravity; yet a little of it dropped on a level surface of red-hot iron, will be suspended a short distance above the surface. Mercury remains fluid and untarnished in the air; but the application of a moderate heat will cause it to pass into a bright-red powder, and then the application of a much higher heat will cause this powder to volatilize, when the mercury may be condensed in its original fluid and metallic form. Similar peculiarities are abundant throughout Nature. When new ones are met, there is an inclination among many to deny them altogether, merely because they can not yet be explained; or to accept them with simple credulity and at once lay aside every previous acquirement of fact and principle, because they seem to conflict with the more recent discoveries. Both these courses are extremely unwise, and can result in nothing but the confusion of such facile philosophers Were every new and strange observation to overthrow all past researches, then the acquirement of knowledge were vain. It is only when past opinions are founded on glittering speculations rather than upon solid facts, that advances in discovery will unsettle what has been relied upon as scientific; for never yet has true progress overturned a fact or principle that has one been demonstrated. Full confidence in one's previous knowledge and in the unchangeableness of true science, will preserve on from foolish haste in forsaking old laws to run after novelties. If the new developments can not at once be explained, that merely suggests that they may point to some law as yet not understood. Let them be tested, and let them be verified (if possible) by additional and exact observations; and in due time their meaning will be unraveled and the law of their production elucidated. It will then be found that the laws do not conflict with each other; but that one law, having a number of conditions supplied in its favor, manifests its power, while the other and less favored law lies dormant but not destroyed. The two can not operate at the same time. The ripened seed lying upon the floor, exhibits no vitality; but when

supplied with the several conditions of air, light, warmth, and moisture, it soon manifest its power of germination. By patiently investigating strange facts, the beautiful harmony in all Nature's processes will be only the more thoroughly exemplified; and the wisdom of implicit reliance upon her laws be the more forcibly enjoined.

12. While the above remarks apply to the study of all sciences, they are in some respects particularly applicable to the science of medicine. This department of knowledge is too often studied as if it were without laws — a mere assemblage of confused and ill-sorted observations, which have no meaning except such as each man sees fit to attach to them for himself. Often its statements are too crude to be of the least consequence, and too exaggerated to deserve the least reliance. It is generally dealt with as if it were a mere bundle of speculations, from which nothing definite or reliable need be expected. Its so-called "principles" are supposed capable of being changed from year to year — old ones being discarded as new ones are promulgated. Such a shifting scheme could not be a *Science*; and if this subject is to be made or considered a science, it must be cut loose from all such unworthy surroundings, and established by the same methods as are necessary to the establishment of other sciences. Its facts must be shorn of all fanciful additions, and presented in their rigid simplicity. Its observations must be made with impartial exactness, and recorded with the sternest reference to nothing but the truth. The laws developed through these means, will be simple but far-reaching; and will be found in harmony with all the laws in all other departments of Nature. And they will be found as definite, as exact, and as unchangeable, as all other laws. They will also be as capable of application to the purposes of Art; and can be relied upon to produce fixed and certain results, whenever the conditions necessary to their operation are supplied. And above all will it be found that these laws are as absolutely binding upon the physician, as are mechanical laws upon the mechanic and chemical laws upon the chemist. When the practitioner thus learns and humbly obeys the rules and principles which God has ordained in connection with medical science, he will reap that success which always accompanies submission to Heaven's laws, and will hasten the day when his calling will fully deserve to be entitled the "Divine Art of Healing."

RELATIONS OF MATTER AND MOTIVE POWERS

13. In making a general classification of Nature, the simplest form of division would at once make two general series: 1st. Material substances, cognizable to one or more of the senses, and possessing the common properties of Matter. 2d. Unseen motor powers or forces, which act upon the substances and thus produce the various phenomena of Nature. It will next be observed that each and every material, or substance, bears certain definite relations to all the other substances; as, for instance, that sugar will dissolve in water, that salt will dissolve in water but not in alcohol, that alcohol will dissolve resin but water will not, that iron will rust and lead tarnish in a damp atmosphere, but that gold and platinum will not thus rust or tarnish. These relations are not only thus definite, as concerns each separate substance; but they are also fixed and unchangeable. (§9.) In like manner each substance holds a definite relation to each of the natural powers or forces. Water readily flows down an inclined plane, and passes into vapor at an elevated temperature, and becomes solid at a certain reduced temperature. Mercury also flows readily, but require a much higher temperature than water to vaporize it, and a much lower one to solidify it. Alcohol flows more readily than either, is vaporized at a decidedly lower heat than even water, but can not be solidified by any known degree of cold. Here then, are three distinct fluids, bearing differing relations to the forces of gravity and caloric. In like manner they will found to hold different relations to the forces of cohesion, electricity, light, and the other motor powers; or, what amounts the same thing, that the several powers act upon each of these substances differently. In this manner all other portions of matter in the universe are found to have their own individual and peculiar relations to those powers; and these relations are always the same under the same circumstances — as that perfectly pure water, at the level of the sea, will boil at 212° of Fahrenheit's thermometer, in all parts of the globe.

14. The several relations between substances and powers being thus definite and positive, these relations remain precisely the same with the most varying quantities of matter. A fluid drachm of perfectly pure water, has the same chemical composition, the same sensible qualities, the same (proportional) solvent and other physical properties, as would pertain to a barrel or to an ocean of equally pure water. And the small quantity would flow with the same readiness, and boil at the same temperature, as the larger quantity. A grain of salt has the same taste, color, gravity, solubility, preservative properties, and chemical composition, as would a barrel of salt, or all the salt of the oceans if it could be gathered in a mass. When two chemical substances unite, they do so in certain definite proportions; and these proportions never vary to the smallest fraction in a compound thus produced, whether the resultant mixture weigh a grain or ten thousand tuns. An ounce of copperas dissolved in four ounces of water, at once yields a deep blue precipitate when a solution of red prussiate of potash is added to it. If ten grains of copperas are dissolved in another four ounces of water, the same solution will produce the same kind of precipitate. If the tenth part of a grain is dissolved the same amount of water, the potash solution will again and instantly yield the same color. And thus through all the domain of Nature, the relations of substances to each other, and the action of any or all of the motor

powers on those substances, remain exactly the same in *kind*, without the least reference to the *quantity* in action. The *amount* of the change or the influence will vary according to the amounts used; but the *character, quality*, or *kind*, of the change or influence, never varies by the increase or diminution of the quantity. Were it otherwise, there would be no such thing as law or rule or principle in Nature. The proposition would seem to need no proof, and it really requires none at the hands of men truly scientific; but a number of medical men have been led astray by the absurd proposition that the quantity of a substance alters its relations and actions; hence it is necessary to make it plain, beyond a peradventure, that such a thought has not the least shadow of a fact to support it in any department of science.

15. But while the relations between matter and forces are thus fixed, the action of substances upon each other, and the action of powers upon substances, are more or less dependent upon circumstances. Gravity acts upon bodies without regard to space; but chemical power can not act on them except as they are brought into the closest contact. Wood and coal remain unburnt at all ordinary temperatures; but when their temperature is raised to 800° or upward, they bum readily — providing they are at the same time supplied with enough fresh air. Dry substances many times remain unchanged, though mixed ever so intimately; but enter into chemical combination quickly, on the addition of water. These several influences of circumstance, are parts of the law of action connected with each particular case. By supplying the necessary conditions, man can hasten the changes; and by withholding the conditions, he can retard the changes, or even prevent them altogether. This is a very important prerogative enjoyed by man; and contributes largely to his happiness. All the operations of Art depend upon the use he makes of this privilege which his Maker has granted. But, while the supplying or withholding of certain conditions may thus advance or retard the operation of natural laws, they can not destroy these laws. These remain the same in power, however dormant they may appear; and while adverse circumstances may delay the assertion of their sway, the moment that the favorable requirements present themselves, (whether with or against the wishes of man,) they will assert their full force.

16. Turning, now, from viewing the merely physical portion of the world, and it will be found that these same principles extend themselves to the human frame. It also holds its relationship to each and every substance in Nature. As the living body is held in life and action by a living force unlike, and superior to, all other forces, it by virtue of that force has a given capacity to act upon other substances and forces. And man can never be viewed correctly in his wide relationships, unless his material and immaterial components are considered together. To take cognizance only of his material portion, would be to deal with him as if he were a mere dead animal. To be concerned only with his Vital Force, would be to study him as if he were a spirit. (§24.) It is this fine adjustment of vitality with matter, that raises man above all other earthly creations; and any attempt to study his position in the universe without continuously recognizing his composite nature, we utterly fail in all the ends desired by investigation.

17. Substances and powers act upon the human body in several general ways. 1st. *Physically*; as in pressure, the contractile

influence of cold, the mechanical violence of blows, etc. 2d. *Chemically*; as in the corrosions of acids and of alkalies. 3d. *Supportively*; as in the vivifying influence of air and light, and the nourishing relation of food.

18. The body, by virtue of its life power, reacts upon the above several influences, according to their separate kinds, and always for the welfare of the frame. 1st. It resists pressure, endures cold, and withstands blows. Could not the body thus act, its fluids would congeal long before the thermometer reached zero; and the child would be destroyed by the numerous falls and bruises it is sure to receive. 2d. It overcomes the power of chemical laws, which are always at work to resolve the tissues and fluids of organic beings into other and simpler compounds. Every structure in the frame of man is made of ordinary elements, arranged into forms utterly unlike those that would harmonize with chemical action, and hence formed and maintained in positive opposition to chemical laws. When the vital power leaves the frame, chemical affinities begin assert their rule; and the decomposition that then takes place, illustrates the character and magnitude of the changes to which vitality had so long opposed its superior force. 3d. It appropriates food, drink, and other suitable materials and influences; using them to maintain the general strength and integrity.

19. But the capacity of the vital power in these and other directions, has a determinate limit. It will successfully resist ordinary blows and falls, and preserve the organs intact under common accidents; but it can not maintain the soundness of the organism against every degree of violence, and hence the flesh and bones will surely be torn and broken by certain degrees of mechanical force. Mild alkalies and acids and other chemical corrosives, may be successfully withstood; but there are escharotics of such strength that the frame can not endure them, but will surely break down before their destructive action. In like manner, it can digest certain amounts of food; but is utterly unable to continue the process of digestion all day long, and will refuse to pour out gastric juice continuously. And not only are these facts true as relates to the body at large, but each organ has its own particular limits, which may be relatively greater or less than that of other organs. The mucous membrane of the mouth is more easily lacerated or corroded than the skin would be; and an escharotic that might be unable to make any impression on the tough palm, might be capable of at once destroying the delicate lining of the throat or stomach. Skin, in turn, is less resistive than tendon, and tendon than bone; the nerves of smell are more acute than those of touch, and the sensitiveness of the eye is far greater than that of the hand. The same comparisons might be continued through all the organs and tissues.

20. This law of limitation in regard to the living frame, is a fact of the greatest importance, and one that should never be allowed to escape the attention. It serves to keep clear the bounds that are set to the control of vitality over the mere elements of matter; and to impress the mind with the conviction that, while the operations and capacities of life are many and wonderful, the other forces of Nature may impair these operations and sunder the connections between the material and immaterial. The physician, especially, has the greatest need of remembering this inevitable law; for his daily duties call for repeated references to it. For instance, the same life power that resists violence, and proves superior to certain chemical actions, and digests food;

also appropriates the nourishment to the wants of the various tissues, and opposes the causes of disease, and struggles for the restoration of health in case of sickness. And in these latter cases, as well as in the former, it has a limitation. It can not appropriate superlative amounts of nutriment, it can not resist disease-producing influences indefinitely, it can not restore health under all circumstances. Its capacities in these respects also vary in different persons, and in the same person at different times. It is readily seen that one has a stronger constitution than another; and it is equally plain that the strong man will resist a degree of cold to which the invalid would at once succumb, that the vigorous will digest a quantity of food which would be impossible to one just rising from a bed of sickness, that the hearty will rally from a shock of injury which would prove instantly fatal to the enfeebled. The duties of the medical man call him to make perpetual estimates of the vital capacity of his patients — their capacity to resist the accidents and bad influences to which they an subject, their capacity to rally from the prostrations they may have suffered. Such estimates are a constant recognition of the law of vital limitation — the reason for which law man is unable to comprehend, but to which he makes submission because it is so clearly established by the Almighty.

HEALTH — DISEASE — THERAPEUTICS.

21. In studying the phenomena of life, we observe that the Vital Principle appropriates food, resists injuries, and performs all the operations of the frame, by means of the animal organization. The force itself can be studied only in connection with the organism; for the moment the two are separated, the body begins to molder under the influence of chemical laws, and the life principle passes beyond the comprehension of man. A great temptation in the pursuit of medical inquiries, is to disjoint the force from the frame, and attempt to study them as if they bore no mutual relations. This can not be done with success; for it is a fundamental condition to the inquiry, that the phenomena exhibited by the power and the body in connection, are the very things with which the physician is concerned.

22. *Health*. — Where the hold of the Life Power upon every organ and tissue of the body is complete, that is a condition of real health. Every structure then performs its own offices with ease and comfort; there is no lack and no excess in any part; there is no infringement of the ill-performed labors of one part upon another; there is no loss or increase of sensibility, no accumulation of morbific material, no jarring or discord to cause suffering or work decay. (§50.)

23. *Disease*. — When the Life Power loses its complete control over any part, that part is to a corresponding degree unable to perform its duties. If it lose all control, that part is dead; but where the loss is merely partial, the portion deprived of a small share of its vitality begins to manifest less capacity to appropriate nourishment, to resist injurious impressions, etc. The larger the number of organs thus made deficient, the less capable is the frame to carry on the operations of life; the more derangement and discomfort will there be; the more irregularly and inharmoniously will the functions be performed; and the nearer will the body be to passing wholly from under the control of vitality. All such departures from the standard of Health, constitute Disease; of which the varieties and degrees may be almost indefinite. (§51.)

24. These propositions are self-evident, by the simplest light of Physiology. Arising directly from them, is the further very important proposition, that the action of all material substances and motor powers, as they improve or impair the condition of health, do so by the impressions they make upon the living animal tissues. The study of this topic is to be limited directly to this proposition; for if it be attempted to consider the action of substances and powers upon the Vital Force, the inquiry would at once enter the immaterial world, and leave the presence or absence of man's body wholly out of the question. (§16.) All things influence the living organs either favorably or unfavorably; and they increase or diminish the chances of life, according as they put the tissues in a condition more or less completely usable by the Life Power. It is not the *quantity* of this power itself, that is influenced; for if heat, cold, poisons and injuries, were capable of doing that, it would follow that such accidents of time and place could annihilate one of the grandest of all the immaterial forces. And if these could *annihilate* a force, they could of course *creat*e a force — and man could then be made to live indefinitely, by sustaining his artificial heat, etc., which is an absurdity. Insignificant as the proposition may at first sight appear, it is nevertheless as wide in its influences as the entire

domain of life itself; and the physician can not be too careful in recognizing the fact, that this science calls him to the study of the impressions that all material and immaterial creations exert upon the *tissues* of the living frame.

25. It has already been seen (§17) that man is continually subject to a variety of influences, which are unfavorable to him. These influences constantly tend to disturb the nice adjustment of the organism, and to place the structures in such a state that the vital force can not use them properly. The frame is compelled to be ever on the alert to resist these influences — to prevent the destruction that would otherwise arise from violence, from changes of temperature, from the action of chemical laws, etc. Existence is thus a continual struggle; and is also an hourly illustration of the superiority which the life power enjoys over all other powers. (§16.) But the adverse influences may be so favored by circumstances, (§15, 10,) that they will prove stronger than the resistive capacity of the frame. They then exert such an impression upon the tissues, as to compel these to depart from the normal standard of health. At this juncture, the life power loses a portion of its control of such tissues; and now to restore them to the full control of this power, other impressions require to be made upon them. The latter or favorable impressions must, as a rule, be the opposite in kind to the former or unfavorable impressions. Thus, if the body have been deprived of warmth, and thereby reduced to a temperature that benumbs and impedes it, safety requires that a suitable degree of warmth shall be supplied. If there have been a lack of nourishment, in consequence of which the organism has begun to suffer deterioration, it will be necessary to furnish good nutriment in proper quantities. If any circumstances have conspired to render some or many of the tissues too rigid — as in lockjaw or spasm — health is to be sought in bringing to bear those influences which will relieve the rigidity of the muscular condition. In like manner is such an analysis of improper conditions, and of the substances and influences which will aid in restoring the organs to their normal states, to be continued through all the varied and complex forms of disease to which the human frame is liable.

26. *Diagnosis*. — To learn what organs are diseased, and the particular direction in which they have departed from the healthy standard, constitutes the art of *Diagnosis*. From the remarks in the last section, it will be seen that this study requires very great care; as upon the accuracy with which the abnormal *conditions* are defined, depends the success of all efforts at cure. It does not attach much importance to the arbitrary and indefinite names of disease; but *the actual state of the structures* is the grand object for its consideration. (§164, 166.)

27. *Therapeutics*. — To decide upon the measures most suitable for restoring the normal condition, and the best modes for applying them, constitute the science of *Therapeutics*. This science thus really embraces the entire field of practical medicine. It is the purpose of the present volume to confine the Therapeutical inquiries to their more general fields, under two principal heads: 1st. The establishment of rules by which truly beneficial articles may be determined with positiveness, and distinguished from all substances that have a tendency to produce disease. 2d. The laws of curative action, according to which remedies must be used in order to accomplish definite objects.

THE RELATIONS OF AGENTS

28. Ever bearing in mind, then, that the impression of all agents which influence the human frame, is made directly upon its tissues (§24,) it will become plain that their actions on the tissues must always be fixed and definite. (§14, 16.) It would be an anomaly in Nature for any agent ever to change the mode or quality of its action; and if it were possible for lobelia to act in one way to-day and in another way to-morrow, for opium to exert one influence at this time but a different influence at another time, for capsicum to manifest a certain power this week in this country but a contrary power next week in some other country, then would creation be a mass of contradictions and human research would be labor wasted. But, as has already been seen, (§9, 12,) Nature is not thus vacillating and whimsical in her laws; and as laws are but the expression of a multitude of facts, it is equally plain that Nature is not unstable in her medical facts. In all other departments of knowledge, it is evident that all relations between substances are definite and established; and the relations between each substance and the living frame must be equally definite and established. The influence of a given article upon the organism having once been ascertained, its influence will be found ever to remain the same in kind. And as this influence is exerted upon the tissues, it will not be necessary to attempt the inquiry as to the unseen *how* or *why* of the action. Such an investigation is beyond the comprehension of man; as much so as are studies into the manner of mental actions, or the occupations of angels. The points within man's scope are, *first*, that agents do influence the structures of the body; and *second*, that the vital power in turn acts upon the agents. Having learned the definite impression made by a given agent, and the manner or end of the vital reaction in response to that impression, man can go no farther. But within these limits, the knowledge acquired may become absolute; for the character of the impression made by a given sub- stance will always be of the same kind, and its application to or in the body will always tend to the same results; while the recognition taken of it by the living organism will always be the same, and that organism will always act upon the agent either for its appropriation or rejection — according as the article itself is qualified to make a favorable or unfavorable impression on the structures. (§24, 25.)

29. The relations that an article bears to the frame, are to be learned by observations. And such observations need to be made with the greatest correctness, and with the most scrupulous care. (§6.) Probably in no field of investigation is there so much proneness to loose observation, and exaggerated statement, as in that of medicine. The study is made complex by the fact of two forces there always operating in connection — the direct force (property) of the agents, and the responsive action of the life power. And the many organs used by the life power, and the diverse manners in which it may act through each one of these organs, greatly increase the intricacy of such a study. The physician is in continuous temptation either to attribute all action to the agent, and thus throw out the important part enacted by the life power; or else, noticing the wonderful influences and works of this power, to connect all the results with it, and allow nothing whatever to the agents. (§59, 62.) Either method is an error; and is of such common occurrence, that large classes of physicians are in the habit of adopting one or the other. A great majority of the Allopathists attach so much importance to

their agents, that they practically overlook the natural operations of the system, and attribute all benefits to their poisons; while a very small number of them, and the mass of Hydropathists, refer all action to the living principle, and deny any substantial benefit to the agents. Of the two extremes, the latter is immeasurably the safer, (§45, 47;) but the true student of Nature will not fall into either untenable ground, but will give to each the credit to which it is entitled. The very intricacy of the questions involved, only demands the more rigid examination of every point; and calls for the exercise of the nicest discrimination, in order to distinguish between what is due to the agents and what to the life principle. Crude "experience" is often very deceiving in this particular, and nothing is more humiliating in this connection, than to see the pomposity with which some persons appeal to their individual "experience," when it is palpable that such experience is at direct variance with the current experience of all the remainder of mankind. (§8.)

30. In making observations concerning the action of agents, it is needful that each article should be examined by itself. No matter how close may be the resemblances, or even the relationships, between different articles, no one can possibly be judged of by another. In Botany, the entire mint family has volatile properties, and the several members are more nearly allied than those of any other Natural Order; yet even here, the differences are very marked, as any one will perceive on comparing catnip with peppermint, or spearmint with hoarhound, or summer savory with skullcap, or pennyroyal with sage, or any one of these with the others. In other botanical Orders, the differences are truly enormous — as for instance between the pod of the red pepper, and the fruit of the tomato, and the ball of the common potato, and the capsule of the jimson weed, and the seed-vessel of the tobacco, though all of these plants belong to the one botanical family of Nightshade. One would scarcely use the pepper pod for tomatoes, or tobacco pods for red pepper; for though the botanical alliances and physical appearances of these are peculiarly close, yet even a child knows how wide are the differences, and understands that each must be judged of by itself and not from its connection with the others. Mushrooms are a rich food, toadstools a rank poison, though of the same botanical Order. Such facts pertain throughout Botany; no where in the entire world can there be found an instance in which two plants of different genera, though of the same order, possess the same properties; and those of the same genus often differ as widely. But although this fact is universal, it is quite common to hear physicians of some eminence teaching just the contrary; and no argument has been more persistently urged to support the assertion that lobelia is a poison, than the equally wild assertion that it must be like tobacco because it belongs to the same botanical family as tobacco. Any one with the least botanical knowledge, knows that lobelia does not belong to the tobacco family; nor to any family resembling the tobacco. But even if it had such a family connection, it would be the greatest absurdity to suppose that *therefore* it would act as tobacco will — quite as absurd as to say tomatoes and red pepper, and tomato seed and jimson seed, will all act the same, because they one and all belong to the same family. Relationships of this kind have not a shade of bearing upon the properties of an article; but each agent must be judged of entirely separate from all others, and then stand or fall according to its own merits. (§67.)

31. And the same necessity for isolating agents, holds with even more force in Chemistry. It is an opinion deeply rooted in the public mind, that the qualities and action of a chemical compound can be decided from a knowledge of its constituents. It is true that some elements maintain certain properties with great pertinacity, in whatever varied chemical relationships they may be placed. For instance, mercury acts with something like the same general properties in all its combinations; and the compounds of cyanogen, throughout, retain a certain similitude. But nevertheless it is well known that calomel differs from the turpeth mineral in its action on the frame, as well as in its color; corrosive sublimate has different physical and also different poisonous properties from either; iodide of mercury is unlike any of these three in appearance, and also has its own peculiar form of the mercurial poisoning power. In like manner might the cyanogen compounds be compared one with another; and each would be found to have an action of its own, however certain shades of action might prove common to all. But even these two bases of chemical substances are peculiar in Chemistry; for other elements do not possess even this limited degree of similarity in their various combinations. The great changes wrought in the density, form, color, taste, solubility, and other physical properties of an agent, by the various chemical associations, are of themselves enough to satisfy the mind that its relations to the human frame could not remain uniform through such wide transformations. This question, however, is not dependent on analogy for settlement, but upon the most definite and uncomplicated facts. Take, for instance, the common table-salt — chloride of sodium. This is a compound body containing, *first*, hydrochloric (muriatic) acid — which is a harsh, suffocating, intensely corrosive liquid; *second*, sodium — which is a light, soft metal, that will decompose water with such avidity as fairly to take fire when wetted. The acid alone would speedily inflame and corrode the tissues; and the metal alone would char them into a crisp; yet a combination of the two gives a salt of great relish, and one which we use daily with impunity. Again, bicarbonate of soda (cooking soda) is a compound of, *first*, carbonic acid gas — which is a very poisonous and stupefying article ; and, *second*, the oxide of sodium — which is a caustic nearly equal to caustic potash. Either agent, alone, would prove highly deleterious; but when combined, the product is recognized as a useful article in cookery — the acid being disengaged from the soda by another acid, (buttermilk or cream of tartar,) and puffing up the housewife's dough as the heat of the oven drives it up and off. In the same manner, Chemistry is a continuous series of evidences to the effect that each new compound has properties of its own; and that no shadow of an estimate of the nature of a compound, can safely be predicated upon the most intimate acquaintance with the elements that form it — even as the above-named poisonous carbonic acid gas is itself a product of harmless charcoal (carbon) and the very element of the atmosphere (oxygen) upon which all forms of animal life are hourly dependent.

32. Such facts and illustrations as the above, should forever set at rest all efforts to form opinions of the relations that an article bears to the frame, by an analysis of the article. But this idea has taken such a deep hold upon the professional mind, and makes such a pleasant foundation on which to rest an argument without any expenditure of thought, that it has assumed the form of a profound

infatuation. It presents itself at almost every step; and seeks for support in that mystery which attaches to Chemistry among those who do not understand this science, or who know merely enough of it to feel confused by its formula, and to be convinced by any array of its symbols which they are too proud to confess that they do not comprehend. The most reprehensible form which this infatuation assumes, is that of attempting to pass judgment on the qualities of an organic agent from a so-called chemical analysis of it. The bicarbonates of soda and of potassa are alkalies; and chemical analysis says that opium and Peruvian bark yield alkaline substances in the forms of morphine and quinine. But of course no one pretends that the alkaloids thus obtained, in any sense resemble the common alkalies; or that morphine and quinine and strychnine can be put to any of the common uses of the potassa and soda alkalies, such as forming soap and making light bread. If they can not be put to the ordinary uses of alkalies, then the fact that manipulation has procured such alkaloids from the vegetables, tells nothing of either the nature of the vegetables or of the products obtained from them. Each will need to be tested for itself, ere its relation to the human system can be known. A prominent instance of this kind, is found in the fact that chemical fermentation, carried on in a certain manner, will yield an alcoholic product from corn; or carried on in a certain other manner, will yield sugar materials; or carried on in still another manner, will give a vinegar product. But no man of the first grains of intelligence, will pretend that either one of these three products existed *as such* in the unfermented corn; as otherwise the meal of this grain might be used indiscriminately to preserve pickles, to sweeten coffee, or to get drunk upon. This proposition is of course an absurdity; and by it can at once be seen the fact that the alcohol, sugar, and vinegar, are obtained only by decomposing am rearranging the original elements of the grain — destroying its vitality, discharging portions of its constituents, taking additional elements from the atmosphere, and forcing the whole to adopt new forms. After such changes, the resultant products in no sense represent the original corn — as can be known at once by the inability of such products to sustain any form of animal life. One such instance illustrates the whole ground of the attempt to make chemical products stand sponsor for the organic articles from which they were obtained. In the case above used, the absurdity of such a proposition is palpable; and it is equally absurd to condemn cherry bark and peach kernels, on the ground of Prussic acid having been obtained from them; for this acid is never obtained except as a consequence of certain forms of decomposition, and is no more a component of the bark and the kernels, than alcohol is an original constituent of corn.

33. Sometimes the attempt is made to carry the analysis still farther, and to resolve the organic substance into its simple elements — as carbon, nitrogen, hydrogen, etc. Much wise-looking talk has been made in this direction; and some famous men have undertaken to tell to a nicety how many atoms of certain of these elements are needed by the body, and what kinds of food are most fitted to supply these several atoms. The absurdity of this fanciful speculation is to be found in the fact, that this attempt to make man a chemical laboratory, would decide that the very best possible diet for him would be a composition of two parts beans, one part cheese, and one-and-a-half parts wood ashes! To such a pass of ridiculousness

does this false chemistry (for *true* chemistry it is not) reduce its votaries. And yet, not at all checked in their wild progress of speculation, they. enter upon the chemical analysis of organic agents; and offer to tell their remedial and other virtues by determining their original constitution. Let a single example suffice to show the wonderful lack of common sense which here finds votaries under the supposed mysteriousness of "philosophy." The following table presents a thorough analysis of this kind that has been made of some of the oils:

[Table]

Several similar lists might be given, but this one illustrates the whole fallacy. It shows that Chemistry can do no more than reveal that these six oils contain exactly the same elements and in exactly the same proportions. It may speculate that the atoms are of different sizes, and are arranged in different manners, in the several cases; but it does not know this, and can not carry its inquiries one step farther than is shown in this table. But the taste of a child will instantly tell that these oils are different; that each has an action of its own upon the body; that turpentine is not the same to the human frame as pepper, nor pepper as bergamot. The senses at once and forever settle the question that, while Chemistry has a wide domain, and a remarkably important one, it can only tell the *chemical* relations that certain agents and compounds will bear to other *chemical* compounds; but that it can give no insight whatever into the relations held toward the frame of man by either a chemical compound or an organic substance. These latter relations can be determined only by the observation of the senses; and each and every substance, or product of a substance, or compound obtained from substances, must inevitably be examined and tested for and by itself.

CLASSIFICATION — FOOD

34. In attempting to classify substances in their relations to the human frame, according to the principles laid down in the last few sections, it will readily be found that all articles arrange themselves under one of three general heads:

First. — Some agents are necessary to the existence of the body, and can not be dispensed with; and these are classed as FOOD, inclusive of necessary *drink*.

Second. — Some agents are not necessary to daily life; yet make upon the structures such favorable impressions as tend, under circumstances of disease, to restore the tissues more fully to the control of the life power, (§25,) and thus aid in prolonging life. Articles of this class are called REMEDIES.

Third. — Some agents make upon the frame impressions that always carry the tissues away from their healthy standard, and remove them more or less from under the control of the life power. Such articles are classed as POISONS, and include all material *causes of disease*. (§66.)

35. The *motor powers* can not be embraced in such a classification. When the life principle has its rightful control over the organism, it is capable of using — and does hourly use — all the other motor powers in subservience to its wishes. Thus the life power takes the simple elements, and molds them into forms and fashions of its own, making a most facile instrument of chemical substances and laws. It likewise employs the forces of gravitation, heat, light, and electricity, in manners to suit itself — employing or rejecting, or completely overcoming, these immense powers, according to the wants of the system. But the control of the vital force over the organism has a limit, (§19;) and, though it overrides all other forces within that limit, a variety of circumstances (§15) may concur in favoring the fullest manifestation of some one or more of the other forces. In such cases, it will be found that the other forces contribute to the support of life only so long as they are held in subjection to the superior life power; but that when the latter power loses its supremacy, no one, nor any number, of the other forces can .apply its place, (§146,) but the others at once conspire to destroy what the life principle had so elaborately erected. For instance, by a great fall, the frame may be so jarred as to have its integrity overcome — it is broken, and the life principle can retain its hold upon it no longer. Gravity having thus obtained in advantage over vitality, chemistry (previously a servant of vitality) at once attacks the tissues and commences to tear them down by decomposition, and to resolve them into forms to suit herself. Heat (formerly so dear a friend of vitality, that ;he two seemed inseparable,) now aids the work of chemistry — an increased temperature hastening every step in the decomposing process. And light (that genial companion of life) lends all the influence she has to this foul work of disruption — which proceeds more rapidly in light than in darkness. And thus must it ever be considered the law of Nature, that, when the life power reigns supreme, it uses all the other forces in forms and degrees calculated to do the body good; but when the other forces gain control, their unvarying tendencies are to overcome the life power, and to resolve the tissues into forms of dead matter.

36. *Food.* — Articles of this class, as has just been mentioned, are necessary to

existence, and can not be dispensed with. The term includes whatever can be appropriated to the nourishment of the body. To effect such nourishment, the article must be brought under the complete control of the vital force, without any reference whatever to its own chemical composition, or to what chemical or other forces would do with it. (§33, 35.) In order to be brought under absolute subjection to vitality, it must be, 1. Digested, 2. Absorbed, 3. Vitalized, 4. Deposited, and thereby used to sustain waste and repair injury. Any article that lacks either one of these properties — that can not be acted upon by the life power of a healthy person in any one of these several manners — is not food.

37. It would seem that the above definition of food is sufficiently plain and accurate to prevent all misapprehension. It is in strict accordance with the best understood facts in Physiology. And yet many persons profess to be unable to distinguish foods accurately; and, making a wonderfully broad use of an old saying, that "what is one man's food is another man's poison," they claim that no exact distinctions can be made, and revert to the fact that much and serious disease is caused by overeating. Such assertions are mere sophisms; and grow out of that habit of insufficient and loose observation alluded to in sections 6, 7, and 8. The apparent intricacies surrounding the question, will be made plain by a few physiological facts.

38. In the first place, each portion of the human frame has its own especial and individual limitation, as has also the system in general. (§19.) The stomach, in each person, has a general capacity for secreting gastric juice, the liver of secreting bile, the lacteals of absorbing, the mesenteries of performing the first steps in vitalization, the lungs of purifying, etc. These several capacities are not defined to a minute fraction; for Nature has made such grand provisions for the safety of the frame, as allow and endure some latitude. And yet the fact stands patent, that the average limits can not be persistently transcended without the part feeling a corresponding degree of exhaustion — as when the muscles are overworked, or the lungs and vocal organs wearied by too much talking. All such exhaustions are so many forms of feebleness, and require time and rest to be recovered from; or they may be pushed to such a degree as to make it scarcely possible for them fully to regain; their original vigor. And each person, according to his or her original constitution, has this line of limitation placed at different degrees; and, according to a present state of sickness or health, its degree varies in the same person. With such fixed capacities in regard to the digestive and assimilative powers of the frame, it is at once evident that the quantity of food used must bear a close ratio to the capacity. If more is taken into the stomach than the system requires or than can be digested, it will fatigue the organism, it will not be passed fully under the control of vitality, it must then fall more or less under the power of chemical laws, and it has already been seen (§35) that the frame must suffer when any thing within it comes within the grasp of the chemical force.

39. To make this question plain in all its details, let us analyze the several steps of the process by which food becomes injurious. And, *first*, the quantity used may be more than the stomach can fully digest. For a few times, this organ seems to suffer no inconvenience, and the surplus food is passed through the pylorus and ejected from the body with only a passing sense of uneasiness. But by repetition, the power of

the stomach is reduced. Indigestion then commences; and the food, not being completely dissolved by gastric juice, does not pass completely under vital control. Chemical changes now commence; and the very moisture, warmth, and movements of the stomach, which were designed to facilitate the vital acts, are now directed to hastening the chemical processes. Fermentation is set up; gas accumulates, and causes suffering by mechanical distension; the process may reach the acetous stage, and intense irritation be caused by the acid product; or it may pass (in rare cases) to he putrefactive stage, and cause serious typhoid depression. Fermentation is a purely chemical process; and is precisely the same when it takes place in the stomach, as when it has occurred out of the stomach. Bread, or meat, or vegetables in a state of chemical decay, are no longer food; and no man would expect to take them into his stomach in the hope that they could answer the purposes of food, or with the expectancy that such rotted materials would sustain and replenish his system. He knows that even a partial decay of such substances renders them injurious; and understands that an introduction of them into his body will be attended with inconvenience, perhaps with sickness, and possibly with death. Now the case is not altered if the pure food were first introduced into the body, and then underwent the chemical changes. So long as it remained food, even in the stomach, it caused no harm; but the misery and the mischief commenced so soon as the chemical processes were set up. These processes having been established, the product is no longer food, does not bear to the system any of the relations of food, and can be judged of only as experience teaches us to judge of decayed food not yet taken into the stomach. Being now a new compound, its nature must be considered, and its effects recorded, without any reference to what it was before, (§33;) and the suffering caused by it is not to be accounted for by that ridiculous proposition that "quantity alters quality," but by the correct statement that, the natural digestive capacity of the stomach having been transcended, the surplus food passed into a state of chemical fermentation and thereby became injurious.

40. In the *second* place, the stomach may so nearly perform its offices, as to pass the food into the duodenum, yet not in the state of perfected chyme. As a consequence, the functions of chylification can be performed only by an extra secretion of bile and pancreatic juice. This extra amount of secretion requires an extra exertion of these organs; and by thus repeatedly transcending the bounds that Nature has set for them, they weary and flag, and the numerous and depressing symptoms of a torpid liver supervene.

41. Again, the food may be so nearly chylified, as to be taken up by the lacteals. Yet it is not in that perfected state which is required by the mesenteries, and proves to them a rough and burdensome mass. These delicate organs can not endow it all with that form of vitality which is the first grand step toward the food becoming true aliment to the system. As a consequence, the mesenteries either reject it wholly, and thereby waste the frame with a watery diarrhea; or they pass it into the blood in a state of insufficient vitalization. Should the latter effort be made, the frame may suffer from that peculiar state in which the atoms of nutriment are almost, yet not quite, up to the status of a sound vitality, and which constitutes scrofula; or the circulating fluid will be contaminated with impurities from

the very outset, and insidiously lay the foundation for some grave malady.

42. Throughout these multiplied dangers which may follow the use of too large a quantity of food, it will be noticed that no difficulty arose till the food began to undergo chemical changes; or till the system failed to bring so large a mass under the vital control, and therefore left more or less of its particles at the mercy of laws not vital. So long as the substances remained food, they caused no detriment; and their relations to the human frame remained unchanged, while they themselves were unchanged. The moment any change in the aliment is effected, no matter how trifling its extent may seem to be, it is no longer the original food. It is now to be judged of, in its relations to the human system, by its own conduct as a new mass, and not at all by the nature or relations of the substances from which it was derived. (§30-32.) If injury is found to result from this new mass, no matter at what stage or in what form the change has taken place, these consequences can not be laid at the door of the food itself. To assume this latter position, would be to declare that any new compound was a true representative of the original elements or compound from which it was derived; and this has already been demonstrated an absurdity, and untenable on even the crudest principles of general science. The truth, therefore, does not for a moment admit the assertion that food may be beneficial or harmful, according to the *quantity* used. That statement has only the *appearance* of correctness; for an ordinary acquaintance with the laws of Physiology at once shows, that the baneful results are due to nothing but the fact that the established limitations of the digestive and assimilative organs did not admit of the surplus food being brought under vital guidance, and therefore it proceeded to work the mischief consequent upon all forms of chemical decay.

43. This law of limitation in the capacities of the living system, overturns many a plausible theory; and therefore men are too often found laboring to disbelieve it, or to controvert its force by skeptically questioning *why* such a limitation was established. It is neither in my power nor my disposition, to attempt an answer to this latter question. Such an inquiry is entirely beyond the province of man. He must content himself with studying the natural laws as he finds them; and not commit himself to certain failure by ignoring the laws, and attempt to override them, because his feeble powers are unable to grasp the immense idea of why the Creator fixed them. By carefully studying and applying a law in all its simple integrity, it will open up new fields of thought, and explain facts that before had seen mysteries, and unveil truths that had remained profound puzzles; and a theory that can not endure the most rigid application of such a law, must sooner or later crumble away. Now it is well known that the limitations of the human frame are decided; and though certain margins are apparently allowed, and the living power will endure and rectify many encroachments upon it, yet all trespasses entail trouble, and their repetition in even moderate degree will not long go unpunished. By the light of this law, it is easy to understand how it comes that an excess of food may (through the chemical changes that ensue) produce injury.

44. And it is also well known that the vital capacity of persons is different; and that any person may vary widely at different times. (§20, 38.) When, either by original constitution or as a consequence of

disease, the power of the system has been reduced, the quantity of nourishment must be lessened, or otherwise it will suffer partial decomposition the more speedily. And the more nearly this reduction in vital strength is connected with the first class of vegetative organs, the more rapidly and seriously will an excess of aliment undergo changes and work injury. For instance, in a typhoid case, the great depression of the stomach unfits it for the digestion of any but almost insignificant quantities of food; and how many times has the physician seen a few extra ounces pass into the putrefactive state almost with lightning rapidity, and bear the patient to the grave in the very hour when hope had fairly rested upon the sufferer. There may also be some peculiarity of the constitution, by which au individual may be unable to digest and appropriate certain articles of food. Nearly every neighborhood will afford instances of persons who can not use honey, or cheese, or cabbage, or turnips. I have known some who were at once sickened by light bread; and others who would be thrown into erysipelas by eating a single peach or a few strawberries. Such idiosyncrasies may not be fathomable; but they actually exist, and this fact must be recognized. These persons can not employ certain alimentary substances, because of some unusual limitation in the capacity of their system. That limitation is almost invariably in either the constitutional endowment or present condition of the stomach. With them, therefore, the indigestible articles pass into a state of decomposition very quickly, and work their mischief in a short time. But such isolated facts can not be allowed to overturn a general rule; and the world could not be made to believe that turnips, or strawberries, or peaches, are poisonous, because Mr. A., or B., or C., is in such a condition that he can not digest them. By the vast aggregate of observations it is proven what articles are capable of nourishing the human frame. All such articles are correctly classed under the head of FOOD. By the light of the above facts, the source of mischief from excess is easily understood, and the nature of personal idiosyncrasies readily explained; and there is no occasion for being undecided whether a given article is a food or a poison, and no wisdom in resorting to simple exceptions to sustain the absurdity that " even our very food may be poisonous." This naked assertion is used quite too commonly; and is turned to with such tenacity that, were it for a moment admitted to be true, it would utterly overturn all possibility of there being any SCIENCE.

HYGIENE

45. While food is provided for the purposes of supplying natural wastes and furnishing materials for reparation, articles of this class will not serve all the requirements of the system. It was seen, in the last section, that conditions may arise under which the frame can neither digest nor appropriate nutriment. whatever form such conditions may present themselves, they constitute disease, (§23;) and the inability of the organism, at such times, to carry on its functions of assimilation, is too well known to require more than a reference to the fact. In such a state of the frame, something besides food is required; and though a class of good men will be found contending that nature never admits kindly the use of any thing beyond food and suitable hygienic measures, that is but a partial exhibit of the facts, and can hold good in only a limited number of maladies. A very large number of the multiple forms of disease, present to the physician patients in conditions where it is impossible for them to endure the common handling of what for other cases would be good hygiene; and so far from being able to make the legitimate uses of food, all forms of nutriment rapidly decay in their stomachs and cause serious mischief. Speculation, and a course of forcing built only upon such speculation, will not answer under such circumstances. Impressions different in character from any that can be made by food, will now be required; articles of a different nature must be sought for; and the common-sense, as well as the experience, of the entire human race — from the earliest periods of barbarism down to the present hour — concur in testifying that there is a large class of articles designed for and serviceable in just such conditions. This class of articles are known simply as *remedies*.

46. But while thus stating that food and hygiene will not meet all the varied conditions of life, let it also be stated that remedies can not take the place of food and hygiene. Health is the natural state, and disease is the accidental one; and so food and hygiene are the hourly requirements; but remedies are only occasional necessities. It is too often the case that both physicians and people attempt to maintain health by medicines, under circumstances where no medicines are called for; and belabor the system with drugs, where only proper food, or sufficient sunshine, or pure air, is needed. This mistake is far more common than is generally supposed, even among medical men; and physicians too frequently continue to urge remedies into the stomach, when a careful study into the conditions would show that there was no state which could be corrected by any medicine whatever. How well is it known that habitual costiveness may be overcome by a diet of fruits and succulent vegetables; that the same class of foods is best fitted for excitable persons and those of sedentary habits, while the sanguine temperaments and out-door workers need more concentrated food; that the headache of hunger is best relieved by a light meal, and the scrofulous tendencies growing out of a salt diet best overcome by a persistent vegetable (and mild acid) course. So well known are these and a hundred similar facts, that an unprofessional man of good intelligence could quickly tell the physician that no physic should be used till a proper diet, and regularity of going to stool, had first been thoroughly employed against costiveness; that no nervines were comparable to some bread and butter for headache growing out of too long a delay in a meal; and that alteratives were worthless against scrofula so long as the patient was

using regularly of salted pork, hot bread, coffee, and tobacco.

47. But it is not alone in chronic cases, that such observations as the above are applicable. There comes a point, in the course of every acute malady, when the use of remedies should almost or entirely cease. And even in the full height of most febrile difficulties, it is at times of vital importance to withhold all medication for the last few hours of the night, that the stomach may have a fair opportunity to act upon a suitable quantity of food in the early hours of the morning. And if the frame is not thus provided for, but is denied good sustenance at proper times, there will, in the majority of acute cases, gradually develop a nervous, restless, excited, and yet prostrated condition, almost akin to the incipient agitations of starvation. How futile would it be to attempt the relief of such nervousness by increased vigor in the exhibition of drugs. Nature is loudly demanding food; and it would be injudicious for the physician, intent only upon his remedies, to dose her with selections from his Materia Medica. In like manner, some patients suffer and sink because their bedroom is too close, and the anxiety to "keep off the draught" leads to a system of shutting up windows and doors till the atmosphere becomes poisonous. Others, again, may be wearied by too much conversation around them; or fatigued by too much bustle and light in their own or an adjoining room; or made nervous by too much bed-clothing being heaped on to keep them from "catching cold;" or overcome by too much lifting and handling, (particularly liable to be done to small children;) or exhausted with the profuse sweat maintained by too warm a room and too much diaphoretic medicine. (§187.) In all such cases, the symptoms growing out of such unnatural conditions can not possibly be relieved by increased vigor of medication. On the contrary, medication will then often need to be curtailed, or even laid aside altogether, till steps have been taken to surround the patient with the hygienic requirements whose withdrawal has provoked the additional trouble. This done, the physician will be better able to distinguish between the symptoms actually caused by the disease, and which require medical treatment; and those which arise merely from impure air and general bad surroundings, and which can be benefitted only by suitable hygiene. The discrimination between the two classes of requirements, is often a point calling for the utmost nicety of judgment. . But to make such a discrimination, is a duty of great imperativeness; and no physician should attempt to assume the responsibilities of the sickroom, till he has prepared himself for the exact discharge of this requirement. One of the temptations incident to professional life, is to place all good in the remedies and forget all the benefits of healthful circumstances. As above remarked, hygienic influences are at all times the *very first* thing to be provided; and remedial measures should never be instituted except as auxiliaries to the former. It is, therefore, of great importance for the physician to realize that no remedies (not even the superior ones known to Physio-Medicalism) can possibly take the place of food, drink, light, air, quietness, and similar appliances; any more than these appliances can supply the place of remedies. Each class has its own capacities, and its own sphere of actions; and the judicious physician will give to each one exactly the field that belongs to it, and never attempt to use either for the purposes that can be filled only by the other. The many excellent cures which justice compels us to recognize under the hands of Homeopathy, are due to the

recuperative efforts of Nature, assisted by the scrupulous minuteness with which that school regulates the hygiene of every patient; for the articles it uses as medicines are too often poisons of a dire kind. From this fact, Physio-Medicalism should learn not to ignore hygiene as much as is now done by our physicians; but to bring all possible influences to bear in favor of the patient, by combining the most rigid sanitary regulations with the superlatively excellent remedies that this school possesses. The consideration of such, appliances, belongs to the departments of Physiology and Practice; and so in this volume they can receive only this passing, notice, while we turn at once to the field belonging to remedies.

REMEDIES

48. A definition of the term *remedies* was given in section 34. They may briefly be designated as: Agents whose natural tendency is to restore diseased tissues to their normal conditions, so that these tissues can again be used fully and freely by the vital force. Thus the class is limited to articles which, on the one hand, do not furnish nutriment to the system; and on the other hand to articles whose legitimate action has no tendency to disturb any tissue, to derange any organ, to create any lesion or structure, or to leave behind any condition that will afterward prove a source of discomfort or will require further treatment for its removal.

49. When it is suggested to use remedies for restoring the tissues to such conditions that they "can again be used fully and freely by the vital force," the idea is at once conveyed that the action of a true remedy cooperates or harmonizes with the action of Nature. It at once becomes interesting to know the manner in which the vital force acts upon the tissues in a state of health, These, as taught by Physiology, may be reduced to three general modes, namely: 1st. By *contracting* the tissues; or causing a shortening of their fibers, and greater consolidation and compactness in the substance of an organ. The simplest form of this action is seen in the contraction of the voluntary muscles as made in walking, lifting, speaking, swallowing, or any other motion. Precisely the same action takes place among the involuntary muscles, as in the systole of the heart, the peristaltic movements of the bowels, etc. Organs not possessed of motor fibers are also subject to natural increase of compactness, as witnessed in the various conditions of the mucous membranes, the hepatic changes that take place every twenty-four hours, the contractile changes in the skin, etc. 2d. By *relaxing* the tissues. This is directly the opposite of the former action; and is familiar in the readiness with which the motor muscles may be relaxed at will, in the diastole of the heart, in the periodic cessations of the peristaltic movements of the bowels, in the daily flaccidity of the liver, and in similar well-known variations occurring in the healthy frame. 3d. By *stimulating* the structures. This action, the term representing it, mainly refers to the nerves of sense; but is equally applicable to the entire nervous system, and to the circulatory and lymphatic vessels. In point of fact, it includes alternated contraction and relaxation; in consequence of which the sensibilities of a part are exalted and its motions hurried. This is manifested in the increased frequency of the circulation under the influence of either physical or mental exertion; in the alternating contractions and distensions of the stomach, by which the food is revolved in that organ, and the gastric juice mixed through it with mechanical completeness; in the rapid narrowing and dilatation of the pupil of the eye under the varying degrees of light and shade; and in many other cases where the function of a part is aroused to a pleasant and healthful increase. The term stimulation is, therefore, not applied to some new action or state; but is used for its correctness in expressing an exaltation of natural sensibility and consequent hurry in the first two modes of action.

50. The three modes of action above named, belong to the state of perfect health. When the vital force is possessed of its full control over the structures, it uses them with perfect freedom in these several ways, according as one or the other is requisite. At pleasure can the voluntary muscles be relaxed or contracted, and that with great rapidity; and full health enables

the life power to contract one set while relaxing the other, and to reverse these actions upon the two sets, entirely at its pleasure and according to its necessities. In like manner it relaxes and contracts the heart and arteries with marvelous regularity; and hastens these actions when occasion demands. And throughout the entire frame, every organ, every tissue, and the most complex arrangement of tissues in organs, are used by the life power in these three ways. And the tissues respond to the influence of that power readily, yielding prompt obedience, changing their conditions rapidly or slowly in subservience to its dictations, and performing all these movements without a jar or a discord. (§22.)

51. Seeing, therefore, the manners in which the vital power moves the tissues in a state of health, it can the more readily be understood what variations or discords in these movements constitute the state of disease. It has already been stated (§23) that disease consists in a loss of complete control over a part, in consequence of which that part to a corresponding degree becomes incapable of performing its duties. This partial loss of control may be in either one of three general directions, as is self-evident from the above analysis of healthy actions. 1st. The vital power may not be able to *relax* the tissues at will, they being in a state of too great rigidity. This is seen in the fixity of lockjaw, the tension of wry-neck, the wiriness of the pulse, etc. 2d. It may not be able to *contract* the structures at will, they being too loose and flaccid. Instances of this condition are seen in colliquative perspiration and diarrhea, the general laxity incident to anaemia, the lack of nervous and consequently of muscular sensibility in paralysis, and many other cases. 3d. It may not exercise full control over the *nerve structures*, these tissues suffering extremes of prostration and excitability under slight provocations, and apparently without any restraining power being exerted by the vital force. It is not the purpose here to inquire what direct or remote causes may provoke or induce these states of the tissues. This inquiry belongs to another department; and the present discussion in Therapeutics merely calls for a statement of these classes of conditions in which the tissues may wander from the state of health.

52. *Application and Misapplication of Remedies.* — In section 25 it was stated that, when the frame had been unfavorably impressed, and thereby forced to depart from the healthy standard in any particular direction, a restoration to health was to be sought by bringing to bear upon it such harmless influences as would impress the structures in a manner opposite to the disease-producing impressions. Now making use of this proposition in connection with the facts contained in the last two sections, and it will become apparent that *remedies* are naturally divisible into three general classes, each class having its own sphere of action, and therefore its own line of applicability. These classes and their individual relations are as follows:

1st. *Relaxants.* — Agents of this class are required when any one or more of the tissues have become too rigid and contracted — whether such tissues are found in the blood-vessels, nerves, bowels, liver, gall-ducts, skin, or any other organ. The condition of the tissues being determined as that of too great contractility, they can be restored to the full use of the vital power only by such influences as will induce their healthful relaxation. Tepid water, lobelia, and

asclepias, are good representatives of this class.

2d. *Astringents*. — In this class are included all agents that will induce greater density and firmness of the structures. It common to apply the term to articles that will induce dryness of mucous membranes; but it is equally applicable to those which tend to consolidate muscular, arterial, nerve, or other tissues; and includes many of the tonics and nervines. Such agents are applicable to conditions of laxity, feebleness, and general loss of tone. Oak bark and geranium root are in is class.

3d. *Stimulants*. — This term is applied to whatever arouses nervous sensibility, and through it maintains a better circulation, and consequently a better functional action. As already stated, (§49,) the natural stimulation of the vital force usually consists in a rapid alternation of relaxation and contraction, with a tendency to make contraction paramount; and in like manner remedial stimulants exert a combination of relaxing and astringing influences, usually leaving the tissues in a state distinctly firmer than they were before. Agents of this class are called for in all cases where the nervous sensibility is diminished, where arterial action is feeble and unsteady, and where functional action of any kind is at fault from too great weakness and torpor of the fibers. Capsicum is a standard article in this class. Let it be further added, that the stimulants spoken of in this volume never include whisky, brandy, alcohol, nor any other form of spirituous liquor.

It not unfrequently happens, in disease, that one part of the organism needs one kind of remedial influence, while another part needs a different kind; and that any one part may require two kinds of influence — as of relaxation to secure openness to emunctories, and stimulus to aid in ejecting the secretions from the conduits. Indeed, the cases are few in which one kind of influence will fill all the requirements, and the great mass of agents possess some combination of the above properties. These points will be more fully elucidated hereafter; but they are so nearly universal as to demand recognition at the outset.

53. When discussing the nature and relations of food, it was apparent that aliment cooperates with the life power in sustaining existence. Although of itself it has no choice of conduct, no election of the uses to which it shall be put, yet it is a friendly instrument provided to the hands of the life power; and only by the due supply of which is it possible for the vital principle to sustain the activities of the human frame. And it was also noticed there, (a fact which every one knows,) that food of different classes will make different kinds of impressions upon the tissues — cranberries, and pie-plant, and beef, and many other things being stimulating; and turnips, and peaches, and sweet apples, and similar articles being relaxing; while fine flour, and boiled milk, and arrowroot, and others, are more or less astringing. By influencing the tissues in such several ways, it was noticed that different classes of food might become highly serviceable in various forms of disease — lending their influence so directly in concert with the wants and wishes of the vital force, as to be fairly deserving of the title of friends of health. Now it is in similar manners that true remedies cooperate with the vital force. These agents, as well as foods, act in harmony with the life power by making upon the tissues the very kind of impressions that this power wishes to have made, and thereby restoring the tissues to

the full control of the vital principle. The remedies do not take the place of the vital force, any more than food takes its place; but are merely instruments in the hands of that force, and make impressions that aid said force in continuing human existence. And their impressions are, as a consequence, wholesome in kind, healthful in results, and not calculated to create any disorganization. It is important to remember this point distinctly, as almost the entire Homeopathic doctrine rests upon the assertion that every impression of a remedy is a disease of the tissues; and hence it is necessary to keep before the mind the fact that these impressions are no more diseases than are the stimulation, relaxation, and astringency, caused by different classes of food. An article whose impressions are not thus innocuous, does not belong to the class of remedies, but is a poison.

54. But though remedies act thus directly in aid of the recuperative efforts made by the vital force, they, as well as food, can be misapplied. The immense mischiefs that may ensue im the use of more food than can properly be digested or assimilated, are due to the chemical deterioration that must take place in the surplus portions, and not to the food as food. (§39 *et seq*.) In like manner may remedies be used in quantities beyond what are needed, or of a character inappropriate to the case in hand. Under such misapplications, the agent itself not likely to suffer chemical change and thereby become poisonous; but it may place the tissues in such a condition that, *for the time being*, the vital force can use them even less effectually an it was doing before; and thus, though the article will cause neither corrosion nor paralysis, its measurable retardation of a function may lead to the retention of some secretion or the absorption of some morbific material; and the substances thus delayed within the system may undergo changes that will prove detrimental. It is a prime necessity, therefore, in the practice medicine, that the agents used should be appropriate to the requirements of Nature — quite as much so as it is necessary to give drink and not crackers to one who is perishing with thirst, or to give food and not more air to one who is faint with starvation.

55. *Misapplication of Relaxants*. — Relaxants being useful for states of undue tension, it is a misapplication to exhibit them when the tissues are unnaturally lax. Thus, when the skin is loose and open, asclepias would open it still more, and so lead an excess of perspiration that might prove exhaustive by greatly disturbing the balance between waste and supply. When the muscles are relaxed and feeble, lobelia would keep them in state of relaxation which would interfere with that full nutrition which is necessary to their return to strength. When the stomach is weak and flaccid, repeated small draughts of tepid water would keep it flaccid, and thereby stand in the way of that natural return to the firm state which is necessary to the secretion of gastric juice and the digestion of food. When the liver or bowels are so unduly relaxed as not to be able to eject the bile and excrement, a further relaxation of them by leptandra would render the performance of these functions still less probable, and the frame might suffer greatly from the retained materials. When the pulse is soft and insufficient, any article that will relax the arterial structures will evidently be thrust upon Nature against her manifested wishes; and if a powerful relaxant of this kind were given till the enfeebled heart were itself still further softened, the power to distribute a life-sustaining supply of blood might be unpleasantly interfered with. (§162.) When

mortification has taken place at any point, and all the frame is feeling the depressing load, (the increased agitation of the heart manifesting how feeble is the power of the system to overcome the poison of decomposition,) the use of relaxants would so open the structures as to leave the vital force dispossessed of the means for building up a line of demarkation by which to shut the decaying substances out of the frame; and the relaxants at the same time opening the absorbents, the poison of the putrefying parts might thereby find its way into the general circulation. These last two instances of the misapplication of remedies, is by no means uncommon; and candor compels the admission that, in extreme cases, injurious consequences may hence ensue; and yet the relaxants themselves do not impair the integrity of a single fiber, nor leave one in a state from which the vital force could not subsequently revive it; but all the detriment suffered is from an insufficient flow of blood in one case, and an absorption of animal viri in the other.

56. *Misapplication of Astringents*. — Astringents being required in states of undue flaccidity of structures, it is a misapplication to employ them where tissues are already too much contracted. Thus, when costiveness resulted from dryness of the mucous membranes, oak bark would increase the dryness, and so aggravate the costiveness. When occlusion of the pores caused a retention of morbific material which irritated the surface, an astringent application would still further contract the skin, and cause retention of perspiration and elevation of temperature. When general failure in elimination resulted from undue tension or an utter lack of acting power of the structures, any astringent would close up the emunctories, and thereby increase the morbific accumulations and exalt the arterial excitement. (§163.) All such retentions are highly injurious — the uneliminated materials rapidly deteriorating, and acting as poisons. The use of astringents in dysentery, while local excitement is high and before the foul collections in the bowels and liver have been removed; and the use of quinine in intermittents, before the insidious accumulations of deleterious substances have been broken up; are familiar examples of the misuse of agents of this class. The articles themselves may be harmless, and may not withdraw any tissue from the control of the vital principle; but the impressions they make are of a kind the opposite to that required by the frame under the circumstances, and hence there is fastened into the body a mass of excrementitious materials which of necessity (not being vitalized substances) will proceed to decay and thereby prove mischievous.

57. *Misapplication of Stimulants*. — Stimulants being required when the tissues either lack sensibility or have not a sufficiency of acting power, they would be misapplied if given when the excitement was considerable and the activity above normal. Thus, in acute inflammation, while the circulation in and through a part is full, capsicum would but add to the excitement, without opening the structures for the ejection of the offending substances; and would be entirely out of place, without regard to the fact that it might be useful when partial congestion ensued, or even indispensable when gangrene threatened to supervene. (*See* my P.-M. Surgery, articles *Congestion* and *Mortification*.) When the pulse is large and hard and hurried, as in synochial fever, the same agent would but increase the hardness and excitement; whereas the acting power of the

heart and blood vessels is already great enough, and Nature demands relaxation to insure greater equilibrium; and hence the capsicum would be out if place in all such conditions, though it might prove invaluable when a small pulse (even though wiry and excited) indicated a lack of heart-capacity to throw off accumulating poisons and to sustain capillary circulation — as in typhoid conditions. Used under the inappropriate circumstances named, this article, or any similar stimulant, would weary the organs by urging them to a persistent activity that will not allow of that period of repose which Nature institutes for every organ. And as, in the cases indicated, Nature is using the tissues with sufficient *power*, but requires that form of help which shall open the conduits through which she may eject the harmful accumulations and then restore a balance of action to the frame, the stimulants so act as to leave these accumulations within the system, where they may work their mischief. In many instances, this class of agents, although misapplied, may incite such force as ultimately to overcome the obstructions; but Nature ever prefers to do her work with mildness rather than under compulsion. Yet the true remedial stimulants never exhaust a tissue beyond the limits of subsequent usefulness, and never corrode a structure — the statements about vesication following the use of capsicum being incorrect.

POSITIVE DETERMINATION OF A REMEDY

58. Because remedial agents are liable to misapplication, or even to positive abuse, in the manners just pointed out, some men profess to be unable to determine what is a true remedy. They imagine that there can be no definite rules by which an agent of this class can be determined with scientific exactness; and are found resorting to the baseless sophism that "good remedies may become poisons, and therefore poisons may become good remedies, according to the time and quantity used." In the earlier sections of this department, and especially in sections 8, 9, and 10, it was seen how changeless are the laws of Nature. And in the sections relating to the injuries that often ensue from over-eating, (§39-42,) was seen the utter fallacy of that idea which would change the relations of an article to the human frame with every variation of quantity. By strict analogy, the points there established should at once settle the question here raised against remedies — showing that this can be nothing more than a sophism, or else that scientific principles and physiological relations can be changed by such a trifling accident as the weights in an apothecary's scales. The difficulty here lies in that insufficiency of observation, that hurried jumping at conclusions which appear satisfying, which have already been stated to be the great hindrances to scientific advancement. (§6.) By laying aside all prepossessions either for or against an agent, and by following the rules which are accepted as guides in all other fields of scientific research, it will be found that a beneficent Creator has not only supplied man with an abundance of harmless articles with which to relieve his sufferings; but that these articles are fixed in their relations to the human frame, never change their actions, and may be determined with unvarying certainty. Let us closely examine the modes for their investigation, and the rules by which they may be unerringly distinguished from all other articles. (§64.)

59. In attempting to form an estimate of an agent, it is necessary that, *first*, the observations upon its action should be numerous; and, *second*, that the article be used alone and not in combination. It is altogether too common a practice for physicians to reach large conclusions from very small premises; and perhaps no where is this disposition so strongly exhibited as in deciding upon the action of any article called a remedy. Some of the evils of this over-haste were alluded to in §7. The practice is so prevalent, that the editor of the New York *Medical Record*, (Allopathic,) under date of January 1, 1868, has felt himself called upon to make these remarks: "It seems strange, at first sight, that as the whole object of science is truth, there should be any question in regard to so-called scientific facts. All of us are, however, aware that statements intended to be scientific, are constantly open to every conceivable doubt as to their authenticity. How fashionable has it become, when any startling assertion is made by a professional brother, for one to ask the other, ' Is he reliable ?'" There can be no doubt but these remarks are well founded; though if our Allopathic neighbors feel compelled thus publicly to question the common veracity of their own "brothers," it can hardly be hoped that said "brothers" can be expected to adhere very closely to the truth, when they indulge in reflections upon people and remedies against which their strongest prejudices are engaged. Too often do gentlemen form their opinions beforehand; and then, desiring to see an

agent lead to a given result, they conclude that it has produced this result, if they but see said change take place after the exhibition of an article. They ignore all the part taken in a cure by the vital force. (§29.) They ignore a hundred cases where quite the contrary results clearly were produced by the article in question; and they cling tenaciously to the fact that they observed a certain desired change in one or two cases after the article had been given. It was, probably, a mere accident of time — the change being in progress, under the action of other influences or forces, before the article was exhibited at all. Observations are so commonly made after this fashion, that a very large portion of the praises of different remedies is made upon such limited and disconnected experience as to be entitled to no confidence whatever.

60. Manifestly, the cause of truth demands that an article shall be tried *thoroughly*, before any judgment is passed upon it. It should be given in many separate cases, under different circumstances, in various temperaments. And the observations thus made should be conducted by a number of persons; and the quantities used should be sufficient to bring the system fairly under the influence of the article. By associating the experience thus obtained, a definite and reliable opinion of the article is rendered possible. An opinion thus founded will discriminate between the action of the agent and the action of the vital force; and nothing will be left to prejudice, hope, or inference.

61. In the next place, the article should always be employed alone, and not in company with other agents, in order to arrive at a clear perception of its nature. The necessity of studying each agent by itself has already been pointed out in sections 32, 33. A great many opinions of physicians are reached by pursuing the contrary course. They get accustomed to using a certain compound; and then, from whim or suggestion, add to it some agent with which they are familiar. The case under treatment passes through an unexpected change, and at once the change is attributed to the new article, and forthwith it is rated as an agent capable of procuring such and such results. But it may have been associated with remedies that would of themselves, aiding the efforts of the vital force, have secured the results in question; or the new article may not only have failed to do any portion of the work, but may actually have been in the way of the others. Instances of this latter kind are much more numerous than would at first be supposed; and many a pleasant cure is attributed to quinine, or to capsicum, or to some other agent equally serviceable in its place, when a full acquaintance with the facts would have shown that the quinine or capsicum was wholly misapplied in being used at all. In the same way is it common for Allopathic physicians to use lobelia with opium or hyoscyamus or hydrocyanic acid, and give to the associate articles all the credit for whatever benefits may follow, but heap upon the lobelia all blame for resultant injury or death, And the Eclectics also prescribe lobelia or asclepias in company with veratrum or aconite or gelseminum; and then herald the cure as an evidence of the virtues of the latter articles.

62. It is not uncommon, indeed it is wonderfully common, to read in the current journals long communications upon the fine qualities of some particular agent; and to find by the communication that the opinion was formed simply and wholly by using the agent in a variety of combinations with some other agent, and not by testing

the article alone and upon its own merits, Let a single instance suffice to illustrate this whole subject: In the *British Medical Journal* for 1867, Dr. A. Fleming reports the particulars of five very severe cases of habitual constipation, in which he used very small doses of atropia, (belladonna,) and had the satisfaction of seeing a cure. Forthwith he sings peans to the virtues of atropia in constipation. But now mark. In one of his cases, (and almost the same thing in all,) he says: "I directed him to sponge with salt water once daily, in the morning; to rub the belly vigorously; to take abundant exercise; to omit from the diet tea, coffee, and stimulants; to take cocoa at breakfast, porridge at supper, and vegetables and fruit in moderation." Any practitioner will be free to pronounce such course of management abundantly able to cure any of Dr. Fleming's five cases, or almost any other case of the kind; and the current history of atropia, with its thoroughly demonstrated power to induce muscular paralysis, will satisfy any mind that the cures would have been more easily and safely accomplished without it. And yet the cases, under this course of management, are cited as instances illustrating the value of atropia as a laxative! If this farce were only an occasional one, it would not be just to quote it here; but one can scarcely take up a number of an Allopathic, Eclectic, or Homeopathic journal, without finding the same course repeated. Opinions obtained in such a slip-shod way, are of no earthly use to the cause of science. They merely serve to deceive those who place any confidence in them, and are as valueless as the opinion of the above Dr. Fleming upon lobelia, which he gives in the report of one of his above cases by saying: "It appears that a year ago he had sought advice, on account of indigestion, from a quack, who gave him four doses of some drug, probably lobelia, which purged him very severely, causing much pain and discharges of blood and mucus." If the doctor knew no more than this of lobelia, he is a wonderfully ignorant man in his own profession; and yet it is by just such reckless assertions as these that strong "authority" is quoted against good remedies, and equally valuable "authority" multiplied in behalf of virulent poisons, till one would imagine that the most noxious stuffs were very elixirs from heaven.

63. Let it be repeated with emphasis, then, that no article should be judged of in combination, if a clear opinion of its action is desired. That course may answer for those who are indolent in study; or those who have some particular and pet notion to sustain at all hazards; or for those who will accept from another any extravagant assertion that excites their credulity. But the calm and conscientious physician, who loves the truth and feels the responsibility of human life, should never he entrapped into such a mode of procedure, nor enticed by opinions reached through such a plan. He should take each article by itself, and test it abundantly as it stands alone; and then he will be able to reach conclusions that will be reliable, and to offer opinions that will endure the most rigid scrutiny. After the properties of each individual agent have been learned, the principles which favor or oppose their combinations with others will be another and further subject of inquiry. (§254.)

64. To return, now, to the question started in section 58: How may a remedy be determined positively, without confounding it with agents of any other class? By what characteristics may an article be known as a true and harmless remedy? Taking pains not to confound the action of the article with the effects of deleterious substances

retained within the system, and being careful to make observations with it alone, and to extend these observations through an adequate extent, and the following rules will determine it to be a remedy in the true sense of the word:

Rule 1st. — Their action is definite, and the vital response to their impression is also definite; hence they can be depended upon to secure certain absolute results. Lobelia relaxes, and will relax under any and every circumstance where it can show its character; oak bark astringes, and will never act in any other way than to astringe; capsicum stimulates, and will do so under all circumstances. The agents do not change these characters in different temperaments nor in varying forms of disease. The manifestation of their power may be interfered with, not only by death, but by partial paralysis, incipient mortification, atrophy, and other conditions. (§141.) But when they act they always do so in the same unvarying manner; and the practitioner will not need to be in any doubt as to the character of the impressions that any true remedy will make, or of the response that the life power will make. (§28.) In poisons, this is not the case; as will hereafter be seen.

Rule 2d. — They can be given persistently, and continued indefinitely, till they accomplish their work. It will not matter whether the dose be large or small; whether the agent be used one day, several days, or many weeks; whether the patient be robust or delicate; if it is a remedy and not a poison, and its action is required, the system may be kept steadily under its influence till the normal condition of the structures has been restored. And when this condition has been restored, the article may be continued steadily, so as to maintain this state till the parts have recovered sufficient strength to perform their duties without any extraneous assistance. In this latter fact is found the most overwhelming proof that a true remedy acts in harmony with the life principle, and is a friendly instrument in the hands of vitality — that the living frame receives the article kindly, and never wars against it or feels oppressed by its presence.

Rule 3d. — As a sort of corollary to the second rule, is this: That after a true remedy has accomplished its full work, no natter how much or how little was given for this purpose, the parts acted upon by it are stronger than they were before — better able to perform their functions, and therefore in a state of better health and higher integrity.

65. These three rules are but divisions of one general idea — the idea of *actual harmlessness*. They make so many different standpoints, from which to enter upon an analysis of a reputed remedy. If the article will fill all three of these requirements, its character may be considered as having been "acted upon and passed." Stronger and more pointed tests should not be required; for if the article can stand this ordeal, its curative and innocuous character is as thoroughly proven as can be any proposition to which man applies his faculties of reasoning. And a confirmation of this correctness may be found in the facts, *first*, that even an excessive use of a remedy causes no lesion in any structure; *second*, that its use is often followed by an unexpected amount if secretions, in which it resembles the excessive flow of *accumulated* sweat or urine by which Nature herself often terminates in acute malady; and *third*, that even a palpable misapplication if it will cause no *permanent* injury. Surely, the

human mind can have no ground on which to retain a doubt of the absolute harmlessness of an article which will thus prove its congeniality to the power of life; for when observation and the confirmation of experience have proven an agent thus naturally incapable of mischief, all further cavil is the prejudice of untruthfulness.

NATURE OF POISONS

66. In the classification of agents made in section 34, poisons were spoken of as articles that "always carry the tissues away from the healthy standard, and remove them more or less from under the control of the life power." This class may also be defined as agents which tend to impair the tissues and permanently derange the functions. Dr. Gardner, in his Medical Dictionary, defines a poison thus: "That which, when applied externally, or taken into the human body, uniformly effects such a derangement in the animal economy as to produce disease." This is an excellent presentation of the scientific ideas connected with the word; and it is of double value to us, as coming from standard Allopathic authority. Another vigorous Allopathic definition is the following, as given by the former editor of the *Boston Medical and Surgical Journal*: "Poisons, however much they may differ in other respects, agree in this, that they suddenly and rapidly extinguish a large portion of the vitality of the system." Dr. H. Dobell, of England, classes poisons among "the causes of disease." And in the same manner every lexicographer, and every medical author who has touched upon the subject, agree in attaching the term poison to such articles as will induce disease — as have such an inherent relation to the body as will lead to injury, or even to death.

67. Poisons may be found in all three of the natural kingdoms — animal, vegetable, or mineral. A very large number of the mineral compounds are poisons; though some of them, as salt, are harmless; and some which are almost inert in their simple metallic state, become intensely poisonous when compounded with other articles. (§33.) A portion of the animal kingdom enters into man's most concentrated food; but a great part of that kingdom is very poisonous; and the chemical viri resulting from decomposition of animal tissues, are peculiarly inimical to life. In like manner, the vegetable kingdom furnishes man with the larger and more delicious portion of his sustenance; yet it contains some of the most violent poisons known — poisons which will act with more uncontrollable rapidity than any in the mineral kingdom. It is, however, a peculiar fact that some vegetable articles are poisonous to some animals, and edible by others — as for instance that one species of the water hemlock (*Phellandrium aquaticum*,) is very fatal to horses, while cows eat it with impunity; and the jimson weed, (*Datura stramonium*,) is destructive to man, but is a favorite food with goats. So common is this fact, that it would be useless to draw any inference as to the effects of an article upon man, by observing its relations to some other animal; though, from man's higher and more delicate organization, it is quite safe to say that an article which has proven fatal to beasts, will also prove fatal to him.

68. In their modes of action, poisons are of two general classes: 1st. Corrosives; 2d. Narcotics. Some articles combine the two properties, corroding or abrading first, and afterward making a narcotic impression. *Corrosives* act upon purely chemical principles — seizing upon the tissues, taking them from under the control of the vital force, and resolving them into dead compounds in conformity with chemical laws. (§35.) For instance, sulphuric acid will attack any tissue of the body, force out the vital principle, and then dissolve the structure precisely as if the life power had not so recently been in possession. The dethronement of vitality is with it prompt and complete. Corrosives invariably provoke irritation in the living parts beyond. *Narcotics* do not cause any

immediate and palpable corrosion of structure; but they abate the vital sensibilities of the tissues, and lower the nervous property of feeling till they destroy it altogether. An instance is found in carbonic acid gas, (whether arising from burning charcoal, or any other source.) This first impairs the senses, then produces stupefaction, and presently leads to somnolent death. Narcotics do not openly resolve tissues into purely chemical compounds, and it was for a long time supposed that they made no lesions whatever. This latter supposition was not in keeping with analogy; for it would be incredible to imagine that any article could lead to death, and yet leave the tissues in their normal integrity. Late microscopical researches have clearly demonstrated that all kinds of narcotics impair the soundness of the nerve tissues — breaking up the cells and softening the nerve substance in the most absolute and fatal manner. (§90.)

69. From these well-known facts, it is at once apparent that corrosives and narcotics do not use the tissues, or do not make impressions upon the living frame, in any such manner as is natural to the vital force. (§49.) They do not improve the states of the fibers, because they do not put them in a condition of health; and therefore they can not restore them to health when they are diseased. Such impressions as have been named are themselves disease; and consequently the inherent tendency of agents that will make such impressions is toward the dethronement of the vital force, and therefore toward death.

70. Every poison, however, does not produce immediate nor even early death. Neither does every poison cause a decided and glaring change in the health of a part, or a permanent disturbance of the functions performed by that part. On the contrary, persons have taken rather free quantities of a poison, or have used it for some time, and yet were not in immediate prospect of death from it. Indeed, it may be conceded as a fact that calomel will secure discharges from the liver, and there are many occasions on which an increased biliary flow is a great desideratum; and opium will usually secure sleep, and this is ofttimes an imperative necessity. From a multiplicity of such observations, it is seen that not only may persons take into their bodies poisons, and live; but that articles admitted to be poisons may be used to *apparent* advantage in restoring various functions. From this has sprung the practice of using agents of this class in the treatment of disease; and so great has been the importance attached to such observations as the above, that the class poisons has come to be considered the best remedies — the means that will kill to be pronounced the most effective for saving life! The idea is an utter paradox; and might be dismissed as an absurdity, and as an attempt to nullify all our ideas of fact and language. But those sentiments are at this time so firmly rooted in the minds of such a great number of people, that it will need a careful analysis to overthrow them.

POISONS CAUSE DISEASE.

71. There is no physician but proposes to *cure* disease; and no class of physicians is more ready than the Allopathists to use the statement that they seek to "aid nature." The whole difficulty lies in their mistake as to what kind of "aid" Nature wants. Prof. R. Dunglison says, (*Therapeutics,*) "The most energetic poisons are used in the treatment of disease. . . .Our agents are resorted to with a view of exciting a *new disease* in the place of one already existing." Prof. G. B. Wood says, (*Therapeutics*, vol. i, p. 55,) "If we can produce a *new disease* in the exact position of one that may be existing, we may possibly supersede the latter; and *if* the new disease subside without injury, we cure our patient." Sir J. Forbes, for fifty years one of the most favored physicians of Europe, says, (*Nature and Art in Disease*, p. 32,) "The strongest and most effective powers of Art are usually employed for the *very purpose* of setting aside or counteracting the powers of Nature. We may even say that the arm of physic is invoked purposely to disturb, and obstruct, and overwhelm, the normal order of the natural processes." Dr. T. R. Chambers, physician to the Prince of Wales, in his lectures on the Renewal of Life, says, (p. 614,) "I hope you all by this time clearly understand that all departures from full health are diseases. The artificial states which many of our remedies produce, (sometimes even as a means of doing our patient good, but more often as an incident unavoidable and lamented by us,) are as much diseases as any of those on the roll of the Registrar-General." Prof. M. Paine says: "As a change arises when efficient agents operate, and as that change is not a restoration of the morbid to the natural state, it is necessarily a new pathological condition. (§901.) . . . The most efficient remedial agents institute their favorable effects by establishing new pathological conditions. (§239.) . . . Remedial agents exert their salutary effects by inducing new pathological states, and are generally liable to produce disease when exhibited in health. These morbid states, *when not excessive*, are of a nature to allow the full exercise of the recuperative tendency. But there is a class of agents more profoundly morbific, and whose results transcend the natural recuperative process. It is for the removal of *these* consequences that we employ the other class of morbid agents, [use the milder poison to remove the disease caused by the stronger poison.] Or there are yet other means — like air, exercise, etc. — which appear to cooperate in a direct manner with a tendency to restoration. Our remedies, therefore, are curative by substituting new pathological conditions, and nature does the rest. It is only with a view to a right interpretation of their mode of curing, that I confound the operations of remedies with that of the ordinary causes of disease." (§901.)

72. The above are merely a few scattering quotations from the latest Allopathic authorities. They serve abundantly to show that poisons are used as remedies, with a distinct understanding that they act as *causes of disease*; and that the *aim* is, to *have them cause disease*. It is not pretended that they directly restore the tissues to health; as this can be done only by Nature, aided by such hygienic influences as "air, exercise, etc." The only merit claimed for these poisons, is, that the disease they produce may be more easily manageable by Nature than the disease that already existed. But it is conceded that the "most efficient" poisons may *overwhelm* Nature, and establish a disease beyond the strength of the life power to remove. In no

case is it pretended that the articles in question leave behind a natural state; but it is lamented as an "*incident unavoidable*" — one that the most skillful hands have no means whatever of preventing — that they produce and fasten upon the frame "artificial states which are as much diseases as any that are on the roll."

73. This much space has been occupied in making this point clear; that it may be seen for what purposes, and with what expectations, the leading and living teachers of Allopathy give calomel, opium, antimony, belladonna, and all other current poisons. With their objects and anticipations thus plainly presented, let us proceed to examine into a query suggested in section 70. Why does not a poison always kill? This has been intimated in the above quotation from Prof. Paine, where he says: "These morbid states, *when not excessive*, are of a nature to allow the full exercise of the recuperative tendency." Or as the same author says in another part of his work, (*Institutes of Medicine*, .§898,) "When disease subsides under the influence of remedial agents, [meaning poisons,] it is only in consequence of the great law of recuperation." For, as he says in his 854th section: "A repetition of the means before the influences [poisonous impressions] already established shall have ceased, either prolongs the cure, or exasperates and multiplies disease." The patient lives through it, simply on account of the wonderful resistive and recuperative power of the vital force. (§20.) As Dr. Dobell lucidly states it in his Germs of Disease: "How does it happen that the same substances may kill or may not kill? The answer is very simple. In the one case, the sub- stance is within the power of the organism to dispose of; in the other, it is beyond such power. . . . There is within the organism a force capable of dealing with poisons, so as to avert their fatal effects *within certain limits*. . . . In fact, *under favorable circumstances*, the human being may live through injury, through disease, through almost any thing, by its own unaided assistance." The experience of the entire world confirms these remarks; and proves that the human frame may resist poisons as well as cold and other accidents; but that its laws of limitation (§19, 20) may be transcended in any of these respects, and then the injurious impressions will assert themselves and work their own legitimate consequences.

POSITIVE DETERMINATION OF POISONS

74. By the light of the preceding sections, it will now be easy to lay down plain rules, by which any poison may be determined with absolute certainty. Of course an article of this class must be tested under these rules, according to the same patient methods of observation that were laid down for the study of remedies in sections 59 — 63. Proceeding upon those plans, and an article may positively be pronounced poisonous, if it answer the following descriptions:

Rule 1st. — The extent of their action is uncertain, and the vital resistance to them is uncertain; hence they can not be depended upon to procure certain definite results at all times. Nothing is more common than to find Allopathic authors cautioning young practitioners against hoping to find the action of their poisons always the same. They carefully teach that differences in circumstances will alter, or even entirely change, the results obtained from the use of an agent of this class. It is held as a matter of great importance, to know that calomel will lead to different consequences in cases of scrofula and of inflammation, in the bilious and the vital temperaments; that opium may be relied on to secure sleep in some cases, but will utterly fail, or even excite the most exhaustive wakefulness, in others; and so of every such article. So common are these facts, that it is customary to speak of each article as having two actions — the *primary* and the *secondary*; and these are usually the opposites of each other. These things clearly show that a poison is not received kindly by the vital force; and that this force will be aroused to resistance whenever the circumstances will allow. It is in those of rather low vitality, or of a delicate organization, that calomel will most surely work destruction; while the robust and energetic may cast it out. So also the phlegmatic and loose in structure easily become somnolent under opium; but the dense tissued and high strung are excited to powerful resistance against it. Any article that will currently incite different kinds of vital response — or, more properly, that will be attended by one set of consequences in the strong, and an entirely different set in the weak — is palpably a poison, and an article to be classed only with the causes of disease. The *kind* of impression made by it is necessarily the same in all cases; but it depends entirely upon the present state of the system whether it be rejected with a wearying excitement, or whether it bring the frame under its own control.

Rule 2d. — They can not be given persistently, in all cases, till their full impression has been made. Everywhere is it recognized as a fact, that there comes a point when the use of calomel, and opium, and strychnine, and antimony, and similar articles, must cease, whether the purpose for which it was given has or has not been accomplished. The more delicate the constitution, or the greater the reduction of strength from disease, the sooner is this point reached. To go beyond it, is directly to jeopardize life; for it is currently known that the frame “will not stand” more than a limited quantity of these agents. In this fact, as well known as is any fact in the world, we find the full recognition of the principle that poisons are at war with the well-being of the frame; and that to *dare* continue their use beyond a certain point, is to risk carrying their influence beyond what the frame can endure, and thus “extinguishing vitality” entirely. To use them at all, then, is to institute a war against life; and however small may be the

quantity given at any one time, it makes its own impression so far as it goes. (§73, 108-121.) And in proportion as disease advances, and the need of remedial help increases, the use of this class of agents has to be curtailed; because they do not aid in overcoming disease, but act only by making more disease. Any article, therefore, which can not be given to the feeble as well as to the robust; which can not be used in doses of any size that the condition of the organism may require; and which can not be continued persistently and indefinitely, till it has accomplished perfectly the purposes for which it was given, is an article opposed to life, a poison in every accepted definition of that term. (§66.)

Rule 3d. — When an article leaves behind a condition that is unnatural — whether a state of abnormal erethism or depression — it is a poison. Such a condition is not a healthy state; it shows that the article used has produced disease; and therefore it has not cooperated with the vital force, but has proven inimical to the general well-being. Calomel, opium, veratrum, lead, aconite, gelseminum, and the whole list of poisons, do leave behind such abnormal conditions, even when they *seem* to have accomplished the good that was claimed for them. As this "good" merely means the capacity of the article to establish disease, (§71,) such an enfeebled and unhealthy state of the structures is a thing to be expected from their use.

75. Let these three rules be applied as a test to any article suspected of being poisonous. If it is judged guilty under one of them, it will be found equally guilty of all, if sufficient pains be taken to carry out the inquiry. Too often, the last rule is overlooked; and patients recovering from some sickness with aching bones, or stiffened joints, or trembling nerves, or ruined digestion, or rotting teeth, or some other difficulty that will cling to them all the remainder of their lives, are told that such derangements are legitimate offsprings of their malady. Thousands of miserable sufferers, with wrecked constitutions, are now dragging out a wretched existence, under the belief that their sufferings are unavoidable results of the previous sickness. As Hugh Miller startlingly describes Jock Gordon: "He had been like other people, till his fourteenth year; when a severe attack of illness left him bankrupt in body and mind. He rose from his bed lame of a foot and hand, his one side shrunken and nerveless, the one lobe of his brain apparently inoperative, and with less than half his former energy and intellect; not at all an idiot, however, though somewhat more helpless — the poor mutilated fragment of a reasoning man." Such wrecks of mind and body are rarely due to disease, but to poisons that were given under the absurd philosophy of the Allopathic school. Nature, unwarped by interference, never leaves behind such ruin. She either "cures perfectly," or else fails to cure at all. Such instances as the above were not known in ages before this poisoning system (only a few hundred years old) was adopted; and are never found among barbarous people of the present day, where physicians are unknown outside of the priests with their incantations, and old crones with their herb teas. Such things are reserved for enactment in "civilized nations;" and for those who prefer to groan and suffer under the above Allopathic practice. In the *millions* of cases treated by Physio-Medicalism in this country during the seventy-six years of this practice, in not one single instance have any such wrecks marked recovery from even the most terribly severe maladies. Several millions of observations, with not a solitary variation,

are sufficient to establish any point, to the satisfaction of the most skeptical whose bigotry is not so strong that it will not be convinced. By such overwhelming testimony (even throwing out the thousands of detailed admissions of Allopathic writers) is it proven that such utter ruinations of life are not due to the original disease; but are themselves the diseases fastened on the frame by the morbific articles forced upon it. Such is the terrible weight of misery that Allopathy has heaped up in condemnation of herself; and which Homeopathy and Eclecticism are now repeating for themselves, by resorting to almost the entire list of Allopathic poisons.

EXAMINATION OF MERCURIALS.

76. In the sections under the last general head, we presented considerations which should leave unnecessary any further arguments in condemnation of poisons. If the laws of human reason are to be considered of any force in medical investigations, enough has already been presented to show that a poison can be determined with an accuracy that is as positive as a demonstration in geometry; and to prove that by no possibility can a healthy constitution, or a curative action, be established by the use of agents which have no other power, and were never introduced for any other purpose, than that of "substituting one morbid condition for another." But as already intimated, it is contended that such a substitution is the very thing required by Nature; that the impressions thus made actually aid Nature in effecting a cure; and therefore that "poisons are good remedies" on account of this very action. Praises innumerable are recorded in their behalf; and there is no lack in the multiplicity of hearty assertions in favor of their absolute curative power. But as "all is not gold that glitters," so all is not reliable that is asserted. The grand difficulty lies in the too common practice, among medical men, of stating only that part of the fact which suits them, and setting aside all that does not suit them. (§7.) Manifestly this is a proceeding so unfair as to bear the appearance of prevarication; and though the intention may not be always wrong, the motive will not prevent this course from deceiving the younger mind and from having the same effect as a deliberate falsehood. But no amount of one-sided assertions, however loud or respectable, can be received in establishment of any scientific question. This can be done only by a perspicuous statement and unbiased examination of the "whole truth." The question now before us must be examined in this way, without the least reference to time-honored prejudices or gray-haired authority — which are only so much rubbish, if they stand in the way of demonstrable science.

77. Probably no agent, whether of simple remedies or admitted poisons, has ever received from the profession such universal and unqualified praise as calomel — subchloride of mercury. Among many admirable qualities ascribed to it, is that of inducing freer action in the liver, and thus securing a more abundant flow of bile and more regular movements of the bowels. We will admit that the article favors such results; although a large number of prominent Allopathic physicians, and among them Prof. N. Chapman, of Philadelphia, and the learned John Hughes Bennett, of Scotland, say that no manner of dependence can be placed upon it in this connection (See Rule 1, §74;) and that it is only vitiated bile that ever follows the use of calomel.* Of course it is very frequently desirable to secure increased hepatic action, and additional motion of the bowels, by increased flow of bile. But when it is claimed and admitted that calomel will induce these very advantageous results, only a *part* of the truth is stated. The *whole* truth includes the additional facts, that weariness of the liver always follows its stimulation by calomel; that congestion of it, with chronic enlargement and tenderness, *very* frequently ensues; and that hardening and small abscesses, rather extensive abscesses, and even cancer of this organ, have often been found as ultimate consequences of the exhibition of this article. The testimony on all these facts, is found in great abundance in such eminent Allopathic authors as Christison,

Taylor, Hamilton, Orfila, Thompson, Wood, Hall, and a host of others. So extensively has such testimony been presented within the last fifty years, that it is not here necessary to more than allude to it. All such results are in strict accordance with the very purpose of using calomel at all; for it is desired that a poison shall "produce a new disease in the *exact position* of one that may be existing," (§71;) hence it is *intended* that calomel shall relieve the liver by establishing another disease in that same organ. With what terrible exactness it accomplishes this work, the miserable pages of medical history can tell.

* " Is mercury a chologogue ? We have no proof whatever that it increases the secretion of bile; and the only experimental investigation with which we are acquainted, namely, that of Dr. Scott, who gave calomel to dogs and then collected bile through a fistulous opening made into the biliary duct, found it in three days to diminish the quantity of that fluid. Is it anti-syphilitic? In recent times it is admitted that syphilis has diminished in intensity just in proportion as the use of mercury has declined; and the gigantic experiments made on entire garrison regiments in France, Germany, and Sweden, prove that the non-mercurial treatment of syphilis is *far superior* to the mercurial, in every respect." — *Prof. J. H. Bennett*, of the Edinburgh University. *London Lancet*, 1863.

78. But these "secondary" effects of this mercurial, (Rule 1, §74,) are by no means confined to the liver. How well — ah, how too well — is it known that it will so attack the joints that very ordinary exposure after its use will probably establish rheumatism. The treatment of "mercurial rheumatism" is regularly discussed in Allopathic works on theory and practice, and admitted to be a most intractable form of this malady. It is also a marked feature of calomel's history, that the fibrine of the blood becomes impoverished (dissolved) under its action; that persons of a scrofulous tendency are liable to suffer tubercular deposits through its influence; that abscesses in the long bones, and exfoliation of the dense bones, are liable to occur after its use; that the constitutional effects of the syphilitic poisons are greatly aggravated under its exhibition. So thoroughly are these points proven by numbers of the very highest of Allopathic teachers, that none of them can be truthfully called into question. Indeed, no surprise need be felt at such results; for the article being prescribed on the principle of its being able to "establish a new disease in the exact position of the one already existing," its only use for inflammation grows out of its power to lessen the amount of fibrine; its only use as an alterative depends on its ability to "change the action" of the nutrifying organs; and its value in venereal complaints rests upon its power to establish its own morbid influence upon the same absorbent structures as are already being attacked by the syphilitic virus. Such results are in the very strictest logical harmony with the avowed object in using this poison.

79. Thus the apparent good to be obtained from the employment of calomel, subjects the patient to liabilities of the gravest character. Should he be in very robust health, and should it be given (as Dr. Dobell says) "under favorable circumstances," it may provoke an earlier action of the liver, and be carried away without any material detriment. (§73.) But should the healthful tone of the system be reduced from any cause, the influence of the mercurial will tend to reduce it still further; and then the consequences of a single dose of it can not

be predicted for an hour. As an instance, a diseased state of the stomach may enable this organ to secrete only very imperfect gastric juice; such juice may soon pass from a vital fluid, and undergo a chemical change which will produce hydrochloric acid; and it is well known that the chlorine of this acid will readily leave its hydrogen to unite with mercury. Now introduce into the stomach a dose of calomel; and the facts of chemistry will tell you that this subchloride of mercury will there be changed into a chloride of mercury — or corrosive sublimate — by the chlorine of the acid. And thus a three-grain dose of calomel may be changed into enough corrosive sublimate to cause ulceration and early death; and no man living can possibly foresee this state of affairs. The case is made still worse by the fact that a previous use of calomel, which seemed to be doing the liver so much good, may have so deranged the stomach as to lead to that change in the secretion which may ultimate in the formation of the sublimate poison at the very next dose. And it is because the general vigor of scrofulous persons is below that of others, that they are so much less able to resist this article; and hence these suffer so directly and fatally under its action, that no intelligent Allopathist ventures to give it in that diathesis.

80. It is also well known that this and every other mercurial compound is very liable to be absorbed, whether given by the internal surfaces or applied in any form upon the skin. In fact, it is in only a few cases that it is not absorbed. Says Prof. A. T. Thompson, of England: "In producing their effects, mercurial preparations, whether oxides, chlorides, cyanides, iodides, or any other, are decomposed; and the mercury, in a metallic form, is either thrown out of the body by the skin and lungs, or deposited in the glands and bones." When thus absorbed, it may lodge in the liver, bones, or muscular structures; though the spongy bones, as the alveolar processes and the heads of the femur and tibia, are its favorite places. In such situations, it may proceed at once to disintegrate these structures and cause their decay; or it may be confined in position by a wall of firm lymph, (see my P.-M. Surgery, article *Abscess*.) There it may remain for a few weeks, or for many years; and no unpleasantness be felt beyond that delightful sensation one enjoys from being a living barometer and suffering torture on the approach of every storm! The person praises the virtues of calomel; and points with pride to the time when he last took it, and it seemed to do him so much good. But by and by his system begins to suffer a reduction in its vital tone. Typhoid fever, or some other prostrating malady, brings him low; or he suffers some accident that makes a large drain upon his general strength. Now the system is no longer able to triumph in the contest by which it has held the mercury in abeyance. The plastic wall breaks down; the mercury commences its ravages upon the enfeebled frame; and these ravages may now be so great, as to turn the scale in favor of death under circumstances where there would otherwise be no question against the most promising issue. And though but one or two doses were all that were taken by the patient, and it is probable that no more than a single grain of pure quicksilver has lodged in the bones, the extent of the destruction is not governed by the smallness of the quantity. The decay is chemical, its products are chemical viri, (§67;) and by the well known chemical law of catalysis, a minute portion of any fermentative or other substance, may determine the commencement of changes which will then be continued indefinitely through the surrounding mass.

Occurrences of this kind have been met at a date of ten, and sixteen, and even twenty-two years, after the patient had used the last grain of calomel that he ever took. Many such cases are recorded by such eminent Allopathic physicians as Hamilton, J. M. Good, Eberle, Watson, Parry, and others. Indeed it is a daily fact that every intelligent physician of that school, if called to a new patient with a severe malady, will inquire if he has ever taken a mercurial course; and if he have taken one, this fact adds largely to the unfavorableness of the prognosis, and may outweigh a large number of very favorable symptoms. So also is the mercurial cachexy everywhere recognized as an almost incurable condition; and the lapse of time in no measure lessens its dangers.

81. All the facts in the case are now before us. The presentation is of necessity very brief, but serves the purpose of a review. From this review can now be judged how much good calomel is ever likely to do. In the very cases where its use is most commended, and where it has been pronounced nothing better than the wildest "quackery" to attempt a cure without this article, it is seen that it may insure several forms of disease — each one of which is far more serious, and much less amenable to treatment, than was the original difficulty. In addition to this, is the great liability that it will undergo chemical changes, or enter the tissues and form a nucleus for after disintegration, and thus become the direct cause of most fatal mischief. And the danger is immensely heightened by the fact that, when even a small dose is once given, it is beyond the power of man either to foresee its effects or to stay its ravages. And when it is supposed that it has done the greatest possible amount of good of which it can ever be deemed capable, the total evidence shows that it has not done this by putting the structures in a healthy condition, but by goading them to an unnatural action. It secures a flow of bile only by irritating and provoking the liver. Such an impression debilitates and damages the organ, as is made known by the pale face and sense of exhaustion that follow even ordinary catharsis from this article. There is not one shade of quality about it that harmonizes with the laws of life; but the flow of bile that is considered so valuable a sequence of its use, is procured only as a violence upon the liver, and under a risk that may unavoidably, in any case, lead to the above most alarming consequences.

82. In like manner might the entire list of irritating poisons be studied; and to them all would be found attached results of the most serious character. The very good they are claimed to effect, is done only through provocation, violence, and perturbation. They disturb the vital harmony, even in their best estate; and that can never be done, under any circumstances, without making a draft upon vitality, for which Nature will demand full compensation. It is merely acting under a deception, for any man to imagine that he can thus do violence to the laws of life on the plea that his *intentions* were kind. It is a mere subterfuge to attempt to conceal the probable and very frequent bad results following the use of a poison, and to put forward only the questionable good that it seems to do. That is but tampering with human life. The cause of truth demands that every fact bearing upon the action of an agent, be studied and acknowledged; and by these facts, under the application of the above rules, the article must stand or fall on its actual merits. Let this be done with every acknowledged poison, and it will be found that each and every one of them is

baneful, and is worthy only of immediate rejection. It matters not whether the article be mercury, antimony, lead, zinc, bismuth, copper, silver, gold, phosphorus, bromine, chlorine, iodine; whether it be given internally or externally; whether the man who prescribes it calls himself an Allopathist, a Homeopathist, or an Eclectic. The laws of God are fixed and eternal; and do not adapt themselves to the wishes and passions of the schools. Let man study them, and elevate himself by obeying them. They sweep away the above entire list, as being but so many besoms of destruction — by their inherent nature opposed alike to health, happiness, and life. As Sir J. Forbes said, after a wonderfully rich experience in a wide field for observation during fifty years: "In rare instances, the violent artificial disturbances so excited in the system, seem to overcome the natural disturbances existing in it; but as a general rule, the indication is not only not fulfilled, but the existing disease is either aggravated directly, or the natural restorative powers of the system are arrested, enfeebled, or misdirected. Our estimate of this kind of treatment must, therefore, be of an *entirely damnatory character*; the slight amount of good ever derived from it, being counterbalanced by a large sum of evil." {*Nature and Art in Disease*, p. 231.)

EXAMINATION OF NARCOTICS

83. The relief of actual pain is unquestionably an incipient idea of all medical practice. To soothe acute distress and secure good sleep, are leading efforts with the physician, at every stage of his varied duties: and the means that will effectually aid him in the accomplishment of these great objects, are naturally prized as treasures in his materia medica. The Allopathic profession has brought to notice quite a variety of articles for these purposes, which are classed variously under the descriptive terms Narcotics, Anodynes, and Sedatives. They are chiefly derived from the vegetable kingdom; and include such articles as opium, and its preparations of laudanum, morphia, etc.; henbane or hyoscyamus, aconite, stramonium, veratrum, cannabis, tobacco, prussic acid, etc. Each of these has peculiarities of its own; yet they one and all possess characters so much in common, that they are always classed under the one general class of Narcotics. Opium is the principal one, and the accredited representative of them all; it is used to an enormous extent, and in nearly every form of disease; and so great are the praises accorded it, that it has vauntingly been proclaimed as "*Magnum Dei donum*" — the great gift of God.

84. To judge of the fitness of opium to relieve pain, the nature and intent of pain are first to be considered. When perfect health is enjoyed, there is no suffering; but every organ moves forward in its duties with an ease which leaves us unconscious of their presence, except by the pleasurable emotions they impart. As the structures begin to wander from the healthy condition, uneasiness ensues; and as the departure increases, the sensations deepen into pain. The acuteness or bluntness of the pain will depend much upon the form of the disease, and the character of the tissues affected; but in all instances, the suffering is a direct consequence of disease. Sometimes there are the most grave evidences of disease, without any accompaniment of pain; and such cases are recognized as of the most serious import, indicating that disease has so advanced as to prostrate the sensibilities. Under all circumstances, a sudden abatement of acute suffering, without any simultaneous change for the better in all the symptoms, is looked upon with serious apprehension, as heralding the speedy access of mortification. The existence of pain, therefore, is an evidence of disease, but is not itself disease. It arises under accidents, the introduction of foreign solids, the accumulation of unwholesome substances within the frame, and similar irritating conditions. The eye suffers from a small particle of dust, the skin smarts from a blow, the bowels become acutely painful from accumulated materials, the bladder endures torture from the presence of a calculus, and so of a thousand other offenses to the system. Were such things present, and yet provoked no misery, we would consider that part too nearly dead to recognize, or to make any struggle against disease. The property of nerve sensibility is, in fact, everywhere known to be the highest vital endowment; and by it alone can the frame take cognizance of danger, and so announce the threatened invasion as to put the whole frame in a state of resistance to the foe.

85. From this plain teaching of Physiology, no deduction can be more simple than that relief from pain is to be sought by compassing a removal of the substances and conditions which gave rise to it. The pain itself is in no sense disease, but is

Nature's safest and most unerring friend; and to offer to overcome the pain while the provoking circumstances remain, would be the weakest absurdity that man could suggest. If one had fallen upon glass, and thrust pieces of it under the skin of the hand; how ridiculous would every body pronounce a suggestion to let the pieces remain while all attention was given to the abatement of the suffering. The nature of the proposition is not one whit changed, when it is offered to lower the irritability of a fever patient before securing an ejectment of the retained secretions which caused the trouble; or to soothe a gathering abscess, or an ordinary inflammation, while the original causes of offense remained. After the causes have been removed, the pain will of course subside, or the irritated nerves may be soothed. Hence any attempt to destroy this nervous susceptibility, is but a form of destroying life; and any effort to subdue the suffering, is but a display of an utter disregard to the welfare of the system, or else a manifestation of ignorance in the principles both of Physiology and Pathology.

86. Now turn from these fundamental facts in medical science, and see upon what ground rests the use of narcotics. Selecting opium as a fair representative of the whole class, the following outline of its effects will be found in Pereira's Materia Medica, (or any other similar work:) First it may excite the cerebro-spinal functions, and then the heart; and thus for a time there is an exaltation of the pulse and the mental faculties. To these succeed a state of mental depression, a sleep that borders upon stupor, a feverish condition of the surface, a diminished state of the muscular power that borders upon paralysis, a reduction of the pulse below the normal standard, dryness of the mouth and throat, diminution of appetite, increase of thirst, costiveness lasting for several days, general suspension of the secretions, confusion of mind, and loss of general sensibility. These are the ordinary impressions on the use of one or two small doses. They are followed by a furred tongue, headache, persistent listlessness, and sluggish capillary action bordering on congestion. In somewhat larger doses, or in the small doses continued for a time, the semi-paralyzed condition increases, and is manifested by great diminution in the secretions of the liver and bowels, slow breathing and insufficient oxygenation of the blood, loss of sensibility in the bladder leading to dangerous retention of urine, blunting of sight, hearing, and the other senses, a chronic state of capillary feebleness, palpable confusion of the mental operations, and symptoms "almost exactly the same as" apoplexy. (*Christison*.) In large and fatal doses, he symptoms reach to paralysis, insensibility to sight and sound, stupor of the cerebral center, general congestion, extensive diminution of the secretions, and asphyxia. These are of course the extreme developments of its action; but it will be noticed that they are precisely the same, *in kind*, as are produced by the smaller doses. The fatal impressions from large doses do not differ in character from those made by the small doses; and the small, or so-called therapeutical doses, carry the frame on the same road to death, so far as they go, as is traversed under the fatal power of the larger quantity.

87. The most cursory analysis of this catalogue of symptoms, at once shows that the action of opium does not relieve pain by placing the organism in a state nearer to that of health. It carries every tissue into a most dangerous condition — the condition of insensibility. That it will put an end to pain must be admitted; and that relief from pain is of momentous importance, is fully

understood; but the *manner* in which opium (and all other narcotics) accomplishes this end, is most reprehensible. In effect, this kind of relief is the similitude of death; for it removes no obstruction, reestablishes no suppressed excretion, casts out no offending substances, nor in any other way renders the system one jot or tittle of help in overcoming the causes that provoked the suffering. It leaves those causes still within the frame; while it expends its power in striking down that nervous sensibility and energy which guard the very citadel of life. And when the effects of the narcotic have passed off — when the body arouses from the loss of sensibility, the stupor, the paralysis, the congestion, induced by the opiate — all the original causes of disease remain, and to them is now superadded the sluggishness and vital depression occasioned by this poison. Such a method of seeking relief from pain bears a resemblance to nothing so much as to the rope of the hangman or the stiletto of the assassin. Let the *intention* of the physician be ever so humane, the prescription of such an article secures a result too closely allied to death to be wholesome to either himself or his patient.

88. So thoroughly are these fatal tendencies of the narcotics understood by the ablest Allopathic physicians, that they do not pretend to prescribe such agents for the *cure* of disease. Their philosophy directly proposes such articles on the one and only ground that they "make disease" in the nervous structures. (§71.) It is only your half-educated Allopathist, or your Eclectic who tries to screen himself for using narcotics while he seeks public patronage by the assertion that he discards poisons, who pretends to find any shade of *curative* action in a solitary article of this class. The ablest and most honored living Allopathic authors of both hemispheres, are full of evidences and statements against the supposition that any narcotic removes disease. Curative powers may be claimed for calomel, antimony, iodine, gold, phosphorus, etc. (§76, 77;) but nothing of the kind can be claimed for a single one of the sedatives. Turn for a few moments to some of their ablest authors, and hear their testimony on this point. Dr. J. Johnson says: "The whole tribe of narcotics — as opium, hyoscyamus, hop and laurel water, prussic acid — are dangerous sedatives, presenting allurements to the unwary, with all the suavity and meekness of the serpent of Eden; and the deception too often is equally fatal." Prof. J. P. Harrison says: "Opium enhances nervousness; if the brain is affected, it increases the disease; inflammation of the stomach or bowels will be made worse, perhaps incurably worse, by an opiate. *It is hurtful, because it is contrary to Nature*. It is a foreign substance; which Nature does not call for, or rightly receive, as long as she is in her right mind." Prof. Eberle calls it a treacherous palliative; and says that when used on children "the appetite and digestive powers fail; the body emaciates, and the skin becomes sallow, dingy, and shriveled; the countenance acquires an expression of languor and suffering; and a general state of apathy, inactivity, and feebleness, ensues — which ultimately often leads to convulsions, dropsy in the head, glandular indurations, incurable jaundice, or fatal exhaustion of the vital energies." This is a horrible picture, but a most truthful one, of the legitimate effects of quite small doses of opium as prescribed by physicians of the highest education and of abundant experience. The testimony of the candid Eberle is but a miniature rendition of the experience of thousands of Allopathic physicians — whose testimony on the undermining and absolutely

disease-producing character of aconite, stramonium, hyoscyamus, belladonna, veratrum, and all the other narcotics, would fill our whole volume. In the condensed language of Prof. Paine: "Narcotics are *extremely deficient* in curative virtues. It should never be overlooked, that the most that is accomplished by opium and other narcotics, is that of diminishing sensibility. It is for the relief of pain that narcotics are most abused, and where they do their greatest injury. The narcotics are *constantly morbific*, while continued in their moderate therapeutical dose." (*Institutes of Medicine* — §891, 959.)

89. Allusion has been made (§86) to the general diminution of the secretions that takes place under the influence of opium. The skin alone may continue to act, and may even act excessively; but the perspiration is cold and clammy, and bears evidence of that passive state which every physician knows is most undesirable. All the other narcotics resemble this in suspending most of the secretions through the *paralysis* induced by them upon the nerve centers; and with each one it is usual to have some solitary emunctory left open, and in excessive action, as the only safety-valve reserved by Nature for the prolongation of life. Examine, now, the consequences of such suppression by the narcotics. Says Prof. Paine: "Let us consider their *never-failing effect*, in their *ordinary doses*, of so injuriously modifying the action of the glandular organs, that the secretions of *the whole*, (especially of that most important organ, the liver,) are more or less diminished. Whereby Nature is obstructed in one of her greatest processes, and morbific influences thus reflected upon all diseased parts, and upon the whole organism." (*op. cit.* §891, *a.*) How much trouble comes from deficiency of mucous secretion in the alvine canal, in ineffectual peristaltic motion, and the sequent retention of excrementitious materials! What a long category of ills is developed by torpor of the liver, its subsequent partial congestion, and the retention and re-absorption of bile that must thence ensue! What forms of torture grow out of deficient salivary and gastric secretions, with their inevitable indigestion, dyspepsia, and unhinging of the whole nervous system! What intractable difficulties spring from derangements of the kidneys, suppression of urine, and non-elimination of urea! Such disturbances in any one of these organs will lay the foundation of enough disease to try the utmost skill of the physician. Some of the most baffling maladies in the nosology have their seat and origin under each one of these several heads. But if all of them suffer together, who can calculate the consequences? If any two of them become suppressed at the same time, who can estimate the wreck that they may occasion to the constitution? And yet the experience of the entire world, since the time that narcotics first found their way into the hands of the physician, rises up to show that this entire class of articles will always and directly, when given in their ordinary doses, cause a greater or less diminution of nearly every one of the secretions. Is it any wonder that, under the exhibition of such agents, Nature struggles to maintain her authority as long as she can; and then yields, and sinks hopelessly, under what has been fancifully termed the "cumulative action" of the deadly drug? Such facts overwhelmingly bear down that whole sophistry which would resort to narcotics to relieve pain — showing that *such* relief is but a war upon Nature, and an auxiliary to the grave; and establishing our position that the narcotics left the original sources of pain unmoved, and *added to them* an alarming depression of the tissues and a

serious additional load of accumulated animal poisons. The most trifling resort to an agent of this class, is thus unjustified by any of the requirements for pain itself; and is a reckless tampering with the most useless and treacherous means of destruction.

NARCOTICS IN WAKEFULNESS AND NERVOUSNESS

90. Another superior virtue claimed for the narcotics, is their power to calm excitement and induce sleep. These would indeed be most desirable qualities; for there are many occasions on which the entire life of the patient may depend on getting the nervous system so quieted that he may obtain some rest. That the narcotics very commonly secure sleep, can not be doubted; and yet it by no means follows that *therefore* their action is beneficial. This question depends entirely upon whether or not the repose secured by narcotism is natural. There is a repose in death, as well as a refreshing living sleep; and no agent that induces the former or a resemblance to it, can be pronounced in any sense beneficial to the frame. This statement is so self-evident as to require no argument. Now all the testimony to be found, concurs in proving that the calmness and the sleep induced by a narcotic, are due simply to blunted sensibility. Says Pereira: "The most important effects of opium, are direct and obvious *lesions* of the nervous functions. (§68.) The other effects arise out of the lesions just referred to." Dr. Cullen says: "It diminishes the mobility, and in a certain manner suspends the motion, of the nervous fluid." A state of quiescence induced by such "lesions" and "suspensions" at the very center of life, is but the quiescence of so much death. Hence the sleep that follows this drug, is everywhere called "stupor," and "coma." Say Wood and Bache, in the U. S. Dispensatory: "At the end of half an hour or an hour from the administration of the narcotic, all consciousness is lost in sleep. The soporific effect, after having continued for eight or ten hours, goes off; and is generally succeeded by more or less nausea, headache, tremors, and other symptoms of diminished or irregular nervous action. Such is the obvious operation of opium, when moderately taken." Prof. M. Paine says: "So great may be the quiet and insensibility that the narcotics produce, that the patient may drop into the grave without raising the suspicion that he was doomed by the narcotic." (*op. cit.*, §891, *h.*) Stille in his Therapeutics, and Headland in his Action of Remedies, are careful to state that opium produces narrowing of the cerebral arteries and diminished flow with partial congestion of the brain, as precedents to its securing sleep; and that hyoscyamus, digitalis, laurel, and most of the other narcotics, paralyze the arteries and crowd the brain with dark blood, prior to inducing somnolence. And these and all writers agree in stating that the sleep secured by any narcotic, is always preceded and accompanied by congestion of the brain; that the sleep itself is dependent on, and proportioned to, the extent of this congestion; that this sleep is always accompanied by fatiguing dreams, unless it is so profound as to be an alarming coma; that the most unequivocal evidence of cerebral congestion and paralysis is found in the paleness, coldness, and clamminess of the surface, in every grade of this sleep; and that when the patient awakens, he is listless, tremulous, weak, and unrefreshed.

91. From such testimony and facts, it is evident that there is nothing natural about the sleep of narcotism. As Prof. J. P. Harrison says: "It *stupefies* for awhile, and forces into *unnatural* sleep." It only overcomes the sensory powers by inducing that serious condition — *congestion of the brain*; and therefore the smallest amount of repose obtained through such an agency, is a temporary suspension of feeling secured

at the risk of making life bankrupt, but without the removal of a single one of the numerous causes of previous wakefulness. It is not, therefore, the quiescence of health, but the somnolence resulting from a violent depression of a great vital property. Against this violence the life power is continually struggling. As Wood and Bache say, it requires the recuperative energies of the system "to repair the damage done by even a trifling amount of any narcotic action." If the patient be of an active temperament, vigorous, and not already in a state of depression, the opposition made to these agents will be wonderfully vigorous. The excitement of the brain will increase, and become so intense that the wildest delirium may ensue; and the agitation, nervous restlessness, and muscular twitchings, will become extreme. To continue the narcotic then, is but to increase the very wakefulness that it was given to overcome; thus showing the warfare of the article against Nature, in consequence of which it becomes not only worthless, but dangerous, in the hour when its reputed good effects are most needed. (Rule 1, §74.) In such cases, no practitioner would dare to continue the use of a narcotic till its full effect was produced. While the tension aroused by the vital power in resistance to the article would enable it to hold in check quantities that could not be resisted at another time; yet this opposing effort has its limit, (§20,) and if the narcotic were used in quantities to overcome that effort, the entire or "cumulated" action (§89) of all that had been given, would at once be manifested, and the patient would inevitably die.

92. The facts that prove the unfitness of every narcotic to procure sleep, serve still more completely to condemn them for any form of nervous agitation. They are now so widely used in this large class of troublesome affections, that the majority of the profession rely upon them as the most wonderful of all blessings provided by the Creator for nervousness. It is generally a pretty dangerous thing for man to attempt an explanation of the intentions of the Maker: and the above opinion needs to be inquired into; for if it is correct, it will be found in harmony with all the laws that God has established to guide the human frame. (§9.) Enough has already been quoted to show that the narcotics act directly upon the great nervous centers — inducing lesions there, leading to congestion in the brain and spinal cord, and thence spreading a state of more or less paralysis throughout the frame. Thus, in full accord with the Allopathic doctrine of attempting to cure one disease by making another in *the same place*, (§71,) the narcotics are given to relieve nervous derangements, by virtue of the very fact that they will cause disease of the nerves! The only philosophy by which their use is attempted to be maintained, is that of displacing one disease by establishing another — leaving the *cure* of the latter to "the recuperative energies of the system." This practice is consistent enough with that dogma; but who can have the hardihood to say that such a dogma harmonizes with the laws of God!

93. The only relief, then, that narcotics bring to the nervous system, is the development of depressing forms of disease to take the place of excitement. Physiology shows plainly that exalted sensibility is far preferable to lowered sensibility, (§84;) and hence the "quieting" of the narcotics is a condition nearer to death than the state they were given to overcome. So well known is this fact, that Prof. Harrison honestly said the narcotics "enhance nervousness;" and Prof. Eberle openly asserted that they produced "fatal exhaustion" of the vital

energies. Prof. Paine says, (*op. cit.*,§ 904, *a*:) "Narcotics induce peculiar modifications of the nervous power, when administered by the stomach; and the power thus modified, is reflected especially upon the organic and animal properties of the brain and spinal cord. Hence the obtuseness of the senses, and the venous congestions of the brain, which follow their administration." It needs but a moderate continuance of one of these articles, to produce such a deep impression upon the nervous centers as almost to overthrow them. The muscles become weak and irregular in their motions, the whole system is in a tremor of unsteadiness, the nutrition of the entire frame is interrupted, and the body at large becomes like the tottering hulk of an inebriate. The world is already too full of the poor, emaciated, nervous wrecks of narcotism. The fact of its blasting curse upon muscle and brain, upon body and mind, is already too familiar to the public. For it is well known that the relief given to suffering by a narcotic is but a transient and delusive lulling of the senses. So soon as the stupefying dose has worn away, and left its own mark of tremulousness, the pain for which it was given will return. With its return will be that unnatural nerve-sensitiveness which the narcotic always entails; and thus the original suffering is aggravated, and the dose of the sedative must be repeated and enlarged. By such repetitions is the habit of using such a drug fastened upon the system — the nerves at each step becoming more and more unstrung, till the very fountain of intelligence is prostrated, and the mind itself is left a dawdling wreck. And this terrible state of things, as induced through the prescriptions of the physician, is aggravated by the fact that, while nervousness and insanity from all other sources are amenable to treatment, those from the use of narcotics are beyond all hope of restoration. (§121.) Thus the diseases they create are a thousand- fold worse than those for which they were given.

94. The plea is sometimes urged in palliation of the use of these agents, that they subdue the suffering while other and sanative articles are brought to bear against the disease proper. In this it is conceded that the narcotics are not curative in their action; that they do not remove the causes of suffering, nor give relief in a desirable form; but it is urged that the pain endured will prostrate the system very much, that this can be averted by a mild narcotic which will quell the pain, while the proper remedies in the mean time will be curing the disease. The trifling degree of narcotism thus induced is claimed to be more easily rallied from than would be the prostration caused by the pain. This looks pleasant and plausible; but it lacks the very important quality of truth. Remedies create impressions only on *living* tissues, and not upon *dead* ones. Narcotics stupefy the nerves and render them insensible to extraordinary degrees of impression — even to severe mechanical violence. By what anomalous property, now, are narcotized nerves to feel and respond to the action of remedies? The thing is an absurdity. There is not a possibility of making a remedial impression under such circumstances. The best and most powerful of curative agents can not make themselves felt, so long as a sedative is acting upon the nerves; but every thing must wait till the sedation passes off, and the nerves recover their sensibility, before the remedies can proceed to their duties. And then they have to remove the original disease, and the additional mischief created by the narcotic. (§89.) This plea, therefore, is the weakest and most insignificant of excuses; and is

contradicted by every fact in the history of narcotics, and by even the A B C rudiments of Physiology.

NARCOTICS VERSUS RELAXANTS

95 The analysis of poisons, and especially of the class narcotics, has been so thorough, that it would seem as if there were no longer any excuse for using such articles; and that no ground remained to lure any medical man into the hope that they could be of the least shadow of benefit in overcoming disease. And the rules for determining, and the facts for distinguishing, between poisons and true remedies, would seem to be so complete, that there need be no trouble in separating them with unerring positiveness. And yet so powerful are the prejudices growing out of education, that most physicians dread to look the facts in the face, and promptly to submit to the principles they teach; but turn to every species of subterfuge by which to shield their opinions. This disposition leads to the assertion that the sedative and antispasmodic actions of the narcotics, are precisely the same in kind as the nervine and relaxing properties of Physio-Medical remedies. It is claimed that no lines of difference can be drawn between the two; and that the observations which are used to condemn the one, are equally effective against the other. Especially are lobelia and tobacco said to be so very similar in their action, that no difference between them can be detected; and that either can be used for the other, indiscriminately. This is a wide assertion, bearing with it consequences of the gravest character. If correct, it overthrows all distinctions between remedies and poisons, and sweeps away the grand beacon which serves as the guide and banner of Physio-Medicalism — the principle of an absolutely harmless medication. Consequences so wide as these, must not be treated lightly; for they not only unsettle the mind as to there being any notable differences between Allopathy and Physio-Medicalism, but they demand that the latter system shall point out with scientific accuracy the distinctions between narcotics and relaxants, or else give up all claim to being worthy the name of a system of medicine. The duty, therefore, devolves upon us to meet this averment fairly and examine it carefully.

96. *Tobacco Relaxation.* — If a physician is called to a patient whom he finds with cold hands and feet, clammy skin, face very pale and bedewed with a cold sweat, the pulse small and not above 60 to the minute, the muscles flabby and tremulous, the breathing labored, and the mind deeply comatose, he at once recognizes the case as a very dangerous one. Without needing, as yet, to inquire into the causes of such a condition, he is conscious of a degree of vital prostration that is very alarming. This is, in part only, the exact state of things induced by tobacco. On giving small doses of this article, it soon induces nausea, a feeling of extreme lassitude, tremulous relaxation of the muscles, dizziness, and a tendency to faint. The pulse presently becomes small and weak; the mind confused and wandering; and vision enfeebled, so that objects look indistinct. Usually there is a brief period of vomiting; the dizziness and weakness then become so great that the man can not stand; and actual fainting is not uncommon. Respiration becomes slow and labored, the face grows ghastly white, the entire surface becomes pale and very cold, and a profuse clammy sweat breaks out. Should the symptoms not be arrested here, the pulse will become almost imperceptible, the action of the heart show an almost paralyzed state of this organ, and the mind sink into a long period of the deepest stupor.

97. *Lobelia Relaxation*. — That the patient is relaxed by the tobacco, is evident; but the veriest tyro in medicine knows that such a form of relaxation constitutes an alarming state of disease, to which death may ensue. Contrast this with the condition of the person relaxed with lobelia. There will be nausea, and probably vomiting; and if the stomach is empty, the vomiting may be distressing. To these succeed decided relaxation, softness of the pulse, profuse sweating, and finally a condition in which the man is unable to move a muscle — even unable to move the tongue or the eyelids. This condition may continue for several hours. But now mark. The man who uses lobelia does not faint; his pulse rarely falls below 65, but its volume increases as its frequency diminishes, and thus the general freedom of circulation is improved rather than curtailed; his sweat is moderately warm, and is never clammy; and at no time does the surface become cooler than would be natural to so free a perspiration. His breathing is as even and gentle as a babe's; and though he may lie speechless for hours, in consequence of the relaxation being so profound as to reach the tongue, his mind remains perfectly conscious, and his senses note with perfect accuracy every word and motion made near him. When the man who uses tobacco comes out of his stupor, he is weak, tremulous, and prostrated for hours or days; but he who uses lobelia feels greatly improved in every portion of his body, and is elate with a keen appetite, vigorous strength, and a lively play of the mind and all the senses. Of tobacco I can speak of once (and, I thank God, only once) when personal experience in its "manly" use nearly cost me my life; but the authorities of the whole world concur in setting down the above symptoms as those constantly produced by this article. Of the lobelia I can speak from repeated experience where its free and continued use placed patients in the most profound state of relaxation, currently known as "the alarm;" and my own observations, and those of thousands of Physio-Medical practitioners through many years of practice, present the above as the true symptoms from this agent.

98. It requires no argument to prove that the conditions produced by the two articles are wholly unalike. If semiology teaches any thing — if the silent utterings of Nature by symptoms are to be regarded — then no shadow of resemblance can be traced between the two kinds of relaxation. The one is a profound prostration of the nervous system, and bears every resemblance to paralytic death; the other is a loosening of the structures and an opening of the emunctories, which augur the earliest relief from obstruction and a happy termination of disease. From the lightest incipient action of tobacco, its work shows that the conditions produced by it are never desirable, never encouraging, always grave, always dangerous,. and indicative of a wide departure from the healthy standard. On the other hand, the conditions induced by lobelia are at no time grave, never serious, never imply any impending danger, never threaten any disruption, but are full of encouragement as presenting the most desirable of all changes — changes which the physician labors with all his art to secure as the most important and valuable results in a large number of the most serious maladies, and changes which any member of the profession feels himself all too happy if he can induce.

99. Let this thorough mode of analysis be pursued with all other articles of the narcotic class, let it be applied to any agent whose true relations to the system have not

yet been determined, and the most definite and reliable conclusions can at once be reached. Thus, *opium* dries the lungs, diminishes the lubrication of the bowels, lessens the elimination of bile, retards the secretion of urine, and fills the system with these retained elements of disease; reduces the pulse, causes a cold and clammy surface, causes cerebral congestion and paralysis, induces labored respiration, blunts all the senses, produces deep stupor, and by small repetitions shatters the nerve centers and shakes the foundations of the mind itself. *Hyoscyamus* causes headache, dizziness, dimness of sight and loss of speech; and leads to painful purging, irritation of the stomach, paralysis, and furious delirium. *Veratrum* occasions faintness, headache, cold sweats, and a sense of great prostration; produces tremors, violent retching, hiccough, dimness of vision, pinched features, and a reduction of the pulse to even 40. *Aconite* induces dizziness, tingling, neuralgic pains darting through the body, burning sensations in the throat and stomach; is soon followed by great pallor, numbness, cold extremities, and extreme prostration of the pulse; and, as Prof. Paine says, "endangers life under all circumstances of health or disease." From *gelseminum* are found a reduced pulse, dizziness, double vision, confusion of mind, general muscular prostration, a staggering gait, numbness, slow but constricted respiration, etc. And thus throughout the list, every symptom conspires to show a depression of vitality that is totally dissimilar to the genial relaxation of lobelia; and which, if symptoms are ever to be used as indicative of conditions, points out the road to death over which one and all of these narcotics have carried so many helpless victims. It is not necessary to push the use of the article till the patient fills the grave; for a comparison of its impressions with the standard of health, shows that every degree of its action is inimical to life. And it is the weakest of all pleas, and an acknowledgment of utter ignorance in pathology and diagnosis, for one to attempt the defense of such an article on the ground of *his* not having seen any bad results from its use; for not to see, is to shut one's eyes willfully to the most clearly graven language of Nature; and is to set up his own little subterfuge against the concurring and positive testimony of hundreds of thousands of the most competent and experienced Allopathic witnesses. (§8.)

MEDICINAL AND POISONOUS DOSES

100. The design and expectation of the physician in prescribing poisons to the sick, were seen in §71. When Dr. R. Hooper, of England, said, “All our most valuable remedies are active poisons;” and when Prof. M. Paine, of New York, said, “Where there is poison there is virtue," the only meaning they had in view was that of “exciting a new disease in the place of the one already existing.” In no place is it pretended that the poison directly restores the tissues to a state of health; it merely that it “substitutes its own action” for the disease already present. This latter “action” is the production of “a new disease;” and the displacement of this new disease, and the restoration to a state of health, are then entirely dependent upon the recuperative energy of Nature.

101. In §73 it was seen that this recuperative energy had certain limits; and if the poison *exceeded* these, or if it were repeated too frequently, the original malady would be prolonged, or disease be multiplied. This is the only teaching of Allopathy on this matter; and let us not forget that it is only on this doctrine that the use of poisons ever was introduced. This doctrine can not now be shifted from its true intent, but must abide by all the consequences growing out of it. The proposition is not altered in the least, by the qualifying clauses that “ the agents must be used properly,” “ must not be given improperly,” “ must not be abused,” “are safe when given by skillful hands,” etc. It is sometimes supposed that such expressions imply that certain modes and times of using, entirely change the character of the article given — as if some acquired “skill” of man, the creature, could at pleasure vary the laws and properties established by God, the Creator. (§9.) Such, however, is not the purport of these qualifying phrases; for to allow such a meaning, would be to introduce poisons to the Materia Medica on the single round that their virtue lay in their power to cause disease; and then to defend their retention there on the plea that the manner of their use prevented their being injurious at all. To offer such plea, would proclaim the utter hypocrisy of the first position; to do that, would at once crush into dust the very cornerstone of Allopathy, and accept the whole Physio-Medical doctrine of an absolutely harmless medication: while this in turn would sweep away the entire list of poisons as but so many criminal instruments. However desirable and beneficial such a course would be, it is not at all supposable that our Allopathic neighbors in tend any thing of the kind. When they use the expressions alluded to, they simply mean that the poisons should be employed with such caution as to keep them from transcending the recuperative power. Their quantity is to be so limited that, while they make new disease, they shall not do so in *excess* of the restorative power of the frame. The “skill” of one man above another, therefore, lies in his being better able to judge how much poisoning the frame of a given patient will endure; as an error in this adjustment would be serious, if not fatal to the patient. Such a position is a very uncomfortable one for the medical man, but is particularly so to the invalid; as human judgment is so far from being infallible, that the oldest an wisest might (in any prescription) mistake the resistive power of the frame by a fourth or a tenth of a grain, and in so doing prove the means of hastening his patient into the grave. That the mistake was unintentional, will not relieve the physician from his responsibility in using such articles upon such doctrines and if he would be safe from

the consequences of thus tampering with human life, he must cease such practices by discarding the doctrines on which they are based.

102. The works of medical men are teeming with facts in relation to the errors in judgment that physicians of the highest standing have made as to the resistive power a patient may oppose to a poison. Their testimony is overwhelming in proving the assertion that the very wisest and most experienced physicians can not foresee what may be the result of the struggle between a poison and the "recuperative tendency of the system; but that doses expected to produce only a very mild impression, quickly lead to serious and even fatal results. Says Prof. Bigelow, of Boston: "I have known an ordinary dose of calomel given as a cathartic, to produce salivation in twenty-four hours." Says Dr. J. M. Good, of England: "I have known salivation produced by a single dose of calomel." Prof. J. P. Harrison, of Cincinnati, says: "Mercury sometimes produces *fatal* effects in *very small quantities*." Prof. Watson, of England, relates the case of a lady to whom a physician once gave two grains of calomel in some cathartic extract: "Furious salivation came on in a few hours; and she died at the end of two years, worn out by the effects of mercury, and having lost portions of her jawbone by necrosis." Dr. Pearson, of Lock Hospital, London, details sudden and unaccountable deaths occurring in that institution each year, which he finally found were occasioned by the *uncontrollable* poisonous action of *small quantities* of mercury; and he adds: "Its deleterious effects were not proportioned to the actual quantity of the mineral absorbed into the body." Of opium, Dr. Simpson, of Scotland, says: "Three drops of laudanum, in chalk mixture, destroyed a stout child, fourteen months old, in six hours. Another child, of nine months, died in nine hours after taking four drops." Prof. Christison, of England, says: "It is scarcely possible to use the most insignificant doses of opium with safety." Prof. J. P. Harrison says: "We have known the half of a grain of Dover's powder, which is but the twentieth part of a grain of opium, induce fits. A small dose of paregoric will often induce fits."

103. Proofs of the above tenor might be introduced freely upon every one in the entire list of poisons, to show that the most "skillful" men have never been able to make any reliable estimate of the work of destruction that might be done by even an unusually small dose of such an agent. That such an uncertainty would exist, should naturally be expected from a little reflection upon the fact that every poison institutes a war upon the frame; and it is beyond the possibility of any physician to know precisely how great is the resistive capacity at any given time. He may form what he considers to be a fair estimate: but facts like the above show how great may be his mistake, and illustrate the serious consequences of such an error. To talk of the poisonous and non-poisonous dose of such an article, simply means each man's judgment of how much the patient before him may be able to bear, how much to endure; but there can be no *rule* in the question, as such a practice has no scientific foundation — being contrary to the laws of life. At no time, therefore, can there be any ground of safety in the use of any poison; and even when the article has not produced grave consequences, it has made an evil impression so far as it has acted at all. This fact also is everywhere recognized by Allopathic authors. Prof. Stille, of England, says of the narcotics, (*Therapeutics*:) "Small doses produce the *same kind* of impressions as the large ones, merely not being so decided." Says a writer

in Rankin's Abstract: "Cases are on record which show that a person may recover from the first symptoms of poisoning, and yet ultimately die from the effects of a single dose." The history of arsenic fully exemplifies the truthfulness of this remark; and so does that of many other poisons. Says Prof. A. S. Taylor, of England: "We know that active poisons are sometimes taken without causing death; but this does not alter our opinion that they are substances destructive to life, and *likely* to give rise to the most serious consequences." (*On Poisons.*)

SMALL DOSES DO NOT DIFFER FROM LARGE DOSES

104. The series of incontrovertible facts given throughout this discussion upon poisons, show that the dose makes no difference whatever in the *real character* of the article; but that the results may differ according to the different responsive capacity of the system at various times. So abundant are the facts in this connection, that it would seem no proposition could be more plainly demonstrated than this one: The increase or diminution in the *quantity* of an article, makes no change in the *character* of its relations to the human frame. Were it otherwise, then none of the laws of reason could be applied to medical topics; and curative efforts would reside altogether in the will of the physician, who at his pleasure could increase, diminish, or entirely change, the innate qualities of every article on the globe. Such a proposition would be a monstrosity; and would stand opposed to direct and accumulated facts, and controvert every analogy in Nature. (§14.) In short, did variations in the size of the dose alter the character of its action upon the human frame, medicine would at once cease to be a *science*; would immediately be resolved into a mass of accidental and contradictory observations, which would not remunerate any one for either studying or practicing; and would be a mockery to the invalid, as well as proof of incapacity on the part of the Creator.

105. And yet the absurdity just alluded to is becoming rather a current opinion with many people. In sections 100 — 103 it was seen that this is not an Allopathic doctrine. The gentle- men of that school are entirely too well educated not to see that the idea of *quantity* altering *quality* is too great a piece of absurdity to bear the test of science for a moment. In looking for varying results according to the size of the dose given, they place the difference exactly where it belongs — on the vital force. The agent acts precisely alike in all quantities; if the greater number and degree of circumstances favor the life power, (§15,) it will prove superior to the poison, and overcome it, and repair the damage done; but if the preponderance is against the life principle, then the poison will manifest its action without restraint, and a very small dose (on the well-known chemical principle of catalytic action, §80) may suffice to inaugurate changes at will spread wide devastation. With all the errors and failings of Allopathy, that system must have credit for seeing the folly of the above notion; and it does not base its diminution of doses upon the sophism of thereby changing their character. So also the Homeopathist recognizes the inconsistency of such an idea; and when he reduces his doses to the thousandth, or to the ten-thousandth part of a grain, he does not expect to see their nature altered; but proclaims his knowledge of facts to prove that a small quantity of a poison will excite less resistance on the part of the vital force, and therefore will find its way into the system more insidiously, and hence lodge itself where it can work its effects more surely. And in the presentation of these facts, as applied to the use of poisons, he is correct beyond a question; for a very small quantity of an agent of this class will scarcely be noticed, in the majority of cases, while Nature is wholly engaged in a struggle against disease; and therefore it ill the more surely be absorbed, and from being absorbed will find its way to some place where it can the more surely become a leaven and work its evil by catalytic action or direct narcotic depression. He, like the Allopathist, proposes to cure one disease by

making another, and also consistently deems poisons the best means for doing *this*; and he differs from the other only in requiring that the new disease shall be *like* the original one, instead of *unlike* it. He prescribes copper and arsenic for diarrhea, because they will make diarrhea; strychnine for spasms, because it will make spasms; muriatic acid for hectic fever, because it will make hectic fever; iron for hemorrhage, because it ill produce hemorrhage, etc. He accepts and "proves" the well-known poisonous symptoms produced by these and other deleterious agents; accepts them and the Allopathic doctrine that they will cause disease; believes it is best to apply them to cure the same kind of disease that they will cause; but never for a moment imagines, nor ever saw a fact to imply, that the attenuation or dilution of an average dose would to the least degree vary the character or kind of action of the poison. Indeed these two systems would have nothing to rest on, were this proposition true.

106. It has been left to the Eclectic school alone to suggest this absurdity, and to adopt it as a "fundamental principle. While claiming for itself vast superiority for "selecting the good from all others," (never, however, giving credit for things taken which is a display of moral obliquity that upright men would hesitate about feeling proud of,) and while asking for public confidence and support on the ground of not using poisons in practice, it yet resorts to every poison of Allopathy except mercurials and antimonials, and prescribes some animal poisons that Allopathy has not yet had the hardihood to attempt to use. In narcotics, especially, the Eclectic school deals with a freedom and rashness such as Allopathy has never been guilty of, even in her worst days. While the public, in employing an Eclectic, confidingly resting on the belief that he gives no poisons, the current practice of the school to which he belongs embraces the most lavish use of the very worst articles in the whole list of poisons. To exculpate itself from this criminal position of being a public deceiver, the Eclectic first denies that he uses poisons at all. Now confront him with the following list of articles, currently prescribed in the text-books and books for family use written by the principal Professors of that school: Arsenic, (Scudder,) Antimony, (Paine,) Iodine, Lead, Snake poison, Dog Button, Strychnine, Zinc, Prussic acid, Henbane, Bromine, Gold, Phosphorus, Nightshade, Leeching, Silver, Poison Oak, Poison Ivy, Creosote, Opium, Blister-Fly, Morphine, Burning, Chlorine, Poison Laurel, Veratrum, Bismuth, Foxglove, Stramonium, Mineral acids, Copper, Aconite. At first there may be a blustering denial that this list of agents is prescribed by accredited Eclectic authors; but when the works of Profs. Scudder, Newton, King, Paine, Jones, and others, are opened, and the lavish use of these articles is pointed out, what is the answer? Every thing is poisonous according to the quantity given; and by using small doses of these articles, they are rendered harmless! By such a puerile sophism does the Eclectic school attempt to shield itself from its destructive inconsistency. The only answer that such a proposition requires, is given in the method for analyzing narcotics. (§96, 97.) Make similar observations with any poison; give it in small, very small, doses — repeating at intervals of a few hours; and that man must have a rare amount of obtuseness, who can not see that the small doses will steadily overcome vitality and work a fatal result. (§103.) If he profess still to believe that a diminished dose of a poison is harmless, let him take one-fourth part of the average dose of arsenic, or aconite, or veratrum, or

strychnine, or even his favorite gelseminum; let him repeat it thrice a day for a month. If he dare not do this on himself, to prove the soundness of the argument he uses to hush his patients, then how dare he give it to another? If he dare not thus trust his own life to his own practices, then how dare he attempt such practices upon the lives of others?

107. The question about large and small doses, might now safely be left to itself; for the mind that is not prepared to admit the conclusive force of the arguments already presented, is evidently too much a victim of partisan prejudice ever to become a pupil in the school of science. Yet the suggestion offered at the close of the last section, tempts one to make an application of it to a few cases; and I purpose doing so, even at the risk of proving somewhat tedious.

108. *Muriated Tincture of Iron.* — Let us first take under examination the *muriated tincture of iron*. This is one of the most popular Allopathic and Eclectic prescriptions of the day; and is resorted to as a tonic and astringent under such a variety of circumstances, that it might almost be pronounced the one standing remedy of those schools. To promote appetite and digestion, give tone to the bowels, and solidify the structures generally, it is commended with a unanimity and zeal that would suggest the utter uselessness of any other tonic. The dose ranges from ten drops to a drachm, given in some diluent. Let, now, a man in perfect health commence the use of ten drops three times per day, and continue it for one month. For the first few days, he will experience a sense of warmth, or an agreeable glow, in the stomach; appetite will increase; the pulse will become firmer and a shade more frequent; and he will be very likely to praise the finely invigorating properties of his medicine. During the second week, however, costiveness will arise; the urine will have become so free as to suggest an enfeebling drain on the system; the stomach will suffer almost constant oppression, and a sickening sense of tightness and burning will follow every dose of the tincture; there will be thirst, and feverishness of the skin; the pulse will be perceptibly harder and more frequent; and the head will suffer heaviness and a feeling of unpleasant tension. During the third week these feelings will steadily increase; and by the fourth week the appetite will be thoroughly depraved; the soreness of the stomach will be so great, that the ordinary weight of the clothing will cause suffering; there will be a feeling of weight at the praecordia, and a burning sensation very painful to endure; the whole alvine canal will be irritable, and a prostrating diarrhea, not unfrequently accompanied by blood, will almost surely arise; furred tongue, acrid or raw feelings in the throat, tenderness about the sockets of the teeth, and a wearying heaviness and aching of the head, will make up the general catalogue of symptoms. Instead of feeling stronger, the vigor of the body will be decidedly lowered; the stomach will fail in digestion to such a degree, that the whole body will begin to show signs of emaciation; and, in the case of females, an almost continuous menorrhagia will arise, and further exhaust the victim. This latter result is due to the free acid finding its way into the blood, and breaking down the vital integrity of that fluid. Hemorrhage from the nose and lungs is a not unfrequent occurrence.

109. Wide as appear to be the differences in these effects between the first and fourth weeks, the briefest reference to physiological facts shows them to be precisely the same *in kind*. The dose being

the smallest average medicinal dose, is yet found to irritate the stomach. This transient excitement is at first rather pleasant than otherwise — as the first drops of cold water falling on the head of the hampered criminal seem pleasurable. But by repetition the drops upon the convict's head become painful, and finally agonizing, till death itself would be preferable to the falling of another; and yet each drop gives but the same little blow which at first seemed so agreeable. In like manner the persevering use of the small dose of the iron tincture finally overcomes the system, which steadily sinks before the repetition; and yet the last dose in the fourth week, is but the same in kind and power as the first dose in the experiment. The final headache and burning are but a steady growth of the first glow and exhilaration. Appetite and digestion seem at first increased, so light is the irritation; but the membranes of the stomach steadily thicken, and its secretions become vitiated, under the dose, till at last the power of digestion is nearly destroyed, and the irritation becomes so great that nausea and vomiting may occur on the use of even bland foods. No man can, in such an experiment, point to the day when the above uniform dose ceased to have a beneficial effect, or the hour when each portion began to have a deleterious effect. No one dose differed from another, and the effect of each was precisely the same. What the true character of that effect was, may be seen in the fact that this tincture is a common application to warts. It will remove these dense growths by a *caustic* action; what, therefore, was its action upon the delicate membrane of the stomach, and what upon the blood ? Evidently caustic, so far as each dose went; till finally the escharotic overcame the vital integrity, and caused an irritable form of alvine congestion, actual destruction (as testimony proves) of the epithelial layer, a turgid or semi-apoplectic state of the brain, and that vitiation of the blood and the blood vessels which is not unfrequently followed by the most dangerous passive hemorrhages.

110. *Arsenic*. — Or let arsenic be brought under examination. It is currently quoted that the inhabitants of Styria, Europe, (where mines of arsenic are worked,) make daily use of this article. Beginning at one-fourth of a grain, they gradually increase the quantity till, in adult life, some take as many as five or seven grains at a time with apparent impunity. All authorities agree that no such observations can be made in England, France, or America; as the smallest dose continues to have the same effects, in these countries; and the stories from Styria are, as Prof. Wood says, greatly exaggerated. But accepting this testimony, let us trace it to its termination. It is said that the use of this mineral gives vigor to the stomach and plumpness to the form, and renders the women especially rotund and beautiful. Such effects would appear to be very desirable; and these accounts would seem forever to disprove the idea that small doses of a poison could be otherwise than beneficial. Indeed, the arsenic-eaters of Styria are quoted as positive evidence that even this virulent poison will, in small quantities, prove highly advantageous instead of harmful. But now gather in "the *whole* truth," (§7,) and mark the finale. The above-named plumpness is always associated with an even and waxy paleness, the pulse is soft and slow, the digestion is very limited, parties using the article are noted by their neighbors as being capable of but little work, and they sink helplessly before disease of ordinary severity. The testimony upon the latter points is abundant; and that the habit is looked upon as degrading, even in Styria, is

found in the fact that only a small number in the more ignorant class ever practice it. Dr. Pereira, in his elaborate Materia Medica, says: "The following is an abstract of the symptoms produced by the continued employment of *small doses* of arsenious acid: Disorder of the digestive functions, characterized by flatulence, sensation of warmth, or actual pain in the stomach and bowels; loss of appetite; thirst, nausea, and vomiting; purging, or at least a relaxed condition of the bowels, and griping; furred tongue, with dryness and tightness of the mouth and throat, or with salivation. Quick, small, and sometimes irregular pulse; oppressed respiration with a dry cough. The body wastes, the stomach being frequently so irritable that no food can be retained in it. Headache, giddiness, and want of sleep, are frequently observed. The limbs become painful, feeble, trembling, subject to convulsions; occasionally benumbed, and ultimately paralyzed. Now and then the hair and nails fall off. Swelling is next observed; and under these symptoms the patient gradually sinks."

111. The ultimate feebleness thus caused by the continued use of arsenic, is but a more decided presentation of the earlier effects of its use. While the latter were supposed to be beneficial because of the increased appetite and rotundity and smoothness accompanying them; the pathologist readily detects, in these be-praised charms, the positive evidence of a most grave constitutional malady — anaemia. In this affection, as Prof. G. B. Wood concisely says : "There is commonly universal paleness of the skin; the lips, tongue, and mucous surfaces in general are also strikingly pale; there is extreme whiteness of the conjunctivas, and the whole surface of the body appears bloodless." To this succeed puffiness of the face, and dropsy of the limbs — which often advance so slowly as to give the impression of a healthy increase in fleshiness. But the bloodless, waxy look, the shining surface, the indisposition to exertion, all point out, in unmistakable terms, that the growth in size is not that of health, but of disease. And the physician can give this diagnosis infallibly months, or mayhap years, before the later symptoms of chronic anaemia are established; or if he can not thus detect the true nature of the case, he is an unworthy novice in his business. This anaemia is a condition of impoverished blood, where the vitalization is low and the red corpuscles consequently deficient: and which may be caused by bleeding, starvation, heart disease, insufficient air, and a number of other influences detrimental to health and to general nutrition.

112. Here, then, we have an anaemic condition caused by arsenic, developing itself long before the patient is supposed to be in any serious condition from his habit, and actually quoted as a desirable state by physicians who overlook their pathology in their anxiety to sustain a pet theory of poisons. The earlier and the later symptoms, are precisely the same *in kind*, namely, breaking down of the red corpuscles and consequent impoverishment of the blood — results well known to follow the administration of arsenic. There is no difference growing out of the doses; except that the frame could not endure such a waste beyond a given limit, and sank when that limit was reached. But each dose contributed to the final catastrophe; and the first half-grain broke down red corpuscles, so far as it went, quite as effectively as the last five grains. At the use of every dose, the lever of destruction is always the same; and though, as in mechanics, a small power will not lift so much as a greater one, it

nevertheless aids in the general result to the extent of its own ability. As Dr. T. R. Chambers (*Renewal of Life, p*. 613) says: “Let us do a sum. A person weighing 112 pounds, averages 512 ounces of blood; and of this blood, 60 ounces should be red disks. Now the careful analyses of MM. Andral and Gavaret show that in cases of anaemia of a marked character, we may expect at least three-quarters [or 45 ounces] of the red corpuscles to be wanting." If, therefore, the continued use of even very small quantities of arsenic will thus break down any definite number of ounces of the red corpuscles, no “ sum ” can be more plain than that each grain of that arsenic broke down its own proportion. If one pound, taken at the rate of two grains day, broke down three pounds of red corpuscles; did not each dose of one grain break down its three grains of corpuscles ? And when is taken into account the astonishing rapidity with which the vital power will labor to replace the corpuscles — unquestionably renewing 15 to 20 ounces in a month — it will be seen that a state of 45 ounces deficiency at the end of ten years occupied in consuming 1 pound of arsenic, must have caused a total destruction of at least 1,500 ounces of these disks. If one pound (7,000 grains) caused a waste of 1,500 ounces, or 655,250 grains of corpuscles; then each one-grain dose of arsenic caused a destruction of about 93 grains of corpuscles. The most careful and extended analyses of learned Allopathists, give the basis on which to do this “ sum.” We can not question the accuracy of their observations; but by carrying them out to their legitimate consequences, it becomes a mathematical demonstration, that each and every grain of arsenic would destroy many grains weight (or the number of several thousands) of the red corpuscles of the blood; and hence it is most conclusively proven that each solitary dose wrought its own share in the production of the general anaemia.

113. As a still further proof of this destructive capacity of even an attenuated dose of arsenic, allusion may be made to the consequences of giving it in even Homeopathic portions. Under the hands of these physicians, when used in quantities of not more than the one-hundredth part of a grain three times a day, it steadily leads to low inflammation of the stomach and bowels, a raw feeling in the esophagus, indigestion, painful and liquid stools, and emaciation; and then, the red corpuscles beginning to break down, dropsical and anaemic conditions supervene. In this city I have several times witnessed these results under the conduct (the leading Homeopathist here; and in each instance he candidly admitted that the dropsy was the consequence of the arsenicum used. A few years ago I visited, in consultation with a Homeopathist and Prof. A. Curtis, a little girl who had been under Homeopathic care for a few weeks. The original attack was frothy diarrhea; and for this a weak solution of arsenic pellets was given, “because these would make diarrhea.” The practice was in strict harmony with the Homeopathic doctrine that “like cures like.” We found the child in the cradle, waxy pale, to feeble to sit up, plump in form, but so nearly transparent that every bone could be traced in clear outline as a limb was held up to the light. It was the most extreme case of anaemia that it has ever been our misfortune to see. During the consultation the Homeopathic gentleman, (who is a scholar, and stands about at the head of his branch of the profession in the West,) frankly stated that this condition was due to the use of his dilution of arsenicum. On asking what course he proposed adopting for the relief of his patient, he shrugged his

shoulders and blandly smiled, as he said, in his broad Prussian accent: "0, I would follow our motto, *Similia similibus curantur*, and give a little more arsenicum." The prescription was in strict keeping with the Homeopathic doctrine; but would have proven speedily fatal to the little patient — who recovered under the care of Doctor Curtis.

114. *Opium*. — But turn to the use of opium among narcotics, and examine the effects of a persistent use of moderate doses; and again it will be found, as already quoted from Prof. Stille, (§103,) that the large dose acts in the same manner as the small one, being merely " more decided." The blunting of nerve sensibility induced by half a grain, is of precisely the same character as the stupefaction following five grains. And when one has been addicted to the use of small portions for months or years, and then essays to abandon the habit, his irritation of brain, weakness of muscle, and general sense of prostration and agony, are but magnified representatives of the furred tongue, tremulous limbs, lassitude, headache, nausea, and general irritability, which follow the use of even a single dose. (§86, 87.) The two extremes in the symptoms point to the same condition of secretions retained, circulation retarded, and nerve-centers weakened by narcotic depression. From the slight and seemingly transient inconvenience sequent to the use of half a grain, it is but a slow gradation to the terrible derangements of body ,and mind arising from the habitual use of the drug. And even he irresistible mania with which the long-time opium-eater craves for his regular portion, is typified on a proportionate scale in the fondness with which the wearied nerves turn for another dose after rallying from the lethargy of the first one ever taken. (§93.)

115. An instructive lesson may be learned from a lengthy account of the consequences of habitual opium-using, furnished to Harper's Magazine for August, 1867. The steady advances by which this drug obtains its mastery over the system, are there depicted in all the fearful brilliance of their true colors by Dr. F. H. Ludlow. Reporting a case where a patient "had first learned its seductions, as happens with the vast majority of Anglo-Saxon opium-eaters, through a medical prescription," he portrays a series of facts that should startle into consciousness even the dumbest of that class of physicians who imagine that they can advise a narcotic "to ease the pain," and no harm ever come of it. The manufacture of drunkards by the retailer of spirits, presents no more fearful pictures of bodily, mental, and moral ruin, than are there shown to follow the "small doses" of the prescriber of opium. Had we space, it would be well occupied in quoting the whole of this burning article; but a few paragraphs are all for which room can be spared:

116. "Opium is the most complicated drug in the Pharmacopoeia. Though apparently a simple gummy paste, it possesses a constitution of no less than twenty-five elements. Five of these are opium alkaloids, which act generally upon the whole system, but particularly upon the brain. I mention them in their ascending order: Narcotin, Codein, Opianin, Metamorphia, Morphia. The first of these the poppy shares in common with many other narcotic plants — tobacco the most conspicuous among the number. The remaining four act very much like morphia. Codein does not seem to congest the brain as morphia does; but its action on the biliary system is probably little less deadly than that of the most

powerful narcotic. In practical action, opium affects as large an area of nervous surface, attacks it with as much intensity, and changes it in as many ways as its complexity would lead us to expect. I have pointed out the existence in opium of a convulsive poison congeneric with brucia. The other chief active alkaloids, five in number, are those which specially possess the cumulative property. [§89.] Poisons of the strychnia and hydrocyanic acid classes are swifter agents; but this perilous opium quintette sings to every sense a lulling song from which it may not awake for years, but wakes a slave. Every day that a man uses opium, these cumulative alkaloids get a subtler hold on him. Even a physician addicted to the practice, has no conception how their influence piles up.

117. "At length some terrible dawn rouses the opium-user out of a bad sleep into a worse consciousness. He already knows the disorder which has taken place in his moral nature and his will. For a knowledge of his physical condition he resorts to his medical man; and what must the practitioner tell the patient in an average case? 'Sir, the chances are entirely against you.' If a powerful constitution have so resisted the drug as to leave some hope of recovery, an immediate entrance upon the hard road of denial is advised. If the case is found hopeless, the practitioner will tell the patient so, in something like these words:

118. " 'You have either suffered a destruction of membranes that can not be reproduced; or you have deposited so much improper material in your tissues, that your life can not endure the protracted pain of removing it. One by one, you have paralyzed all the excretory functions of the body. Opium, aiming at all these functions for their death, first attacked the kidneys; and you first experienced slight trouble in urination. As you went on, the same action (paralytic of organic life) involved the liver. Flatulence, distress at the pit of the stomach, irregularity of the bowels, showed the fitful action of the liver. Your mouth became dry, through a cessation of the salivary flow. The tear duct was parched, and your eye grew to have an arid look, in addition to the dullness produced by the action of the opium on the pupil.

119. "'All this time you continued to absorb an agent which interposed between your personal substance and those changes by which alone life can be maintained. It has checked the fires of your whole system. It has not only interposed, but in part has substituted itself; so that along with much effete matter of the body, there always exists a certain undecomposed quantity of this agent. When this combination became established, you began losing your appetite. The progressive derangement of your liver manifested itself in increased sallowness of the face and eye; the veins were not strained of that which is the bowels' proper purgative, and the blood's dire poison. You have sealed up all but a single excretory passage — the skin. Perhaps when you had opium first given you, you were told that its intent was the promotion of perspiration; but you did not know its *rationale*. The only way in which opium promotes perspiration, is by shutting up all the other excretory processes, and throwing their entire labor on the pores. (When the skin gives out, the opium-eater is shut up like an entirely choked chimney, and often dies in delirium of blood- poisoning.)

120. " 'For a while your skin sustained the work that should have been shared by the other organs — by violent perspiration.

Then your palms became gradually hornier, and your whole body yellower; at the same time that your muscular system grew tremulous through progressively failing nervous supply. About this time you may have had some gastric disturbance, accompanied with indescribable distress, loathing of food, and nausea. This indicated that the mucous lining of the stomach had been partially removed by the corrosions of the drug; or that nervous power had suddenly come to a stand-still. The rest of your life must be spent in keeping comfortable, not in being happy.'

121. "Opium-eaters are not liable to be attacked by miasma in malarious countries, nor epidemics or contagions where they exist. They almost always survive to die of their opium itself. And an opium death is usually in one of these two manners: 1st. Collapse through nervous exhaustion, (with the blood-poisoning and delirium above-mentioned,) sometimes after an overdose, but oftener seeming to occur spontaneously. 2d. In the midst of physical or mental agony, great and irrelievable; and with a colliquative diarrhea, by which — in a continual, fiery, acrid discharge the system relieves itself, during a final fortnight, of the effete matters which have been accumulating for years. Either of these ends is terrible."

With such a fearful array of consequences from indulgence in this narcotic, how can any physician imagine that God ever designed such an article to be put within the human frame? or that he can be excused from blame, who lays the foundation for such a habit by prescribing the least portion of the drug with the assurance that it is *good* for the system? How can he satisfy his conscience after handing the potion to a patient with a "This would kill me, sir; but you take it?" It is an extravagant presumption, to assume that God will hold him guiltless who offers such a poison to his neighbor's hand, in defiance of the vast array of evidence in its condemnation.

132. In a similar manner might every poison in the catalogue be scrutinized, and the same kind of testimony be brought against it. The subject is not a novel one, that a physician can excuse himself for being ignorant of it; for enough details have been published in connection with every article, to satisfy any reasonable man that the size of a dose makes no manner of difference with the quality of its action. As Prof. A. S. Taylor says, in his volume on Medical Jurisprudence, "the popular idea of a poison is, an agent that will kill in *small doses*." If the vital resistance is too great for it to kill the whole body, it kills I as much of it as it can act upon. That the patient does not die, is but a proof of the wonderful capacity that God has given to the life principle; and should incite our admiration at the beneficent provision thus made by the Creator. As T. K. Chambers glowingly says: "Mark the vigor of renewal with which the human body is dowered. Learn from this to have faith in its power, and to trust in it." Never, therefore, resort to destructive agents on the false plea that they may do good; for they only serve to war against and break down the very power on which existence depends. Never try to excuse the use of poisons on the plea that small doses differ from large ones; for, the assertion leaves you open to the charge that you are utterly ignorant of the simplest facts in your own profession and in Nature at large; or else that you resort to this sophism to soothe the prickings of your own conscience. And if you have the least doubt as to the true class to which an article belongs — as for instance, if you still feel uncertain as to the harmless nature of golden seal, boneset, catnip, lobelia, or any

article commended by Physio Medicalists — proceed to test it by the use of *small* doses three times a day for a month. That test is infallible, (Rule 2, §74;) and according as it approves or condemns an article, should you employ or reject it. To refuse to abide by the consequences of such a test, is to deny the force of truth, and to prefer your own prejudices above the approvals and disapprovals of Nature.

EXCUSES FOR USING POISONS.

123. *They supply needed Elements to the Frame*. — Under the Physiology of a portion of iron being found in the blood, has grown up the therapeutical doctrine of supplying needed constituents through medical prescriptions. It was on this ground alone that the preparations of iron found their way into the Materia Medica. The addition of muriatic acid to iron, was considered a great step in advance, inasmuch as it would supply an element of gastric juice! Proceeding from this basis, various preparations of lime and phosphorus have been brought into use, to supply deficiencies of bone and lung; and the theory has grown till the Eclectic excuses himself for the use of lead, copper, zinc chlorine, ether, silver, the cyanides, etc., on the sweeping plea that he can not be doing wrong while supplying the system with any of its elements! (See Scudder, King, and Paine, in their works on Practice.) The latter assertion simply proves that some Eclectics have too little knowledge of the human system to know what its components are; and that in this, as in many other instances, they out-herod Herod in the rashness with which they use Allopathic doctrines and practices that they do not comprehend.

4. Reverting to the idea as advanced by Allopathy, and a few facts will serve to show its falsity. Muriatic acid can not supply gastric juice; because that acid is not found in this juice till after its chemical destruction and rearrangement; and the testimony of all Physiology shows that man can not manufacture the first drop of this juice. Neither can man manufacture a drop of blood; or so much as tell how iron is combined in that fluid, or what part it plays, or whether it is an accidental or a necessary constituent — present when digestion can master strong foods, and absent when the stomach can use only paps and succulents. Nor can men tell when or how the foetus in utero obtained and arranged the inorganic constituents of its bones; neither can he make the first cubic inch of these the most earthy of all the structures in the frame. It is true that the body contains inorganic substances; but all science teaches that the Maker especially ordained the vegetable kingdom to seize upon and elaborate these for their reception by the animal kingdom. But there is not one jot of evidence to prove that the animal stomach, and especially the human stomach, does or can prepare and assimilate any one of the inorganic compounds. The muriatic acid and iron offer the strongest support to this theory, if it be true; yet we have seen what havoc this prescription presently makes in the stomach and entire system. (§108.) The simple fact is, that man is a vital structure, and not a chemical laboratory, (§35;) and his food is worked into tissues under the control of a life principle whose operations can not be fathomed, and therefore can not be imitated. This argument of giving earthy and mineral substances to supply wastes in the body, sets aside God's own elaborating medium between earth and man — the vegetable kingdom; and essays to make the Chemist assume the prerogatives of the Vital Force. The utter futility of the argument can best be seen by going directly to the absurdities which are its sequences, namely: *1st*. It would give the Chemist the elements that his science says compose the human body, (the *Westminster Review* pertinently states them as five pails of water and forty-five pounds of saltpeter,) and expect him to form them — at his laboratory — into the living skin, blood, heart, bones, muscles,

nerves, and all the other structures of a full-grown man. *2d*. It would make the physician's prescriptions read thus: For necrosis of the bones, insert upon the decayed part a suitable quantity of fresh lime and phosphorus; for caries of the enamel of the teeth, direct the patient to hold in his mouth fresh lime and fine-grained sand; for baldness, give a five-grained bolus of hair three times a day, etc.!

125. *The Minerals can be expelled and the Narcotics are never absorbed*. — This argument is advanced by both Allopathists and Eclectics. Calomel is claimed to be made safe by combining it with another cathartic; and every poison is pronounced capable of being so controlled as to be rendered perfectly harmless, merely by combining it with other articles. The combination, be it noticed, is nearly always of one poison with another — as of calomel with opium, opium with henbane, etc. Of course there are exceptions, but this is the rule. Now, there is no mineral but is liable to absorption into the body; and it is a current matter of therapeutical history, that this absorption will take place with equal certainty whether the agent be applied to the stomach, bowels, or surface. (§.66*.) It is true that certain conditions of the system may oppose such absorption;, as when serous discharges from the bowels have reversed the action of the absorbents. This class of facts is largely relied on to prove that medicines act differently in disease from what they do in health, (§157;) and indeed this position is the only one on which many educated and well-meaning Allopathists continue to cling to the use of poisons, and to sustain this practice by the authority of their example. But this proposition is based entirely upon a misunderstanding of the facts; and attributes to the poisons, effects that belong entirely to the vital force. It is quite true that the life power will resist injurious agents more vigorously at some times than at others; and if, in states of either existent or provoked excitement, it succeed in expelling such articles, of course they will fail to produce their evil consequences. And it is also true that many of the agents, especially a number of the minerals, are excitants; and arouse an early vital resistance that may secure their expulsion. In this way, such agents may fail to be lodged in the system; and they are never used now, except with the *expectancy* of their provoking that grade of resistance which will thus save the system from their effects. But this is merely an accidental result, and is by no means a fortunate consequence on which the physician can at all depend; and even when it occurs, the poison has still made an injurious impression, so far as it has made any impression at all. (§112.) These points have been thoroughly established in this discussion upon poisons; and it is because the very small doses of the Homeopathist rarely excite much resistive action in the organism, that they are so almost invariably absorbed, and hence are so likely to work greater than Allopathic mischief. (§105.) But in either case, it is not due to the poison, but to the vital force, that a poison is not always absorbed. And in sections 108-121 it was seen how steadily and surely a repetition of the dose would break down this power of vital resistance, and thus render absorption certain. Thus this whole plea for the poisons is merely one of vital ability to resist them; and when this power is absolutely insufficient to effect this, or when it is efficient but has been lowered by the depressing influence of such agents, there is no medical man but must admit that the absorption of minerals is then sure to take place.

(*Just as I am about to send this to press, (August, 1868,) the following unexpected facts occurred to prove still further that a poisonous application to the skin may be as surely fatal as if made by the stomach: A favorite and healthy kitten, about 7 months old, had become infested with fleas. About 6 o'clock, one afternoon, I put nearly half a drachm of pure carbolic acid into a half pint of water, and gave the kitten a careful washing with this solution — of which about a pint was used. It killed the vermin immediately. I then washed the animal thoroughly in water, and dried her well with coarse cloths. She seemed very happy at being thus rid of her pest. At 8 o'clock, however, she began to be unsteady in her gait; at 9, the unsteadiness was great, and caused her to totter from side to side, as if partially paralyzed. In jumping for the seat of a chair, she would miss it in height, and even fall quite to one side of it. By 10, she could scarcely walk and the heart beat with thumping violence. She lay in a somewhat (but not entirely) helpless condition for two days, refused all nourishment, and then died — the hair being perfectly soft, and no smell of acid being perceptible about her.)

126. But the Eclectic, while admitting this in regard to minerals, denies it in regard to vegetable poisons. He claims immunity for his narcotics on the assumption that, if they do not kill outright, they are cast out of the system in a few hours, and never leave any sting behind. I am at a loss to know whether this assertion is made from ignorance of the facts, or from an intention to deceive. It seems altogether probable that the Eclectic Professors know better, but use it to satisfy students who have conscientious objections to the use of poisons; while the student himself is misled, and believes it to be the fact till years of study and observation have taught him better. But ere he finds out his error, he has served the purposes of the Eclectic Faculty, who sought his influence only through his tuition fees and his name on their list. This may seem a harsh and uncalled-for but it is, alas! too true — as I have had too much opportunity to know through my own education and early practice in that school. It took me five of the most vigorous years of my early manhood to unlearn the worse than Allopathic errors I was taught in an Eclectic college; and Eclecticism at that time was far purer and more reformatory than it is now. I thoroughly *know* that that school has no scientific principles, but is merely an agglomeration of glittering assertions to please the uninitiated; and I feel it my duty to state the fact, that young men may not waste their time and money in learning its reckless absurdities, as I once did.

126, *a*. It is not my purpose, any more than it is my right, to speak in this place as a mere partisan; but truth and science compel me to expose thoroughly the hollowness of these Eclectic pretensions — and the more especially as that school lives wholly by inveigling students with the promise of teaching them Physio-Medicalism. Still, as above stated, it defends the use of narcotics — which we have seen have not even the negative merits that may be claimed for the mercurials (§77) — by the assertion that the vegetable poisons are not absorbed into the frame. No Eclectic author has ever, to my knowledge, offered any proof of this statement — for the simple reason that there is none to offer. It rests exclusively on *ipse dixit*; for not one fact can be presented to sustain it. On the contrary, there is an abundance of the most undeniable facts to prove that every one of the narcotics is freely absorbed; and that both before and after being absorbed, every one of them causes distinct lesions of

nervous tissue. (§68, 90.) So far as relates to opium, the facts of its absorption and of the terrible lesions it causes, are sufficiently detailed in sections 116-121, especially in 119. Christison, in his volume on Poisons, gives numerous facts on this point. Upon the other narcotics, abundant evidence of their absorption can be found in such standard volumes as Christison, Orfila, Taylor, and others on Poisons. Among numerous facts of the kind, a single number of the London Hospital Reports, (that for January, 1868,) records two cases of poisoning from the external use of belladonna about the throat and breast — neither case, however, proving fatal. But the following brief extract from Headland on the Action of Medicines, is all that need be introduced here. After presenting many experiments made by Magendie, Sir B. Brodie, and others, in support of the position that various narcotics produced fatal effects under circumstances where they could not have acted otherwise than by absorption, he says: "Having tried to prove that they must pass into the blood, if we find that they actually do so, we shall establish a stronger case. Isolated observations on this subject have frequently been made. Thus, in 1847 Mr. Allen detected daturia in the urine of a man poisoned by stramonium. In 1824, M. Runge had discovered in the same way the principles of henbane and belladonna. Dr. Golding Bird observes that indigo, when given for epilepsy, has turned the urine blue. Krimer has detected prussic acid in the blood of persons poisoned by it. It would be easy to multiply such instances. The experiments of Tiedemann and Gmelin, and since them of Wohler, have definitely settled this point." (§133.)

126, *b*). So far as any scientific argument is concerned, no ground now remains on which a man can rest his use of poisons. If truth, and law, and the great question of human life, are to have any weight with medical men, this class of articles must be excluded totally from the Materia Medica. The facts and arguments that have been adduced, can not be gainsayed; and he who intends to be guided by his reason — that great mental power which places man above "the beasts of the field," but which has not saved him from resorting to poisons which the instinct of the lower animals has led them to evade — if, we say, a man intends to be guided by his reason rather than by his prejudices, he must submit to the plain teachings of Nature, and lay aside all destructive agencies. And he will find the greater inducement to do so, in the fact that there are offered to him a multitude of perfectly harmless agents, possessed of powers equal to the removal of the most severe forms of disease. These agents will bear the most rigid tests that can possibly be applied to them, according to the rules that have just been so elaborately discussed, and prove their absolutely non-poisonous character. And though it is by some asserted that they are too inefficient to meet the requirements of complicated maladies, this is a grievous mistake. Their power is immense; and as they act so uniformly in harmony with Nature, they possess a curative value unknown and undreamt of by those who have been accustomed to place their reliance upon poisons. Ten thousand times have they been put to the severest trial, in the gravest and most complicated forms of disease; and ten thousand times have they restored such cases to life, and health, and usefulness, after the most experienced Allopathists and Homeopathists and Eclectics had exhausted their skill and pronounced the sufferers beyond the help of man. Physicians have every thing to gain by learning he use of these agents; for he

alone can hope to be successful, and to come to his death-bed with a clear professional conscience, who knows that he has always acted in concert with Nature, and has never given a prescription that would jeopardize a life.

ACTION OF REMEDIES.

127. The classification of remedies, and the especial field for which each class is fitted, and to which it is to be applied, have already been detailed in sections 48 to 64. Proceeding upon the classification and the laws of application there laid down, we come now to a more detailed inquiry into the modes according to which agents act, and the rules by which they are to be employed. In all medical experience, it has been observed that each agent, whether a remedy or a poison, will exert more influence upon some structures than upon others. Thus, among poisons, opium acts mostly upon the brain, and reaches other structures by way of this nerve-center; calomel acts principally upon the liver; lead especially attacks muscular structures, tobacco the heart, etc. In the same manner, among remedies, it observed that leptandra expends its principal power upon the liver, asclepias upon the skin, eupatorium purpureum upon the kidneys, uva ursi upon mucous membranes, etc. The reason for this is beyond the comprehension of man; but the fact is universal, and must be accepted.

128. When a particular agent is found to exert an especial influence on one kind of tissue, it will affect that tissue similarly in every part of the body. Thus, uva ursi is known to manifest itself quite directly upon the mucous membrane of the bladder and urethra. While this is its characteristic, it is equally the case that it will exert precisely the same kind of influence upon the mucous membranes of the vagina, bowels, stomach, mouth, and conjunctivae. Cornus florida bark is an astringent tonic to mucous membranes; and, like the uva ursi, it will exert this same action upon every part of this structure. Lobelia relaxes fibrous tissue; and will similarly affect the motor muscles, muscles of the uterus and bowels, fibrous structures of the blood vessels, and even the heart itself. Caulophyllum is a nervine, prominently manifesting its properties in connection with the uterine nerves; but it will exhibit the same kind of influence upon the nerve tissues of the entire frame, apparently preferring their peripheries to their centers. Instances might be multiplied to any desired extent. So uniform are these facts, that they determine a rule which underlies the entire practice of medicine; and they readily account for the great variety of maladies to which many agents can be applied effectually. They also open up a beautiful field for deductive philosophy; as, when it is known that an agent will relieve a certain condition of a given tissue at one point, it may safely be inferred that it will relieve a similar condition of the same kind of tissue at another point — though the organs may be remote, and the maladies receive different names, and the article has never been tried in the latter difficulty. It will require only to be sure that the two difficulties are of the same nature, as relates to the conditions of the tissues.

129. Organs that are similar in structure, or that have very intimate sympathies, will generally be affected by any agent that acts upon either one. Thus, the skin and mucous membranes are counterparts of each other; and it is found that asclepias will similarly affect both, and so will cornus florida and many other agents. The skin and kidneys have a peculiar intimacy in the correlation of their functions; and it is observed that serpentaria and some other agents will influence either. There is a close sympathy between the stomach and uterus; and agents that are truly tonic to the former, are about equally tonic to the latter. The stomach and liver also

sympathize very intimately; and relaxants and stimulants to the one, will exert at least a considerable impression upon the other. This rule is not so uniform as the preceding one, and therefore occupies but a second place; yet it prevails with a considerable number of agents, and greatly enhances the value of many remedies.

30. From the last section it will at once be inferred that agents do not confine themselves to one kind of tissue. This is a correct inference. Many agents affect several tissues; and that, perhaps, in nearly equal degrees. Thus, lobelia affects the nervous system as such, quite as much (and perhaps rather more) than it does the fibrous; asclepias influences serous membranes distinctly, as well as cutaneous and mucous; serpentaria influences the circulation, as well as the kidneys and skin. In this way it is observed that some remedies apparently influence every structure of the body more or less, of which lobelia is one of the most prominent representatives; the great majority of agents influence more than one structure, and, through the compound nature of the organism, thus manifest a power upon several organs; while a few confine their chief power more distinctly to one structure, or to one or two organs. For the sake of convenience, the first of these classes may be called *general*; the second *restricted*; the third *local*. These terms will be used in these senses through subsequent portions of this volume.

131. Among agents whose action is most general, and those that are least restricted, it is still the case that they will each show a sort of preference to one structure above another. Thus, although asclepias influences skin, mucous membrane, and serous tissue, its action toward the skin is more decided, more prominent, than toward either of the other structures. And even among agents that are apparently most local in their action, it is not to be understood that *all* their influence is narrowed down to a single organ. Leptandra has a peculiarly prominent relation to the liver, which it slowly relaxes; but the long-continued sense of nausea that so many times follows the use of this agent, shows that it also directly and persistently relaxes the stomach and its nerves; and there is every reason to believe that it also affects the pancreas, duodenum, and small intestines. Yet its action is so much more marked on the liver, that it is chiefly valued in this connection; and its utmost circle of influence is still but a local one, compared to lobelia or capsicum. It will also at once be apparent that, through the medium of nervous sympathy, even a very local action may induce quite remote consequences; as when the action of leptandra on the liver improves the “bilious” form of headache, as well as secures catharsis by aiding the elimination of bile.

132. *First Impressions on the Nervous Structures*. — From what has been said in the last four sections, as also in section 52, it will at once be seen that the nervous structures are the first to receive the impressions of all remedial agents, as well as all other impressions. It is impossible to conceive of any action upon a living being, except as the nerves receive the impetus of the acting agent. This is the one grand purpose of the entire sensory system; and as a medicine can not act upon the dead, so it can not act upon the living except as the nerves recognize and communicate its influence. This form of communication is carried on almost exclusively through the medium of the sympathetic or ganglionic nerves. The simpler nerves of sensation any where will receive and convey impressions; but will not receive them so promptly, nor

convey them so widely and rapidly, as will the ganglionic nerves. It is through the medium of the latter that agents given to the stomach are felt in remote parts of the system; and are sometimes conveyed with a rapidity and power that are almost electrical in their instantaneousness. Thus, a drop of oil of erigeron exhibited to the stomach, may incite a prickling sensation over the entire surface in a few seconds; and a draught of lobelia is well known to diffuse a nauseous feeling throughout the frame, as soon as swallowed, and sometimes even before the first portion reaches the stomach. In like manner are the lungs, surface, kidneys, and other organs, reached by way of the stomach; and it is not at all necessary to apply an agent to an organ directly, in order to have it benefit that organ.

133. *Absorption of Medicines*. — But while the nervous system is the first and most important medium to convey the impressions of remedies, it is not the only one. Some agents transmit but very little of their power through it; and even of those which employ the nerves most, it is not probable that all their action is distributed through this medium. The absorbents perform an important work in this respect. Some articles seem scarcely to act at all, till they have been dissolved in the stomach and taken up by the lacteals; and some, as the resins, which can not be dissolved, or are scarcely absorbed at all, confine almost their entire action to the course of the alvine canal. The evidences of the absorption of poisons are numerous, (§125;) and those of the absorption of remedies are equally numerous. One of the most convincing testimonies in this connection is found in the fact that the external application of a medicine, if continued till it can be absorbed, will exert the same effects as when given internally. Thus, lobelia seed sprinkled upon an ulcer, will cause nausea and relaxation; and free vomiting will then ensue, on the use of stimulants to the stomach. (See Emetics.) A liquid preparation of colocynth or jalap, rubbed in sufficient quantity upon the abdomen, will lead to purging. It is partly on this account that poisons should never be applied externally, any more than internally; for they can never restore a normal condition of the parts to which they are applied, (§66, 69;) and are quite sure to be absorbed and lead to precisely the same constitutional poisoning as if they had been exhibited by the stomach. As Dr. Headland says: “Mercurial ointment applied by friction to the skin will produce salivation. Extract of belladonna applied to the temples causes dilatation of the pupil of the eye; and tincture of opium dropped on to the eyeball causes the pupil to contract. The breathing of the vapor of prussic acid is sufficient to kill. Solution of aconitina, applied to the skin, will produce numbness of distant parts. Injection of any powerful poison into the veins, is rapidly followed by symptoms of poisoning like those which would have followed its introduction into the stomach. Thus contact with the stomach is not necessary, but introduction into the system any where is sufficient.” Such facts, in multitude, show the futility of using poisons in eye-washes, and ointments, and inhalation, and hypodermic injections, and thus hoping to escape the evil influences of the deleterious agents. The poison can do nothing but harm at the part; and may, in addition, be first transmitted through the nerves and afterward by the absorbents, to the serious detriment of the body at large.

134. *Diffusive and Permanent Actions.* — Impressions made upon the nerves are conveyed with rapidity. Sometimes this rapidity may be so great as almost to resemble a shock. Hence agents that are principally conveyed by the nerves,

manifest themselves speedily; while those that act principally by absorption, are more tardy in working their effects. A great many agents act through both media, and that in every conceivable ratio; hence these may first manifest a prompt, sudden action, which will apparently have passed away, and subsequently will be absorbed, and make a renewal of the original impression in a less intense but more persistent manner. Agents acting principally by the nerves are, therefore, more *diffusive* and transient, while those relying upon the slower process of absorption are more *permanent*. These terms are, of course, merely relative; for some agents which are absorbed (as capsicum) may first make a diffusive impression through the nerves, and follow this by an influence of a slower and more persistent kind through the entire frame. But, while this nomenclature is not absolute, it is sufficiently explicit to warrant its general use — employing the terms only as referring to *time*, and not to *extent*.

135. *Expediting and Retarding Action*. — An axiom growing out of §132-134, is this: The form in which an agent is presented to the system will either hasten or protract its action. It is easily to be understood that, if the nervous system is to be impressed, the more extensively and speedily any nervous expansion is reached, the more speedily will that impression be made; and if an effect is to be obtained by absorption, time will be gained by presenting the agent in such a form that the absorbents can act upon it readily. Hence it is that medicines in a dilute form act in much less time than when in a solid form — and that whether they act through the nerves, or the absorbents, or both. If a given quantity of asclepias is digested in four ounces of water, and the whole taken at a draught, it will be brought in contact with the entire surface of the stomach almost immediately; and hence will commence its action at once, and make its impression with decision. But if the same quantity were taken in the form of a powder, it would act upon but a few fibers of the stomach at a time; and hence its impression would be slow, and also feeble. This article acts also through absorption; and in the diluent form, it would be taken up readily and conveyed to the surface early; but in a powdered form, it could not be absorbed till it had been dissolved by the juices of the stomach; hence it would nearly have expended its strength before it was taken up, and might then scarcely impress the surface at all. Every agent is to be considered in the same light; for even the slowest and most permanent, as leptandra, may have their action materially hastened or retarded, according as they are exhibited in a dilute, or a powdered, or a still more concentrated form.

136. *Diluents — Concentrations*. — These differences in the modes of prescribing an agent, make great differences in a practical point of view. They in no sense or degree alter the character of an article; but do materially vary the time and extent of its action. Bearing this fact prominently in view, the physician should exhibit his agents according to the objects before him, or the requirements of the case in hand. If he have a febrile patient, where it is important to relax the entire surface, it is not sufficient to select asclepias, but the remedy must also be given in such a form as to accomplish its work at the surface most effectually. This form is known to be that of warm infusion. Should the article be exhibited as a powder, or in the shape of resinoid asclepin, it will be circumscribed; and nearly its whole influence will be expended upon the mucous structures. If he have a case of parturition, and conclude

that the well-known parturient action of myrica is needed in the case, it wil1 be necessary to choose some diluent form of administration; as the powder would confine its main action to the stomach and bowels; and the small portion that would eventually find its way to the uterus, might be too late to do any good. If the case were one of uterine hemorrhage, life might be jeopardized, or even lost, by not using the appropriate agents in a diluent form. The form of sirup is well suited to sub-acute or chronic cases; and pills may be selected when it is desirable greatly to retard the action of an agent. If, for instance, the physician is treating a case of rheumatic fever, in which he wishes to secure the gently relaxing impression of lobelia, he would probably find that small doses of an infusion needed such frequent repetition as to be burdensome; while a single pill might be given at intervals of several hours, and continue its impression gradually as fraction by faction of the bolus dissolved in the stomach. If he had in his care, however, an acute pleurisy, the pillular form would, to say the least, be a remarkably dissatisfying one to the patient — relaxing the serous tissues too slowly to give the desired ease. The concentrated resinoids and alkaloids belong to the very slowest class of pharmaceutical preparations; are dissolved very tardily by the juices of the stomach and bowels; and hence are appropriate only when a very slow, permanent, and rather central influence is required. To give asclepin for its action upon the surface in a febrile case, is scarcely to derive any benefit from it; and to use cypripedin during acute hysterical convulsions, would amount to nothing at all. Hours would pass before these concentrations could be dissolved; and then they would be more disposed to act upon the central portions of the organism, than to diffuse themselves to remote parts where they were so absolutely needed.

137. *Rule for Administration*. — The form for using any agent, therefore, depends upon the nature of the case in hand; and is a question of the plainest scientific accuracy. If the case is *acute*, and demands that agents shall act speedily and remotely, the form of infusion, or decoction, or other liquid, must be chosen. If the case is *chronic*, and impressions are required slowly and steadily, the form of sirup, powder, pill, or concentration, may be chosen, according to circumstances. It is not necessary to select the form of infusion when a *central* action is desired from a certain remedy in an acute case — as from leptandra; but even then, the infusion will act most promptly, and a smaller relative quantity will be sufficient. Yet if an *early* catharsis, or biliary or renal flow, is important, no concentrated form of the agent used is admissible. It is by strictly observing these rules — so palpably based upon the laws of Physiology — that the Physio-Medicalist has met with such remarkable success over others who attempted to use his remedies. His “warm teas” in acute cases are not the crude whim of a grandmother, as some would have the public believe; but are in harmony with the best principles of true science, and hence prove so powerful in relieving cases otherwise so hopeless. The powders, pills, and concentrations have their places, and should be given accordingly ; but when the physician forsakes these principles in order to pander to his patient, and becomes a dawdler at the sick-bed for the sake of a fee, he renders his medicines almost inert by using concentrations for purposes to which they have no application; and in like proportion he fails in promptly overcoming disease. It is desirable to make pharmaceutical preparations as pleasant as possible, and there is great room for

improvement in this department; but when the principles of science are sacrificed to attain that end, the result will be a lamentable failure in efficiency and in the saving of life.

138. *Directing Influence of the Vital Force*. — It is a fact of peculiar interest that, when an agent which acts on many structures is used in a form more or less diluent, it generally expends most of its power on that structure which is most in need of it. Thus, in using lobelia, it will be found that quite small doses of its infusion will speedily and effectually secure relaxation of the os tincae, when that part is rigid during labor; and it will do this without exerting any marked influence on the remainder of the system. A similar local relaxation by this agent will be noticed when it is used in spasmodic strangury, spasmodic croup, and many similar affections. Also when this agent is given in high inflammatory excitement of the liver, or of the peritoneum, or of the pleurae, it will secure a marked degree of relaxation in these parts; and if quite free quantities are used, that localized action will be prominent, and the general effects of the article remain limited, till the affected portion is brought to a nearly equal state of pliancy with the remainder of the system. Capsicum, also, will be found to arouse the uterus greatly in lagging parturition, or stimulate it to vigorous contraction in hemorrhage, without for a time making any material change in the pulse; and according as the loss of capacity is at the kidneys, the bowels, the skin, or other organ, the effects of capsicum will be most visible in the sluggish part. Cimicifuga, again, will manifest most of its action upon the uterus, the general nervous system, or the serous membranes, according to the organ at which its influence is most needed.

139. It is to be observed that the peculiarities named in the last section, extend only to agents whose natural influence relates to several structures; and then mostly when the article is given in some form where its action will be free, and not in any localizing or restrictive form. (§138.) Neither should it be forgotten that *some* of the action is expended upon other parts, though such a great preponderance of its effect is thus directed to the most needy point. The facts illustrative of this feature of remedial action are very numerous and well known; and stand out in bold relief to the contrary class of facts which pertain to the use of poisons. When poisons are given, the parts that need treatment most are the more likely ones to suffer from the poisonous effects; for being the least healthy, they are the least resistive, and therefore the poisons can (as a general rule) the more easily overcome them. (§79.) But true remedies are *friends* to the system, and "act in harmony with Nature;" and therefore are the more cheerfully directed to the suffering parts by the vital force, and work their best relief there. And there is in this nothing mysterious or anomalous; for it is the counterpart of that intelligence with which the life principle directs an additional supply of nourishment to a wounded surface, or a broken bone, or any other point of structural lesion. And this guidance of remedies to especial organs, is but another form of the facts so well known in regard to agents which act only on a very few structures; for it is on the same principle of a ruling vital intelligence, that uva ursi cures catarrh of the bladder at one time and leucorrhea at another; that convallaria strengthens the mucous membranes of the uterus in one case, and those of the lungs in another, etc. These facts are resorted to in every-day practice;

and their recognition and use give the physician immense advantages, and wonderfully multiply the power which he can obtain from a limited number of agents. It is not necessary to have the entire Materia Medica at hand, in order to influence the whole system in any manner that may be desired.

140. *Cooperations of Art.* — The duty of the physician being to cooperate with Nature, he will find it quite within his power to aid the directing efforts of the vital force which have just been explained. Thus, if it is desired that serpentaria shall act on the skin and not at all upon the kidneys, the patient should be surrounded with a warm atmosphere, and plenty of bed-clothing; and if its effect upon the kidneys is sought, then a cool atmosphere should be advised. All sweating remedies may be greatly influenced in their outward or inward action, by the same means, as well as by the special form in which the article is given. (§135.) For the present, it is merely desired to make allusion to this fact; and the topic will be renewed hereafter in connection with the rules for compounding remedies.

141. *Pathological Obstructions.* — But while Nature thus uniformly attempts to direct an agent to the part upon which it shall act, pathological conditions may arise under which it will be impossible for her to succeed in this endeavor. It is true that the remedies themselves will most generally restore the conditions, so that the vital force can act at its pleasure; yet this is by no means a uniformity. In severe cases of croup, where the full action of lobelia may be imperatively demanded upon the respiratory passages, there may arise such an obstruction in the spinal axis, that impressions made upon the stomach can not be reflected to the seat of disease. The same thing may occur in tetanus. Most generally, the stomach itself is at fault under such circumstances; and will be so obtuse in its sensibilities as not to recognize the presence of any agents that may be presented to it. Occasionally cases are met with, in which occlusion of the esophagus may prevent any thing from being swallowed. The presence of a heavy coating of such viscid phlegm as not unfrequently collects in the stomach, may line that organ as effectually as if it were dry-varnished; and medicines can not make the faintest impression upon the system at large, till this viscid obstruction has been removed. One of the most common of all impediments is the presence of unnatural acid in the stomach, usually spoken of as “sourness,” but often present to an inconvenient degree without being recognized by the patient. This state is particularly inimical to the action of the relaxants; and such articles as lobelia, cimicifuga, leptandra, and others like them, may produce none but the most meager impressions, in consequence of this sourness — which will need to be neutralized before the effects of the remedies can be fairly obtained.

142. *Applying Remedies to the Skin.* — Mention has already been made (§132, 133) of the fact that an agent applied at one part may, both by nervous impression and absorption, affect parts quite remote from the point at which they are applied. Advantage is taken of this fact, under the circumstances mentioned in the last section; so that the physician, instead of standing powerless before every obstruction that arises, can employ the resources of his art in such a diversity of ways as will give him immense power over disease. The *skin* is one of the most important, as it is also one of the most extensive, of all the points of application. Its immense congeries of nerves and blood vessels offers a surface upon which

remedies can be brought to bear with vast power; and the results in many cases are of really vital importance. In the case of croup above alluded to, where impressions can not be transmitted by way of the stomach, a very concentrated decoction of lobelia may be applied about the throat, over the chest, and along the upper portion of the spine, (especially with some capsicum as an associate,) and through this means life be saved. In a large number of acute maladies, and especially in *every one* of the internal inflammations — as pleurisy, pneumonia, dysentery, hepatitis, peritonitis, etc. — it may be almost impossible to diffuse the action of agents with sufficient vigor to secure an outward determination of blood. Agents given by the stomach may be directed to the inward trouble, where the principal danger lies; and yet it will be next to impossible to present to the stomach enough medicine to overcome this, and to restore the outward circulation also. But if this outward circulation is not thoroughly restored, the patient may inevitably die. It is under such circumstances that the skin can be made use of to the very greatest advantage; and by the repeated application of the most powerful stimulants over the seat of difficulty, the internal accumulation be relieved and the patient be saved. Or in such a malady as cholera, where the sympathetic nerves are greatly depressed, and the action of the absorbents is reversed and they become exhalants, the internal use of remedies may be quite ineffectual. External appliances then become of the very first consideration; and without their aid, it might be utterly impossible to save the patient.

143. *Exhibition of Remedies by the Bowel.* — The rectum offers another most important channel through which to bring to bear the power of remedies. The bowel is too seldom thought of for such a purpose, except it be merely to secure a dislodgement of fecal materials. This is many times a necessary measure; and one which must be resorted to as greatly preferable to the too long use of cathartics. But this is only of insignificant importance, compared with other results that may be accomplished through this channel. The great number of small ganglionic plexuses that lie around the rectum — each one of which is a reflecting center nearly as vivid as the single plexus that is connected with the stomach — at once suggests the deep impression that may be made through them upon the entire frame. An injection of either a stimulating or relaxing nature, will exert a much more powerful effect than the same amount of the remedy would exert through the stomach. It is well known that vomiting may be effectually induced by a full injection of lobelia; and by such injections, a depth and promptness of relaxation may be secured in strangury, spasmodic and membranous croup, puerperal or other convulsions, tetanus, and similar spasmodic conditions, as it will probably be impossible to obtain by five times the amount of medicine given to the stomach. Medicines applied thus to the bowel, are also strongly diffused toward the surface; whence this mode of administration becomes of the first necessity in meningitis, phrenitis, typhoid fever, and many similar circumstances, where outward relaxation is of vital importance, while central stimulation must be more or less vigorously sustained. Stimulants may also be used in the same manner in cholera, shock of injury, and other cases of threatened collapse; and the effect of a grain or two of capsicum given thus, will be found astonishingly great. (For methods of preparing remedies for use to

the bowel, see Injections and Suppositories, in the department of PHARMACY.)

144. It is not the province of this volume to do more than point out the means and modes for applying medicines; while the special application of these to particular forms of disease, is left for works on Practical Medicine. But it is due the practitioner to urge upon him a careful consideration of the facts so briefly alluded to in the last two sections. When Nature has rendered it possible for him to bring remedies to bear so effectually on such different surfaces, it is evident that the widest possible provision has been made for the reception of their friendly influences. It is the duty of the medical man to study these several provisions; and to acquaint himself thoroughly with the means he can best employ, and the power he can bring to bear through each of them. It is an almost universal fact that the stomach alone is the grand recipient of drugs; and that the skin is little used except for the application of water, and the rectum squeamishly avoided except when urgent necessity dictates a cathartic enema. This is all an error. The stomach very many times needs rest from medicines, and must have it, even in the course of treating acute disease, (§47;) but more frequently it can not be used to one-fourth the extent needed to save the case. The energetic physician will not let his patient die for lack of suitable medication by the bowel and on the surface. And one great advantage enjoyed by the surface is, that the quantity that can be employed upon it is immense. Indeed, even with the physicians who resort to it, they too commonly apply not more than half as much as they should. Several times in my professional life I have treated cases of the most serious forms of disease, solely by the skin and bowel, (not being able to give more than a moiety of medicine by the stomach,) and saved patients who would otherwise have been hopeless. The judicious physician will lose no opportunities; but will employ *all* his resources vigorously, and in time, when dealing with severe maladies. It is not then enough to do well in a few things; but to attack the enemy at every possible point, in every possible way, and in the most vigorous manner.

FUNCTIONS NOT PRODUCED BY REMEDIES

145. In sections 29 and 53 it was seen that it is needful to discriminate between the action due to remedies, and that produced only by the vital force. The inclination to confound the two, is much greater than is at first supposed; and the physician who would make solid progress in his researches, will be continually required to keep himself under watch, lest he attribute to the one effects that are due solely to the other. Allopathy has many times committed this error; and her votaries accredit to her poisons, cures that were effected wholly by the life power, in spite of the poisons. It looks very natural to conclude that, recovery taking place after the exhibition of a given article, *therefore* the agent expedited the convalescence. If there were at work no force except that of the article in question, this conclusion would be legitimate; but "when it is remembered that the natural curative power is not one that operates merely occasionally or feebly, but one that is always present, always active, and possessed of sufficient force to cure the great majority of diseases without any extraneous assistance," (Sir J. Forbes,) it will be seen that the best forms of extraneous aid can never be other than secondary to this power. The present fashion in medical matters makes this discrimination the more necessary; for Allopathists, Eclectics, and Homeopathists seem to vie as to which shall outstrip the other in disregarding the life principle. The palm probably belongs to the Eclectics; for they make it an especial merit to "throw aside all theory," and to inquire only as to whether the patient gets well during their treatment. This is equivalent to denying that the laws of reason or the principles of science have any thing to do with their system; and that they are not concerned whether the patient recovers by their help, or in spite of their interference, so long as they get the credit and the fee. The conscientious physician can not be content thus to strike at life in the dark, especially with such a terrible array of poisons as are used by the above systems. (§106.)

146. Turning now to inquire more specially into the action of remedies, it will be noticed that they never *produce* any *functional* result whatever. They influence the tissues, (§51;) and in proportion as they bring these nearer to the standard of health, the vital force makes the more perfect use of the structures; but as tissues can not be influenced except as the life principle is present to take cognizance of the impressions of agents, (§132,) . so no function can be performed by any other agency than the life principle. It is not the leptandra that purges, or the asclepias that sweats, or the lobelia that vomits; but those agents restore certain tissues to a desirable condition, and then the life power employs these tissues with accelerated activity. This distinction is not a mere play upon words, but is a scientific principle of much importance; and the physician must recognize it, and discharge his duties in subservience to it. To ignore it, or attempt to pass it by as of no consequence, would be equivalent to ignoring vitality; and the next step would be into the absurdity of substituting leptandra for liver, or juniper for kidneys, or electricity for the life principle; or into an attempt to keep man alive forever by maintaining the proper status of caloric. The latter proposition (or its essential idea) has actually been made, by Broussais; and is quite as reasonable as the other absurdities just named. All such paradoxes come from attributing to material agents, or to other motor powers,

functional actions that belong to the life power alone. The materials and the motors may and do have substantial influences upon tissues; but then the use of these tissues in the performance of secretion, absorption, respiration, circulation, and all the other functions, belongs once and always to the vital force only. (§35.)

147. The recognition of the above fact in his practice, is a grand step toward enabling the physician to apply his remedies with distinctness, and therefore with accuracy. It will save him from falling into the Homeopathic fantasy of prescribing for *symptoms*; when it is so well known that many symptoms in common, arise from quite different *conditions*. It will also save him from confusion and doubt in relation to the value of his agents, when he sees them followed by apparently opposite functional results. It is familiar to all physicians, that some (not all) cathartic articles are useful in arresting diarrhea and dysentery. The case is an apparent paradox; and would really be one, if functional results were due to agents. But a looseness of the bowels often comes from impure bile — the condition of the liver not being favorable to the secretion of healthy bile. Any hepatic that will restore the liver tissues to a healthy standard, will enable the vital force so to use this organ as to make pure bile; and then, this particular provoking cause of the diarrhea or dysentery being no longer present, the looseness of the bowels that arose from it will probably cease. The irritation of the alvine canal was but a symptom; the state of the liver was the true disease. Had the symptom been "doctored" by astringents, (or narcotics,) no cure could have resulted. As it was, the restoration of the liver by a so-called cathartic, (as leptandra or juglans,) arrested the too frequent discharges. (§130.) But now continue the cathartic so that an excessive flow of pure bile shall be invited, and increased action of the alvine canal will follow; but it will not be either a diarrhea or dysentery.

148. The instance above presented, is but one out of hundreds where apparently opposite results follow the use of remedies. Thus, when the skin is cold and shriveled, capsicum will secure a stimulation that will lead to perspiration; but when the skin is lax and perspiration too free, capsicum will incite a contractility that will probably arrest the excessive flow. When the bowels are passively discharging watery stools, astringents will usually arrest such passages — provided that the liver is secreting a normal quantity of good bile; but if the bowels are irritable, astringents will increase the irritability; and if costiveness have arisen from semi-paralytic laxity of the muscular fibers, astringents may sometimes lead to the contraction of those fibers and thence to the expulsion of any solids that have lodged in the alvine canal. An instance is seen in the catharsis sometimes following cinchona. When the stomach is sensitive and excited, relaxants will restore the proper condition of the tissues, and an improvement in the appetite will follow, but if the organ be already much relaxed, the exhibition of relaxants will be followed by a loss of appetite. When the stomach is much excited, and vomiting arises as a sequence to mere irritability, *very small* quantities of lobelia infusion will soothe it; but the same article is a nauseant and a promoter of vomiting under nearly all other circumstances.

149. Here is a series of opposite functional results, following from the use of agents. At first sight, it would appear that an agent could not be relied upon to exert a definite influence. (§64.) Such facts have led the

Allopathist to speak of agents as acting differently, according to the state of the system, (§125;) and the Homeopathist to exclaim that "like cures like." Both these deductions are false, and arise from confounding the action of vitality with the action of the agent. The nosologies of these systems class as the disease itself, all vital efforts to get rid of disease. Hence inflammation is a disease with them, though but a vital effort to remove obstructions; and fever is a disease, though only a vital struggle to cast out morbific materials; and dysentery is a disease, though only Nature's attempt to wash away offending substances; and cough is a disease, though only designed by the life principle to eject some oppressive material. The moment these efforts are classed as diseases, the attempt is made to prevent their continuance; and hence poisons are resorted to. The Allopathic doctrine and practice have already been examined. The Homeopathic doctrine *seems* to be supported by the facts named in the last section; for, says that school, if the emetic lobelia will arrest emesis, and the cathartic leptandra check catharsis, and the diaphoretic capsicum suspend diaphoresis, does it not logically follow that what will cause the disease will also *cure* the disease?

150. We have no disposition whatever to evade the above query of the Homeopathist. If his conclusion is correct, it is our duty, as investigators of science, to lay aside all favorite tenets and adopt this principle. But we deny the correctness of the conclusion. In the *first* place, the emesis, diarrhea, colliquative perspiration, etc., are not diseases. They are a warfare against disease; but are not themselves the disease. They are but functional efforts to free the system from some offending substances. Remove the grounds of offense, and the unduly excited functional efforts will subside. Such functional efforts may be induced by poisons — as when sulphate of zinc provokes vomiting, and veratrum excites bloody stools, or opium leads to a clammy perspiration. Under such circumstances, the poisons are provocatives of disease; and Nature's efforts to get rid of them are so ineffectual as to be alarming. (§96.) But when lobelia invites vomiting, or leptandra secures catharsis, or capsicum induces perspiration, the exaltations of function following their use manifest no injurious impressions. Hence these agents, in relieving certain excesses in emesis, diarrhea, and perspiration, do not cure disease *because* of their power to *make* a similar disease, as they make no diseases whatever. (§53, 139.) In the *second* place, the Homeopathic conclusion is not correct, because it attributes to the agents what belongs wholly to the vital force. (§145.) The agents in illustration do not check the secretions named, but merely put the tissues in a better condition; and then the excessive secretions cease, inasmuch as the vital force is no longer interfered with, but has recovered full control of the organism. The action of remedies on the *tissues*, therefore, is forever uniform; and the action of the vital force must not be confounded therewith.

151. The necessity of this discrimination is made still more apparent, by what may be termed the *indirect* functional results of using medicines. These are sequences remote from the seat of medical action; and are the counterparts of symptoms that so often arise remotely from the seat of disease. The headache that arises from torpidity of the liver or bowels, is familiar; and it is relievable only by reestablishing the proper secretions. The oppressed breathing incident to crowding of blood upon the lungs, in pneumonia, is a

prominent symptom; and can be relieved only by restoring an outward circulation. But how commonly is it noticed that the skin will arouse to a free perspiration, after the operation of a mild cathartic, (§175;) and that expectoration will become free, after a bath that relaxes the pores and invites a free outward circulation; and that the uterine organs will improve, after the use of some agent acting upon the kidneys. If we attach the idea of any functional effect to the remedy, we can not account for these remote consequences; for we well know that the cathartic does not act directly upon the skin, nor the bath upon the lungs, nor the diuretic upon the uterus. But if perspiration is checked because of faecal accumulations in the bowels, the gentle removal of these accumulations (by means. that do not irritate the alvine canal) will leave the circulation and pores free, and .the pent-up sweat will flow abundantly. If the lungs have become deficient in mucous secretion, in consequence of an excessive accumulation of blood retarding the capillary flow; the restoration of a due amount of blood to the surface will loosen the distended and oppressed capillaries, and the mucous secretion of the respiratory organs will become abundant. If the uterus has sympathized, through the pelvic ganglia, with a turgid and sluggish state of the kidneys; a reestablishment of the renal flow will relieve this sympathetic oppression, and the tone of the entire generative system will be improved.

152. Instances like those in the above section, can be cited in large numbers, and are well known to the practicing physician. It will readily be seen that the indirect functional results are due entirely to the vital force, and not to any impression made by the medicine upon the part. The one part became deranged, merely through sympathy with, or from the necessities of, some other and more seriously diseased part. Restore a healthy condition to the latter, and, in nearly all recent cases, the vital force will at once restore the function of the former without any assistance. If the case have been of long standing, the organs that suffered through sympathy (or necessity) will probably have become so deranged as to need medication — *after* the original seat of the trouble has been attended to properly. But in either case, the medicines acted only by restoring the tissues to their healthy standard, and the vital force then used these to reestablish the interrupted functions.

153. Let us suppose, for a moment, that the technical point here raised is but a speculative quibble, and therefore is a thing to be ignored. The facts alluded to in §151 can not be ignored, and now conclusions must be drawn from them. These conclusions would then stand about thus: Cathartic medicines increase perspiration; baths increase expectoration; diuretics are the best uterine tonics! With these generalized statements, the young practitioner goes forth to his duties. His first case may be one in which the habits are sedentary, the bowels costive, the skin feverish, and the patient thirsty. Let podophyllum, or jalap, or aloes, or gamboge, be prescribed; and the catharsis will be followed by greater, instead of less, dryness at the surface. Why? Because these agents irritate the bowels in a case where a soothing laxative is required; they do not, then, restore the alvine canal to a normal condition; and an improved state of the skin is dependent — not on the mere forcing of a stool, but — upon the bringing of the inner tissues to a healthy state. His next case may be one of dry asthma, in which the surface is bedewed with a cold perspiration during the paroxysm. Let a tepid bath now be given, and the

respiration and dryness in the lungs will inevitably become worse; for the reason that such a bath was not appropriate to the condition of the surface. His third case may be one of partial prolapsus and slight leucorrhea; which might not be at all improved by the use of a stimulating diuretic to kidneys that were already irritable. And if a dry surface were hectic, with colliquative stools, any kind of cathartic would make it worse by debilitating the patient; if the lungs were dry from excessive perspiration, no form of bath should be given; and if the uterine organs were themselves directly at fault, and not suffering from any degree of sympathy with the kidneys, the most choice diuretics would prove worthless.

154. The illustrations adduced, are familiar to every experienced physician. He has learned them by years of patient observation; and thoroughly understands the necessity of searching out and removing the primary conditions, ere he can hope to succeed with any medication directed against the secondary troubles. But while the *facts* are known, the *reasons* for them can not be understood so long as functional results are in any degree attributed to the remedies. I have no doubt but a failure to appreciate this result, has led many an Allopathist to cling to the use of poisons; for he was all the time seeking to *compel* the performance of certain functions in a certain manner, instead of studying the conditions of the tissues and restoring them — leaving the vital force to regulate the functions according to its own needs. This view leads to a nosology founded wholly on symptoms; lays the basis of the Homeopathic treatment of disease by symptoms, and inevitably carries one forward to the use of poisons as the best compulsors to the performance of functions. Hence the old practitioner who studies Therapeutics from the standpoint of agents being Cathartics, and Diuretics, and Sudorifics, etc., adopts an Allopathic nomenclature that confuses his own mind, and renders the very richest of his experience of no avail to others. By studying this whole question from the scientific standpoint of remedies affecting only tissues, and the vital force alone producing functional results, a new light will be thrown upon the whole field of Practical Medicine. It will be seen that disease is not to be studied by names, but by conditions; that remedies are not to be described by a nomenclature that attaches to them the power of producing a function, but of influencing the tissues in certain ways; and that agents are to be applied only with reference to their ability to restore the tissues to conditions from which they have departed. (§54.) Approaching the subject in this light, prescriptions would become matters of the clearest scientific accuracy; poisons would be seen to have no place in the Materia Medica; and this science would advance with rapid strides, because each could explain his experience with a lucidness that would at once make every item in it available to the whole world, instead of smothering it and rendering it worthless under the present unmeaning method of therapeutical description.

SCIENCE OF PRESCRIBING — SPECIFICS

155. From the facts and illustrations given in the last general division, the inference will directly follow that medicines should not be prescribed as s*pecifics* for *disease by name*; but always selected and administered with reference to the *conditions present*. This is, in general terms, the exact contrary of the usual course in studying disease and applying remedies; but our business is not to follow precedents merely because others have done so, but to acquaint ourselves with natural principles and follow them.

l56. The practice of prescribing for disease by name grew up in the "dark ages." The state of scientific knowledge at that time led medical men to look upon disease as a bodily substance — a personal, although intangible, existence. A disease was to them as much a material thing as would be a stone or a fluid to the physicist, or a vapor or gas to the chemist. This personal substance was as a demon warring upon the body; and the symptoms were, correctly enough, the signs of its work; but be thing itself was to be driven out by agencies stronger than itself, and to which it was inimical. The prescription was thus against the personal, though unseen, material — as much so as when the chemist decomposes a compound by introducing an element which liberates one of the components by seizing upon he other. As each chemical substance has its stronger and its weaker affinities, and as certain substances can be separated only by the introduction of another substance with an affinity for one of them greater than that which existed between them, so it was argued that each disease was to be1 routed by certain articles which had the power to dethrone it by seizing upon the tissues which it held. It was to be an act of ejectment, as bodily as he putting out of doors of one man by a stronger; the stronger then to have possession. This view of the nature of disease, and the character of the processes by which it was to be removed from the frame, laid the foundation for the entire practice by poisons — the poison to be given that it might "substitute its own action" upon the tissues formerly held by the disease.

157. In the present advanced state of knowledge, we can but smile at the ancient conceit. For it is now known that disease is not a personality, nor a material, nor an individual substance; but that it is an abnormal condition of the tissues, brought about by various influences that have interfered with the free action of the vital power. And it is also plain that, in treatment, the first requisite is to relieve the frame from the continuance of these influences; and that the second, or remedial care is, to restore the affected tissues to their natural condition. (§25.) Yet, absurd as was the old-time opinion about the nature of disease, that opinion still has a strong bearing in the current systems of medical practice, even though it is not openly recognized. The use of poisons, introduced in conformity to that notion, still continues in all other than Physio-Medical schools. The idea that an agent acts differently in health from what it does in disease, (§125,) was another direct outgrowth of the same old dogma; and this idea is still clung to fondly by Allopathists and Homeopathists, and forms the one grand, staple argument by which they essay to maintain the use of poisons — though the doctrine on which this idea was based has been swept away as rubbish, and the idea never had any thing but that antiquated doctrine to rest upon. And the

entire practice of prescribing for disease by name, of searching for specifics against isolated maladies, of running after information as to what agents and what recipes will cure this or that malady, also grew out of that dogma. So general is this practice even yet, that it might almost be pronounced universal. It pervades every department of our science. It presents itself as the one grand object in all Allopathic, Homeopathic, and Eclectic works on Theory, on Practice, on Materia Medica. It causes the medical profession to furnish the scientific world with the anomaly of a body of men discarding the old absurdity about the bodily character of disease, and yet searching for specifics against disease in conformity to that discarded absurdity! In my opinion, this whole course is a perfect dead-weight upon all scientific advancement in medicine; and serves to keep practitioners bound down to a sort of mechanical stupor in following "authorities," and .in sinking into a routine practice which dwarfs the reasoning faculties and abases the judgment.

158. Far be it from me to attempt the depreciation of any really good work that has been done by any man, however much I may diner from him in some opinions. But I recognize no "authority" except God, as exhibited either in Revelation or in Nature. His laws alone are eternal and unchangeable; and therefore they alone are authority. The opinions of man are as chaff, unless they conform to those laws; and it matters not how long certain opinions have been held, if they are found in conflict with the laws of creation. Indeed, the very age of an error is its stronger condemnation; for in this period of increasing knowledge, he has no excuse who is so wedded to preconceived notions that he will not learn the unerring facts which prove his notions to be but empty bubbles. The study of, and prescription for, disease as a question of *specifics*, is one of those bubbles of which so many in the medical profession need abruptly to be shattered.

159. The study of disease by name, however, has become so deeply ingrafted upon the profession, that it is not probable that the use of names and of a classified nosology can practically be laid aside. But the investigation can be made simple and accurate by due care, when expressing ideas, to state the facts in words sufficiently definite to cover the full meaning. It is not the object of this volume to enter upon nosology, but to present the facts of therapeutics in a correct manner. Recurring, therefore, to the subject here in hand, let us proceed to a closer analysis of the failures growing out of the present mode of stating that a given agent is good for certain named maladies; and then inquire into what method should be adopted to give clearness and comprehensiveness to therapeutical descriptions.

160. If it be stated that leptandra is a valuable agent in typhoid fever, the information is too indefinite. The article is indeed of great service when the torpor of the liver is then connected with a wiry pulse, a hot skin, a dry and furred tongue, and torpor or early looseness of the bowels. In such cases, the liver needs, indeed must have, a relaxing influence such as few agents can furnish so well as leptandra. (§147, 152.) But if the pulse has become extremely feeble, capsicum should by all means be added; else the liver may be so relaxed by the leptandra that, lacking the power of ejection, it will reabsorb the viscid bile already in the hepatic tubes, and then the patient will feel worse instead of better. And if the liver have been sufficiently acted

on, and a free flow of bile secured, leptandra would be a very inappropriate agent for the colliquative diarrhea that may supervene. For the diarrhea that arose from a turgid and occluded liver, it was excellent; but for the diarrhea that is caused by ulceration and too great laxity of the alvine canal, (the liver being no longer at fault,) it is quite out of place. And even in the conditions for which it is appropriate, it must be combined with suitable measures for restoring the circulation toward the surface; otherwise the laxity it will cause in the hepatic fiber, will but leave this organ subject to the greater distension by accumulation of blood. It is but a deceiving statement, therefore, to remark upon the great utility of leptandra as a hepatic for typhus; for it is necessary to point out in what conditions it is of service, and to what ones it is inapplicable, ere the information can be of its full value.

161. Again, capsicum is pronounced to be a remedy of sovereign powers in all typhoid and typhus forms of disease; and it is indeed an agent of remarkable efficacy. To arrest the putrefactive tendency, to maintain the acting power of the whole organism under the depressing load of poison, to sustain the heart and capillaries and thereby support life at its very citadel, capsicum is without an equal. The real danger is likely to be, that the inexperienced physician will be troubled at the *frequency* of the pulse, (forgetting its lack of *force*,) and thence fail to give a sufficient quantity of this agent. (§57.) And yet, when the fur begins to leave the tongue, and this member to become glassy, and the bowels to feel extremely tender, capsicum is an agent that would prove entirely out of place. Unless the account of the article embraces a description of the conditions in which it is good, the mere assertion that it is valuable in typhoid fever would be a very unsatisfying statement, and under some circumstances a very incorrect one.

162. In the same manner, lobelia may be pronounced of great efficacy in typhoid cases; and if it is given freely by the bowel till vomiting of the degenerate bile is secured, and is accompanied by diffusive stimulants to the stomach, and afterward continued by the bowel in suitable quantities, it is indeed a most valuable remedy, and many typhoid cases might prove almost unmanageable without its liberal use in this way. And during the first day or two of typhoid, emesis may be secured by an abundant use of lobelia by the stomach, and even a state of quite profound relaxation be induced, with great benefit to the patient. But if the disease have been in progress for several days, and the mind and pulse have sunk under the combined influence of capillary congestion and accumulating putrescence, any material quantity of lobelia by the stomach will relax the heart at a time when it needs most vigorous sustaining, (§55;) and hence this mode of exhibiting it would be quite injudicious. And though it will give such powerful relief when administered by the bowel, (in company with stimulants to the stomach;) when the liver has been unlocked, and a fair perspiration established on the whole surface, and the kidneys are free, a soft pulse and a colliquative diarrhea would forbid the use of any lobelia at all. Unless these varying conditions are properly observed, and the remedy given or withheld accordingly, it will be a poor satisfaction to tell of the value of lobelia in typhoid fever.

163. Again, myrica bark (or indeed any other astringent) may at once be set down as quite unfit to use in a typhoid condition. It is true it stimulates, and stimulants are then good; but it also astringes, and

thereby closes the emunctories, and tins shuts up in the system the very morbific materials which are so gravely endangering the patient. (§56.) By its use, a typhoid patient may be kept with a dry skin, and with a wandering mind, and in a perfectly restless state of the body, almost indefinitely. And yet if colliquative diarrhea arise toward the latter stage of the malady, or if hemorrhage from the bowels suddenly arise upon the verge of convalescence, myrica is a valuable agent, a very valuable one; and may be used in enormous quantities by injection, while the danger lasts — especially if combined with liberal portions of capsicum.

164. Turn to any remedy, and turn to any form of disease, and the same method of study must be pursued. Most practitioners resort at once to astringents in dysentery, to arrest the discharges. Yet every case of true dysentery will show an occluded liver, an unsecreting skin, and a turgid and sensitive state of the bowels. The alvine discharges are the natural (though still only secondary, §152,) consequences of these conditions. Under such circumstances, astringents only excite the bowels the more, do not restore the functions of the liver and skin, and therefore aggravate the whole difficulty. Yet after suitable measures have opened the secreting organs, and restored he blood to the surface, a very passive state of the alvine canal may be benefitted by a moderate use of astringents. Even then, however, the value of any astringent is the exception — as seen in the utter failure of that mode of management to relieve most cases of chronic dysentery and diarrhea. In the early stages of a pleurisy, asclepias tuberosa with a moderate quantity of lobelia would constitute a most valuable prescription; for then the skin is dry, the pulse firm, and the serous tissues in a state of intense excitement. But if the malady had been unsuccessfully treated till serous effusion had taken place, and the skin had become cold and perhaps clammy, and the pulse small and feeble, such a prescription would be futile. The latter condition of prostration wants quite positive stimulation, (§57;) and two such relaxants as lobelia and asclepias could not fill the indications. In this manner irritated and “dry” conditions of the lungs may require lobelia as an expectorant; but if the respiratory passages were loaded with mucus, and were sinking under this oppression together with laxity of tissue that could not eject the “phlegm,” lobelia would be much out of place, while boneset or liriodendron, combined with serpentaria or even capsicum, would meet the expectorant requirements readily, though these in turn would be wholly unsuited to the conditions first named.

165. The experienced physician will at once appreciate the correctness of these illustrations; and will have many others suggested to his mind. The practical duties of every medical man will, sooner or later, lead him to an understanding of the same facts. But the advancement of science can not be content with a votary here and there attaining this knowledge after years of toil; but requires that each and every one shall be acquainted with such facts, and shall learn them at the very threshold of his professional career. It is poor satisfaction for the medical student to spend his time and money to qualify himself as a physician; and then to be told that the nature of his calling is such, that one who knows it thoroughly can not convey it to another, but that each man must grope onward in the dark and learn these practical facts as best he can. Too many, we know, never succeed in learning them at all; but, becoming weary of the uncertainty

they meet at every step, go shuffling on through all their days, and prescribe at the blindest random for the most complicated maladies. A large share of this blundering grows out of an inaccurate method of observing and recording the actions of remedies. When studied from the standpoint of their being specifics for certain maladies, experience in their use will be too indefinite to be reliable. An agent described after this fashion, will as often be applied at the wrong time as at the right one; then it will work no good results whatever, but may even favor the advance of the disease; and thus one body of men may be praising an article almost to the skies .for its curative powers in certain maladies, and another and an equally respectable body may be pronouncing it utterly worthless in any such cases. The entire history of Therapeutics is full of just such contradictions in relation to really excellent agents — the agents having been used at the appropriate time by one class, and at a very inappropriate time by the other.

166. In studying the properties, of an agent, therefore, its curative power, or specific action, on disease by name, must at once be dismissed from the mind. It must be set down that names of disease are used only for convenience, (and they are indeed very necessary;) but that no clear conception of the course of management can be obtained, till the exact *present condition* is thoroughly understood. Diagnosis is of the first importance for distinguishing the character of the case in hand; but unless that diagnosis be pushed far enough to determine the actual condition of the organs at the hour of examination, the physician is still left without much real knowledge of the especial duties required of him as he makes his daily visits. (§26.) In a corresponding manner must his therapeutical knowledge be made definite and accurate; to do which, each agent must be studied as to its exact influence upon the tissues — both as to the character, the force, and the duration of that influence. This is the only *specific* action that remedies have; but this action is indeed specific and reliable. (§127.) By making such close inquiry into the existing conditions of each case before him, the physician will learn precisely what kind and amount of influence his remedies will be called upon to exert; and then he can select his remedies with a nicety of discrimination that will adapt them to the case with the certainty of mathematical principles. This course requires diligence and reflection; but in no other way can the physician hope to make his art the embodiment of scientific accuracy.

167. *Classification.* — In now proceeding to classify remedial actions more definitely, the current nomenclature of the profession will compel me to employ the general functional terms in vogue, as Cathartics, Diuretics, Diaphoretics, etc. While this is done as a matter of convenience, the details connected with each class will be made sufficiently plain to harmonize with the requirements discussed in the present and the last general division.

CATHARTICS

168. The term *cathartic* is applied to those agents that aid in securing an expulsion of the contents of the bowels. They have commonly been divided into *laxatives*, which act mildly; *cathartics* proper, which act more fully; and *drastics*, (or hydrogogues,) which induce liquid stools. This division is arbitrary, and defines nothing as to the seat or manner of action of the agent; and the quantity given would sometimes vary the classification — the bark of fraxinus passing as a laxative in small doses, and a quite brisk cathartic in large ones.

169. *Nature and Requirements of Constipation.* — The harmonious performance of defecation is dependent upon quite a variety of functional combinations. Leaving out the important influence exerted thereon by proper mastication and digestion, the excretory act is directly dependent on: 1*st*. The secretion of good bile in proper quantity. 2*d*. The regular escape of that bile from the gall cyst into the duodenum. 3*d*. The lubrication of the alvine tube by due mucous secretion. 4*th*. The peristaltic movement of the muscular fibers of the bowels, 5*th*. A full portion of nerve sensibility throughout the alimentary canal. The failure of any one of these requisites, will aid in establishing costiveness; and if the failure be considerable, any one of them may lead to quite decided constipation. The fifth condition named, in one sense may be said to override all the others, as it constitutes a greater or less degree of paralysis: but either one of the others may exist by itself, and develop costiveness with a series of symptoms peculiar to itself; or any one, two, or more of them, may exist at the same time.

170. Of the first four locations of disturbance, each one may in turn depart from the standard of health in either one of the general ways already named. (§51.) The liver may be too tense to eliminate bile, or too flaccid; the gall-ducts may be closed by a spasmodic condition, or be too much relaxed to expel the contents of the gall cyst; the mucous membranes may be dry through too much sensitiveness, irritation, or from a lack of secreting power; the muscular fibers may be passive in their action, or irregularly contracted, (as in most colics.) The study of practical medicine makes us acquainted with the symptoms by which the deranged organ may be determined, and the particular manner of its derangement accurately distinguished.

171. It now becomes perfectly evident that to prescribe for these several conditions under the general name Costiveness, would be a most crude practice. (§160.) To advise measures that acted on the muscular fibers when they were not at all disturbed, the whole difficulty lying in the mucous membranes, might secure forced evacuations; but this course would merely unload the bowels for the time being, while the original trouble would remain as before, or perhaps even be aggravated. To employ articles that expended nearly their entire power in relaxing the gall-ducts, when the trouble consisted of a flaccid state of the intestinal muscles, would be to fail in the attempt to afford relief. To prescribe agents that hastened an increased secretion of bile, when the seat of costiveness lay in an occluded condition of the gall-ducts, would be to make the patient feel worse at every dose. And yet every one of these misapplications, is very common in the profession; and the correct regulation of this most important act, is too often dependent upon the physician resorting to some compound which accidentally contains an ingredient applicable to the

case — one suitable agent being associated with several articles which act upon organs that do not require any medical action whatever. The great mass of popular pills are thus compounded — and hence are seldom of any other use than to *force* (not *invite*) movements of the bowels, and to leave behind an increased costiveness because of the exhausted condition they induced in organs that should not have been stimulated. Even among careful physicians, it is almost universal to give agents that act upon the liver, when the biliousness did not result from an insufficient secretion of bile, but because that which was secreted had to be reabsorbed from the inability of the gall-ducts to cast it out.

172. *Proper Classification of Cathartics.* — The correct division, therefore, of this class of agents, must be, *1st*. According to the organs on which they act; and, *2d*. The character of their action. Capsicum, from its great power of stimulation, is of general importance in all forms of costiveness resulting from a semi-paralyzed condition — especially of the gall-ducts and intestinal fibers. Lobelia, from its general relaxing power, is equally valuable in constipation caused by a rigid or spasmodic condition of any of these structures. These two agents, though in no proper sense cathartics, are many times available for such purposes; and may often be used in combination with suitable cathartics, to great advantage. Leptandra and euonymus are relaxants to the liver, and facilitate the secretion of bile. Apocynum is a stimulant to the gall-ducts, not increasing the amount of bile, but hastening its discharge. Juglans is a stimulant to the gall-ducts, liver, and intestinal muscles. Rheum is a very mild stimulant to the intestinal muscles and the gall-ducts, but subsequently astringent to the mucous membranes. Oil of ricinus is a stimulant to the mucous membranes; senna is stimulant to the mucous membranes, and muscular fibers; and eupatorium perfoliatum is relaxant to the whole series of the alimentary and hepatic structures, while podophyllum is stimulating to the whole series.

173. In this manner every cathartic is to be classified, some acting on a single one of the organs concerned in defecation, and others acting on more than one of them. The place of action of a cathartic being known, and the character and time of its action being also known, the case for which it is appropriate at once becomes definite. Its correct application is then dependent solely upon the correct diagnosis of the case of costiveness under treatment. That diagnosis considers both the organ concerned, and the direction in which that organ has departed from the healthy standard. Thus, it is requisite to know that jaundice, and the great majority of cases usually called “bilious,” arise from an inability of the gall-ducts to discharge the bile, and not from an inability to secrete that fluid. That knowledge calls for agents which act upon the gall-ducts, and not for those which expend their power upon the liver. But as the gall-ducts may be either too much relaxed, or too rigid, a clear discrimination must be made in the selection of either a relaxant or a stimulant to these passages, as each particular case may require. In like manner must the condition of each of the other parts be studied; and the cathartics prescribed according as they are relaxing, or stimulating, or both together, upon the part at fault. When we consider the number and difference of the several organs in question; and remember that each one may be deranged in at least either of two directions; and take into account the varying degrees to which these several departures from

health may be commingled, it will be seen that not only are the pathological consequences of costiveness numerous, but that its treatment requires much careful discrimination, and that a *correct* exhibition of cathartics demands the exercise of very careful judgment. But when such analyses in diagnosis and in therapeutics have been made with due care, the selection and administration of the right agents become labors of demonstrable certainty.

174. *Uses of Cathartics*. — In general terms, articles of this class secure a dislodgment of solid and offending substances from the liver, gall-ducts, and alimentary canal. Those that especially act thus upon the liver, are spoken of as *hepatics*; those which more especially influence the gall-ducts, are *cholagogues*; while those which act upon the bowels directly are *evacuants*. When remedies obtain an increased secretion and discharge of bile, this fluid is usually sufficient to stimulate the bowels to direct defecation. But if the intestines have been deranged, hepatics may exert their influence upon the biliary apparatus, and yet the discharge of bile not be sufficient to move the whole intestinal tube. The faeces may then pass to the lower bowel, and lodge there; under which circumstances it is generally preferable to stimulate the rectum by an injection and thus procure a stool, than to follow the hepatic by stimulating evacuants. Very slowly relaxing hepatics and cholagogues, are more likely than the stimulating ones thus to leave the faeces in the lower bowels; on which account, when the case admits it, it is a good practice to combine such an hepatic with a small portion of capsicum.

175. In relieving the system of the above-named materials, cathartics favor a more ready equalization of the blood, and also of nervous action. For it is well known that obstructions in the liver and gall-ducts, strongly predispose to inward recessions and congestions; to headache, nervousness, febrile excitement, convulsions, and a great variety of less prominent disturbances. In all such cases, therefore, when any form of failure in the defecative process is present, a suitable cathartic is indicated. And the neglect of this class of agents, would inevitably protract such cases, or perhaps render all other medication comparatively ineffectual. A striking instance of this may be seen in some cases of fever, where the best directed sudorifics, emetics, baths, and injections, fail to maintain a suitable perspiration; and this function is not reestablished till the desired hepatic or cholagogue has removed the impediment to vital action which all the other measures combined would not reach. The indispensable necessity of appropriate cathartics as a first remedy in the treatment of all agues, is another illustration; and it is well known that an enormous use of stimulants, diaphoretics, and antiperiodics, proves of almost no effect in the congestive chill, till a full dose of an hepatic has begun its operation. The relief given to some forms of headache, and to piles by relieving the blood vessels from pressure, also illustrates the value of removing intestinal and biliary obstructions by cathartics. By a similar removal of pressure from the veins, as well as by freeing the hepatic apparatus, suitable cathartics promote absorption in some dropsies. Most skin diseases are also incurable unless hepatics are used in due quantities.

176. Evacuants that are stimulating to the muscular fibers of the bowels, are liable to cause griping; which may be obviated by combining the cathartic with some

diffusible stimulant, as zingiber or even capsicum. (Any discharges of acrid bile may cause griping, as it passes over irritated surfaces; and a little alkali is then a most appropriate addition.) In chronic cases, it is nearly always best to use slowly-acting cathartics, and to give them at bed-time; as they will expend their power while the system is not occupied with the operation of other medicines, and will secure evacuations the following morning — the early part of the day being the most natural for alvine movements. In acute cases, when evacuants have been used, and a mild hepatic and cholagogue action is to be sustained, the same course of one nightly dose is usually best; though if this should not prove sufficient, a morning dose may also be given. If the first dose does not operate, the second one should be given before the first has expended its whole strength, for then the second dose may be much less than the average quantity; but if the physician delay till all the power of the first dose have been spent, the second dose will need to be even larger than the first one. When the liver is to be acted upon, slow agents are preferable, and intervals of from eight to twelve or even more hours, should usually be allowed between the doses; as the natural function of this organ is performed slowly, and its exhaustion can readily be secured by too rapid doses of hepatics. The gall-ducts may be acted on at intervals of six to eight hours, if necessary; as they naturally evacuate the contents of the gall-cyst at about such intervals; yet *active* cholagogues should not be continued long at such intervals. In acute cases, and under circumstances of emergency, it may be of great consequence to evacuate all the passages from the liver onward very quickly. In such cases, more prompt cathartics are to be selected; and as these may expend their power in three or four hours, the dose may be repeated at such moderate intervals. It is better to give such quantities as to make not more than two doses necessary, if that can be sufficiently determined; for under any circumstances, the system does not call for the use of any such agents at short intervals further than till the emergency can be met. It is an injudicious use of cathartics to continue them from day to day every few hours, even in small quantities; and especially so, to add a cathartic to diffusives that require frequent repetition. (§186.) One *free* stool every twenty- four hours, is enough to secure under the continued use of any cathartic; but an emergency may require two, or even three, full stools, before the cystic and alvine accumulations will be removed.

177. *Abuse of Cathartics.* — Probably no. class of remedies has been so much abused, as cathartics. Their misuse and over-use are among the reprehensible failures of too many in the profession. Probably the majority of physicians are in the habit of giving larger quantities of physic than the frame ever requires; and a great many of them act upon the liver and bowels with such force and frequency as to suggest that they think the procurement of large and violent stools to be the wisest thing a physician can do. Instead of contenting themselves with imitating Nature, and of securing those moderate and steady evacuations that are physiological, they thrust cathartics upon the frame in excessive quantities; and pride themselves on inciting as many discharges in twenty-four hours as the system requires in a week. Such practice shows great ignorance of medical science; and is decidedly reprehensible under any and every circumstance, even of great emergency.

178. All excessive evacuations are weakening; and cathartics are decidedly exhaustive, when used immoderately. The excitement caused along the bowels (especially by stimulating agents) will aggravate some forms of disease, as all irritations of the brain and spine; and may provoke hydrocephalus and convulsions in infants, and sometimes hysterical convulsions and uterine and renal irritation in females. Violent purges are prostrating during the early stages of bilious fever, bilious remittents, erysipelas, scarlatina, diphtheria, puerperal fever, and all similar affections; and may readily depress these patients into a typhoid condition. Dryness and darkness of the tongue will soon follow the induction of three or four sudden stools, at such times; and I am thoroughly satisfied that many severe typhoid cases have been brought about by the too free use of exciting cathartics in the incipient stages of cases that otherwise would have had no typhoid condition. This is particularly the fact in the West and South-west — where typhoid tendencies are stronger, and the use of drastic cathartics greater, than at the East. Protracted irritation of the bowels will presently extend to the peritoneum; and by an over-use of cathartics of the exciting grade, peritoneal dropsy will be increased, and all forms of dropsy will be aggravated by the debility induced. This, I know, is contrary to received opinions and practice, which consider watery catharsis a potent measure for causing the serous effusions to be evacuated by the bowels. But this is merely one form of depletion; it was adopted in times past as but a local variation of abstracting blood — of which serum is such a large constituent; and was practiced by resorting to epsom salts and similar agents, which are known to take the serum directly from the venous circulation. Such a course is a war upon Nature; and Physio-Medicalism has no use for such a doctrine and practice, any more than it has for calomel and lancets.

179. The bad consequences that may follow the excessive use of cathartics, have led some to discard them altogether. This is an extreme in the other direction, and is wholly untenable. The agents selected being in themselves harmonious with Nature, (§139,) they are to be used at such times as the system requires them, but only in such quantities as are required. When the liver or bowels are deranged, they can not be restored by agents that act on other organs but not upon them; and even in the very cases above named, where hyper-catharsis will be so peculiarly inappropriate, to neglect a full and fair action upon the defecative function, would be highly injurious to the patient. The rule for the exhibition of cathartics is the very simple one of employing the proper agent in such quantities as will obtain an action harmonious with the natural performance of the function. Thus used, this class of agents, when selected according to the foregoing considerations in this general division, are among the most valuable and indispensable remedies.

DIAPHORETICS

180. The term *diaphoretic* is commonly applied to those agents which secure an increased perspiration that usually is not great nor visible; while those which induce a very abundant and visible perspiration are denominated *sudorifics*. Many sudorifics, as antimonials, induce a cold and unnatural perspiration; while a visible perspiration may be induced by a sufficient use of a sanative diaphoretic. This latter term, therefore, is more in keeping with a physiological nomenclature; as the only perspiration that harmonizes with Physiology is both mild and warm — never clammy, and never inducing any greater coolness than is compatible with the natural lessening of surface heat by the perspiratory process.

181. The majority of diaphoretics act directly upon the *sweat glands*, and that chiefly by relaxation. They thus are followed by an increased evacuation of the watery materials and saline constituents of perspiration; and by their aid great quantities of offensive and irritating materials are cast out of the system. A few of those which act on the sweat glands, are stimulating; among which may be named polygonum and zingiber. All this class of agents act more or less upon the capillaries, and induce a greater outward flow of blood; and while their principal action is on the sudoriferous glands, it is not probable that the Materia Medica furnishes a single diaphoretic article whose action does not at the same time embrace the circulation and nervous system to a visible and important extent. (§131.) A goodly number of these articles act so largely upon the circulation, that the sudoriferous flow is but a sequence to the increased hurry of the blood. Of such a character are serpentaria and capsicum — the former seeking first the capillaries and then advancing inward to the heart, while the latter commences at the heart and gradually advances to the surface. The diaphoretics of this class are always stimulating. The distinction in their use is of much importance; for the first class is to be selected when the skin is both warm and dry, and the action of the heart excited; while the latter class is appropriate when the skin is cold and harsh, and the heart's action deficient in strength. Asclepias tuberosa would be quite out of place for a cold surface and a sluggish pulse, though capsicum would meet the requirements of such a case; and, on the other hand, capsicum would be utterly unsuited to a hot and dry skin with a large bounding pulse, while asclepias would then be one of the most useful remedies. Thus it is not sufficient merely to say that an agent is a diaphoretic, as that naked description would not cover any indication of the times for employing it or withholding it; but careful discrimination needs to be made as to its *mode* of securing diaphoresis, as then only can we understand its true reference to pathological conditions.

182. Besides capillaries and sudoriferous glands, the skin contains a large number of sebaceous or oil glands. These give to the surface its natural softness and pliancy. They sometimes become quite deficient in action; and then the skin becomes harsh and chaffy, and no amount of watery sudoresis can restore its oily elasticity. As instances of this failure may be named scarlatina among acute affections, and salt rheum among chronic maladies. A very small class of diaphoretics expend their main influence upon these sebaceous glands. The seeds of the arctium lappa are among the best diffusives of this class; and the roots of arctium and bark of celastrus scandens among the permanents.

Heretofore, this therapeutical distinction has been entirely overlooked, and I have no where met with any allusion to this class of actions; but a number of years of close observation have convinced me that several agents do act largely and peculiarly on this set of glands. I wish it were in my power to give a more extended list of sebaceous diaphoretics; but trust that the attention of the profession will hereby be called to this class, and closer observations be made upon it.

183. *Uses of Diaphoretics*. — As the most immense masses are made up of small particles in aggregation, so the minute portion of materials transuded by each one of the seven million pores which open upon the surface, is part of a total that is truly great. Hence a closure, or a partial closure, of these exhalents, quickly causes a vast load of unwholesome material to accumulate within the frame. This material is far more poisonous than is generally supposed; through the medium of the extensive network of nerves upon the surface, its impressions are quickly conveyed to other organs; and hence the retention of perspiration makes itself felt more speedily and more extensively than almost any other secretion. A complete suppression of this function may cause death in a few hours; from which fact the vital importance of its regular continuance may be inferred. In addition to this, all acute disturbances of the skin also disturb the circulation, and interrupt the equal flow of blood more or less; and the evil impressions made upon the nerve peripheries can not but make a strong disturbance throughout the nervous system. Through such an association of facts it is, that obstructions to the perspiration are among the most fruitful sources of disease, especially in acute but also in chronic forms. To maintain a steady action upon the surface, therefore, is one of the leading requisites to good health; and when that action has been in any degree repressed, its early and free restoration is imperative. So powerful, indeed, is diaphoresis in relieving acute maladies, and especially those with a febrile accompaniment, that sweating remedies have always been in the highest repute among the people. From the very earliest periods of medical history, to promote perspiration has been a most popular resort in families under at least one-half of the acute attacks which are suffered; and the great relief afforded thereby, and the number of lives that this measure has unquestionably saved when all measures without it would have failed, attest its wonderful efficacy. It is one of the most powerful instruments of cure that the physician can wield; and its purely physiological influence, and the wide variety of agencies provided for its induction, account for the remarkable success with which Physio-Medicalists have employed it.

184. Among the difficulties to which diaphoretics are especially adapted, are febrile excitement of all grades and forms. From the intense synocha to the low typhus, all fever and heat of the surface call for this class of agents. When the pulse is firm and the capillary circulation free, those relaxants that act on the sudoriferous glands are indicated. When the pulse is enfeebled, (a very frequent and small pulse denoting one form of extreme feebleness,) the diaphoretics that sustain the circulatory vessels are most demanded. Between the two extremes of intense vital effort on the one hand, and prostrated effort on the other, febrile cases present every imaginable grade of variation; and the relaxing and stimulating will be required in correspondingly various proportions. In a

true synocha, (perhaps never seen in the great valleys of the Ohio and Mississippi, though common in the middle and New England States,) such pure relaxants as asclepias or corollorrhiza, with lobelia, will fulfill most of the requirements, so far as the skin is concerned. In rheumatic fever, measles, foreign viri, and similar conditions, the case will require some proportion of zingiber, polygonum, or other mild stimulant, added to the relaxants; while in severe typhus, typhoid pneumonia, and the recession of any exanthem, such stimulants as xanthoxylum and capsicum must be added with freedom. If the diversities of vital strength in febrile cases is great, the scale covered by the list of diaphoretics is equally great; and a beneficent Creator has assuredly provided a most liberal variety of this class of remedies to meet the numerous conditions for which they are needed.

185. The relief of fever, however, is but a single benefit obtained from diaphoretics. Promoting the action of the surface by a combination of relaxing and stimulating agents, is imperative in all “colds” — or in other words, in all congestions, whether trifling or extensive, whether merely in the capillaries of the surface or upon the lungs, peritoneum, liver, spleen, kidneys, or other organ. The more purely relaxing diaphoretics, combined with very light and diffusive stimulants, are equally powerful and indispensable in all internal inflammations, whether of the brain meninges, lungs, serous tissues, or other structure. By enlarging the diameter of the superficial capillaries, and sustaining a full flow of blood, the circulation must of necessity be equalized and all internal engorgements be relieved. By the same influence, many excessive internal discharges are relieved; and stimulating diaphoretics, with a modicum of relaxants, are the most powerful and reliable of all measures for checking any form of internal hemorrhage — whether from the lungs, uterus, or bowels. The more relaxing agents of this class are equally necessary in acute dysentery, to divert the blood from the bowels; and combinations to suit the case are of the first consequence in diabetes and nearly all dropsies. The maintenance of free (but not excessive) cutaneous action, greatly promotes absorption in dropsies, chronic abscesses, pleuritic and peritoneal effusions, etc. In such cases, the internal diaphoretics generally need to be aided by stimulating baths and friction. The nervous system, also, is often much relieved by diaphoretics — mostly, it is to be supposed, by the recrementitious material being eliminated so as no longer to irritate the nervous extremities.

186. The action of all diaphoretics is greatly influenced by surrounding circumstances. Warmth and moisture are needed to aid them; and hence these agents should always be given as warm infusions. It is nearly futile to employ them in any other form; and to prescribe diaphoretics as powders or pills, unaccompanied by abundance of warm fluids, will be to forsake all the known principles of Physiology and Therapeutics. (§140.) A warm atmosphere, and especially in company with tepid or warm baths, greatly expedites their action; so do warm broths and gruels; and the quiet relaxation of sleep always favors perspiration. A cold atmosphere, prescription by cold infusion or in some concentrated form, and cold drinks between doses, retard their action; and many agents of this class will, under such circumstances, expend their influence through the kidneys, and some of them through the bowels or lungs. Stimulating cathartics, by inviting an inward flow of blood, may greatly retard

diaphoresis; though the action of sweating medicine will be much freer after a proper physic has operated. (§175.) And in all cases, the greater freedom that other suitable remedies give to other organs, the more readily and perfectly will diaphoretics manifest themselves; hence in all the above cases, these agents are useful so far as they do their own important share of the required work, but must be associated with such other measures as each particular case may require.

187. *Abuse of Diaphoretics*. — These agents may be misused by giving them when the skin is already too free in its action, or by continuing them in such quantities as to maintain excessive perspiration for many hours. They are sometimes abused in this way. Such profuse surface transudation leads to exhaustion, with a sense of oppressed breathing, nervousness, and a tremulous hurry of the pulse. It is especially necessary to be watchful of this in bilious remittent, typhoid, and hectic fever; as in some of these patients exhaustive perspiration may be maintained for the purpose of "breaking the fever," whereas the provocative obstructions existed altogether in central organs. Where the use of any relaxing diaphoretic is followed by a cold perspiration, its continued use would be very unadvisable.

DIURETICS

188. *Diuretics* are agents which so act upon the kidneys as to favor the elimination of increased quantities of urine. As urine is made up of solids dissolved in more or less fluid, diuretics may be classified according as they influence one or the other of these constituents — some favoring an increased flow of water, with little impression on the solids; others being followed by a larger proportion of solids, with but a small perceptible increase of the fluids; and still others influencing the excretion of both these constituents.

189. While the kidneys have their own independent action, they are peculiarly influenced by changing conditions of the body. Thus, as the exhalations of the skin diminish, the watery discharges by the kidneys increase; and any influence, whether of temperature or medicine or disease, that diminishes the functions of the surface, will soon be followed by an augmented renal flow. The state of the nervous system, also, will exert a marked influence upon these organs; and large discharges of limpid urine will usually follow any sudden nervous excitement — as fright or hysteria; while anger or shock or other nervous depression, will be accompanied, or soon be followed, by a notable diminution of this secretion. The state of the female generative organs correspondingly affects the state of the kidneys; and it is an anomaly to find irritation or depression in the former, without observing a similar condition in the latter. A turgid state of the liver and occlusion of the gall-ducts, throw an increased burden upon the renal apparatus; and are sooner or later followed by a diminution in the amount of water and an increase of solids in the urine.

190. The above current facts indicate the additional fact that agents which can not be said to act directly upon the kidneys at all, may yet have a decided influence over their secretion, at times. Thus, whatever will improve the action of a dry surface, will diminish the sum of the urine — as is peculiarly observed under the action of a warm atmosphere, relaxing diaphoretic infusions, light friction, tepid sponge baths, and vapor baths. These various measures are, therefore, resorted to with the greatest efficacy in all cases where the renal flow is so excessive as to be exhaustive; and instead of then, as is generally done, seeking diuretics with the intention of giving tone to the kidneys, a far more physiological course would be, first and principally to restore the action of the surface, and thereby allow the kidneys rest from their double labor. On the other hand, whatever lessens cutaneous exhalation is followed by an increase of urine — as a cool atmosphere, brisk friction when the skin is moist, and cool baths or baths with astringent remedies. Probably it is in part from the same kind of influence, that nearly all the lighter astringents — as uva ursi, hamamelis, rubus, populus — are followed by a moderate advance of micturation, when they are used internally. Prompt relaxing nervines, when used during nervous agitation, are soon followed by a flow of (usually) limpid urine; diffusive stimulants, as zingiber, are accompanied by the same results when nervous agitation is associated with depression; and the general arterial stimulant, capsicum, secures a renal discharge in cases where the nervous depression is great and the action of the kidneys almost suspended. Where derangement of the kidneys is largely dependent upon the hepatic apparatus, a proper regulation of the latter will be the first, and many times the only

step required for their restoration. Some tonics, as liriodendron, hydrastis, and helonias, increase urination by imparting general tone to all the system — the kidneys being thus strengthened indirectly.

191. Thus it will be seen that diuretics, as such, are not the only means for benefitting the renal organs; but that a large variety of remedies and measures which can not be classed under this head, are of power and benefit in the management of these structures. Their sympathies with the nervous system are extensive and peculiar; and they can in a corresponding degree be influenced by agents that reach them only through sympathetic action. So important are these facts, that no discussion of diuretics would be complete without their mention; and no physician need hope to treat derangements of the kidneys skillfully, or to employ the real diuretics effectively, till he has first sought out and duly regulated the other functional derangements which may be exerting so great an impression on these organs.

192. My experience and observations upon the use of diuretics, have led me to the belief that different agents exercise an influence not merely upon the amount of solid or fluid excretion ; but that of those which secure an increase of the solids, some do so chiefly wit h one set of these constituents, and some with another set. Thus, when urea is chiefly retained, or when the urates arc inclined to become decomposed and leave behind the insoluble uric acid to form a calculus, such agents as eupatorium purpureum and aralia hispida seem to secure a fuller flow of urea, to render the urates less liable to decomposition, and to forestall the tendency to uric (or lithic) acid gravel. When uric acid is most deficient in the urine, juniperus and diosma seem most effective in securing its increase. When there is a tendency to a decomposition of the phosphates, and a formation of phosphatic or oxalic deposits, such articles as arctium seeds, uva ursi, epigea, and parthenium integrifolium, seem to be altogether most appropriate. These several variations are known to occur in the urine, both in acute maladies and in chronic troubles; and each one gives its own peculiar character to the urine, and symptoms about the renal apparatus, and general symptoms on account of its blood poisoning. Pathology makes us acquainted with these facts and symptoms; and now it remains to be seen if therapeutics can classify its diuretics so as to meet the changing pathological conditions. I feel well convinced that the above suggestions, so far as they go, are correct. My observations in this direction have extended from the earlier years of my practice; and I have found as much disappointment in giving eupatorium for phosphatic gravel, or juniper for retentions of urea, as would be found in administering leptandra for jaundice or castor oil for insufficient bile. (§172.) At present, however, I can but indicate briefly the direction in which my experience has led me to a classification; and would respectfully invite the profession to test these observations closely, that they may be laid aside if wrong, but extended and perfected if correct.

193. As already intimated, the mass of agents that influence the kidneys at all, lead to some general increase in the watery portion of the urine. This is the case even with those remedies which exert their principal power in securing a greater diminution of the solids. There are many times, however, when the proportion of solids is correct enough; and all that is required is an increase of water to dissolve them so that they can be eliminated from

the blood, or that they may not be deposited in the bladder. Under all such circumstances, the first resort must be to that general management indicated in section 190, for increasing the watery flow. Yet this alone may prove too slow, as in febrile cases; or it may be insufficient. Then we can resort to those articles which manifest a peculiar action in augmenting the water of the urine, such as spearmint, nepeta, galium, parsley, etc.

194. From what has already been said, it will be inferred that agents may influence the kidneys strongly through impressions upon the nervous system, without being absorbed at all. This is unquestionably the case; and the extensive manner in which these organs sympathize with all parts of the body, and the very marked regulative control which the spinal cord has over their action, show that they can be most effectively reached through impressions made upon the nerves. Some diuretics, however, are absorbed; but it is my opinion that only the smaller number act thus, and that these are not always the best in their action. The turpentines, nitric ether, and saline diuretics of Allopathy, are unquestionably absorbed before they make much impression upon the kidneys; but all these act in a manner not at all congenial to the sanative principles of Physio-Medicalism. Of truly harmless agents that are more or less absorbed, may be mentioned parsley roots, buchu, various mints, and most of the demulcents — especially althea officinalis, flaxseed, and ulmus. 1

195. *Uses of Diuretics*. — In general terms, we speak of these articles as useful when the kidneys are not sufficiently active; but there are a great many occasions on which the practitioner may not sufficiently recognize their need, when they are nevertheless called for. In the majority of febrile cases, the urine is noticed to be scanty; but its restoration is usually left to general measures. My own experience warrants the belief that nearly every fever, and especially all typhus and typhoid cases, require some specific influence on the kidneys. The retention of any of the elements of urine is a source of much detriment to the entire frame; and the nervous centers are peculiarly liable to suffer from the depressing influence of such retentions. This is, in my judgment, often an occasion of aggravating and prolonging typhoid attacks; and also many cases of inflammatory rheumatism. In nearly all uterine and ovarian affections, whether acute or chronic, it is very necessary to watch the condition of the kidneys than is supposed. Poisoning of the blood by retained urea, is known to lay a foundation for the provocation to convulsions on slight occasions; and many times hysterical, epileptiform, and other spasmodic tendencies, require due attention to the kidneys.

196. The above are the more commonly neglected uses of diuretics, and are mentioned first on that account. A larger use of them is made in all those achings of the back and general nervous uneasiness which so often proceed directly from deficient renal action; in scalding of urine and aching through the bladder; in prostatic affections of a chronic character; and in gonorrheal poisoning. In all forms of calculus, of sandy or mucous sediment in the urine, and in dropsy, these agents are resorted to. Like any other articles that act particularly on one organ, their employment constitutes only a part of the treatment in any case; but that part is often of very decided importance. Like other

structures, the kidneys may require relaxation, or stimulation, or varying combinations of both these influences, at different times. I have particularly found that typhoid cases require some stimulation of the kidneys; and that purely relaxing diuretics, of any kind whatever, do not always serve the best purposes. It has already been intimated that many of the milder astringents exert a moderate impression upon the kidneys. (§190.) These are chiefly available in mucous discharges, albuminuria, and irritability of the bladder and urethra. By taking together these three kinds of action on tissues, and the influence that different articles exert over the character of the secretions as hinted at in section 192, it will be seen that diuretics are, a somewhat peculiar class of agents. This has always been realized by practitioners of all schools; and the precise times and places for the employment of any particular article of this class, have been questions of much vexation. The facts that have been pointed out in these few sections will, I hope, render their applicability more definite and reliable.

197. *Abuse of Diuretics*. — This class of agents is often misused in a most ridiculous manner, and to the great detriment of the system. There has been too much reliance placed upon turpentine, iodides, and spirits of niter; for although these are followed by an increase of urine, their action is of that provocative character which soon wearies the organs; and then any increase of discharge is obtained as the result of a goading process which exhausts, while the quantity of solids then eliminated is notoriously diminished below the normal standard. So well are these facts known, and so frequently also do these two agents induce a state of exhaustion which may never be rallied from, that the true Physio-Medicalist must at once discard them from his list of agents. In the same category must be placed acetate of potassa, nitrate of potassa, (saltpeter,) and the whole catalogue of neutral diuretic salts. These quickly secure an increase of urine, and a lessening of renal excitement; but they do it by provoking an elimination of blood-serum through the kidneys, precisely as epsom salts do from the bowels. (§178.) It is but another form of depletion; and the system at large soon feels the exhaustive consequences of any such diuretics. They lead to a peculiar sense of exhaustion throughout the nervous system; greatly check the function of the skin; are followed by slow but certain emaciation; and not unfrequently become direct causes of albuminuria, Bright's disease, and other grave and incurable maladies of the kidneys.

198. But diuretics which are in themselves excellent are many times pushed so inordinately as entirely to overwork the kidneys. This is particularly liable to be done in dropsical cases and in the treatment of gravel. The common doctrine in the treatment of dropsy is in this wise: Dropsy is an effusion of serum; certain diuretics will force a discharge of serum from the kidneys; by thus acting on the kidneys, the dropsical effusion of serum will first be checked and then reabsorbed. This is but another form of applying the Allopathic proposition to bleed for the arrest of hemorrhage. In both cases it is a depletion of the blood, and weakens the grand pabulum of life; and the folly and inefficiency of this injurious action on the kidneys, are equaled only by the corresponding folly of provoking serous discharges from the bowels in dropsy. Such practices have no foundation in natural laws, and therefore are contrary to Physio-Medicalism: and though our

sanative diuretics will not induce evacuations of serum, any attempt to use them on the above wild speculation about the treatment of dropsy, will still prove an exhaustive failure. The practice is altogether too common, without its origin or its consequences being sufficiently understood. A better understanding of the nature of dropsy would show that diuretics could never be of use, even in cases where the kidneys are at fault, only so far as they maintained a normal flow of urine; and that if pushed beyond that, they would weaken the frame at a time when the maintenance of full tone is of vital consequence, and diminish action at the surface in a malady where free outward circulation and cutaneous function are of the greatest possible importance.

199. In the same manner, excessive elimination of water by the kidneys can have no manner of influence in dissolving calculi, which are as insoluble in water as would be so much granite. A due proportion of water is needed; but it is much more important to secure an elimination of the proper solids. (§192.) In general, the character of renal solids can be influenced more largely by the articles of food than by any diuretics whatever; but in that part of the service which diuretics can effect, it shows an utter misunderstanding of the physiology of the kidneys, to push the most suitable articles of this class to such an extent as to tax the normal action of these organs. As to dissolving stone in the kidneys or bladder by chemical solvents given to pass through the kidneys, the attempt will prove as unsuccessful as it is unscientific. And in all febrile cases, where the function of the surface needs especial and large attention, the use of diuretics must be pushed only far enough to sustain a natural amount of urination; as otherwise a too prominent impression on the kidneys would greatly retard the establishment of perspiration. And in such cases, the practitioner need not hope to see the full effect of any rational use of diuretics, till other agencies have at least partially restored the functions of the skin, liver, and bowels. In the anxiety to establish a thorough renal flow, these parts are sometimes overlooked in febrile cases, and the diuretics pushed in too large quantities.

ALTERATIVES

200. The term *Alterative* is applied to agents which are found capable of *altering* the condition of the blood — that is, of restoring this fluid to a more healthy standard by removing from it impure accumulations. As all such impurities arise from a defective action of one or more of the secretory organs, which fail to carry out their due proportion of waste material; and as the purification of the blood, in this particular sense, depends upon reestablishing and steadily maintaining the function of the faulty organs; it is naturally inferred that all agents which promote any secretion, may prove alteratives. And such is, in a certain measure, the case; yet a secernant which expends its whole action in a few hours, barely does more than disgorge the organ of what has accumulated in or near it; while a purification of the entire blood by means of a better general secretion, requires the maintenance of that mild secernant influence which can be sustained for a long time. Hence the term alterative is properly applied to agents which act slowly, moderately, and steadily, in bettering the condition of the circulating fluid.

201. In the days when pathology was a blind speculation, blood-impurities were supposed to be certain intangible myths, which required personal ejectment by something absorbed directly into the circulation.. From this came the habit of classing as an alterative any agent which seemed to make the fluids better in some unknown manner. The whole class was supposed to act mysteriously, and to be quite beyond comprehension or control. This entire idea is well illustrated by the character attached to the mercurials — which Allopathy has long classed among her very best alteratives, "but of whose action, or *methodus medendi,* we know nothing," said her leading writers. Fortunately, those days of blindness are gone; and the manner and means for securing a purer condition of the blood, are now as definite as any other therapeutical action.

202. *Sources of Impurity*. — In order to a rational understanding of the uses of alteratives, it requires that a few moments be spent in considering the sources of the blood impurities. As already intimated, these are found mainly in the failure of the secernant organs. The number of these, and the injurious effects wrought by the retention of each one, indicate what varied and profound consequences may be embraced under these several excretory failures. The liver, the kidneys, and the skin, embrace the leading channels for depurating the body of worn-out and waste materials. Should either one of these cease, even but in part, to perform its share in this general class of duties, the blood at once becomes contaminated with the offensive elements. A small quantity of these may at first cause no particular inconvenience ; but as the torpor continues the accumulation goes on, till presently the whole mass of blood is laden with these unwholesome substances. Circulating throughout the body, they contaminate all the structures, more or less; till, sooner or later, every structure feels the weight of the offensive accumulations. Where two or more of these organs partially fail at the same time, the general effects of the impurities are noticed so much the more rapidly and extensively; and no one can thus obstruct the general process of purification, without almost surely (through the well-known law of correlation of function) so throwing the burden of its duties upon some other organ, as to

overburden it and thereby add a second to the list of secernant failures.

203. Another source of impunity, but one not always included in this enumeration, is to be found in a failure at some portion of the assimilative process. This has already been sufficiently considered in the sections upon Food, (39 — 41,) and need not be repeated here.

204. Each one of these several organs may fail either from its condition of too great laxity, too great chronic rigidity, or insufficient acting power. (§51.) And each particular retention will induce, its own particular class of consequences — that of the liver being different from that of the kidneys, that of the kidneys from the skin, etc. And even under different circumstances, and in different constitutions, these effects are subject to considerable diversity — retention of bile giving indigestion and sluggishness in one case, and various cutaneous eruptions in another; retention of the urinary elements now predisposing to typhoid prostration, and again laying a basis for puerperal convulsions, etc. The pathologist studies these in their multiform and complicated aspects. To the therapeutist, the practical question is then at once answered, that his alteratives must be selected according as they act upon the organs affected, and overcome the present abnormal condition of that organ. Whatever have been the remote or proximate influences which induced that condition, his specific duty lies in regulating the condition itself, (§166;) and no rational selection of remedies can be made, except as the cases of impurities are thus studied through the state of the various secernant organs.

205. *Classification and Uses of Alteratives.* — From the above considerations it will at once be seen that no definite idea is conveyed by merely pronouncing an agent to be an alterative; but that it is necessary to designate the particular organ on which it acts, and the manner of its action. Some expend their principal power on the liver, others upon the skin, some upon the bowels, etc. And in each instance, it requires to be stated that the article is relaxant or stimulant to the organ it affects, as the case may be; and if it at the same time exerts a general tonic impression, that fact is of significance. By being thus careful in obtaining a clear understanding of the precise power of each article in question, the times and places of its applicability will become clearly understood; and it can then be prescribed with definiteness and precision. Thus, when a scrofulous case is connected with the torpor of the liver and great laxity of the general system, it will not be sufficient to direct such relaxant promoters of sudoresis and urination as arctium and celastrus; but such hepatics and tonics as menispermum and gentiana become necessary. When cutaneous eruptions arise almost exclusively from the liver, a cure can not be expected from rumex or smilax alone, however effectively they act upon the skin; but such hepatics as apocynum, leptandra, or euonymus, will be required. In like manner may every case be analyzed; and when traced to the actual condition of the organ or organs concerned, the proper class of alteratives to meet it will become apparent.

206. In the use of this class of agents, it is probably a too common practice to place the chief reliance upon alteratives of the relaxing kind. Except, perhaps, in the solitary class of syphilitic affections, the great tendency is to employ almost exclusively the relaxants. This practice will answer very well under some circumstances; but the majority of cases

unquestionably demand some portion of stimulants, or stimulating tonics. The very presence of any animal waste in the blood, suggests a depressing poison; and in by far the greater number of instances it will be found that the impurity of the blood is connected with more or less general languor of action. Relaxing alteratives may then act upon the proper organs; but while they make a way of escape for the morbific material, there may not be in the organ enough vigor to eject that material, till tone is given to the whole frame (as well as the part concerned) by a modicum of capsicum or a due portion of hydrastis, gentiana, or other tonic. In most instances, the proportion of stimulant or tonic needs to be quite limited; in other cases, a larger quantity may be required; but in all cases, the physician must be guarded in his prescription of alteratives, lest he make them too entirely relaxing for the good of the system. In a few instances, even astringents with stimulants seem absolutely necessary to secure enough of the general bracing of all the tissues to enable them to act with sufficient thoroughness in removing impurities and sustaining the tone of the system. An instance of this kind is met in those scrofulous cases, and also in goiter and in some cases of secondary syphilis, where the extreme flaccidness of the lymphatic system can not be met by any thing less than some astringing stimulant like the bark of myrica. And in cases of scarlatina, after the acute symptoms have passed by, the peculiar virus of the malady may saturate the system and produce the most grave sequelae, unless such articles as myrica and capsicum are used liberally to force out the poison, while asclepias or polemonium maintains an open surface. The same is the case with a large number of animal poisons — the pores of the skin being the grand channel for their ejection, but a full internal use of astringents with stimulants being required to effect their dislodgment among the tissues. The ordinary Composition Powder is one of the most efficient preparations under all such circumstances — acting, in such a condition of the tissues, a part that is properly to be called an alterative tonic.

EMETICS

207. *Emetics* have been used in the practice of medicine from the earliest periods of its history, and by all schools of physicians. Their employment no doubt arose in direct imitation of Nature; for the stomach always inclines to eject any substances that make an unfavorable impression upon it. As this organ is the great center of supply, the entire frame is more or less tinged by whatever enters it; and when it becomes cloyed by indigestible materials, and especially when the partial decay of food (§39) results in an unwholesome mass, or when offensive articles have been accidentally swallowed, the susceptibilities of the system are aroused against the danger, and the stomach is made use of to seek their expulsion. If this can be accomplished, a great sense of relief is at once experienced. If it can not be accomplished by the unaided powers of the system, it is the duty of art to aid Nature with such measures as will favor the act of emesis. For if the unwholesome substances are not dislodged, they will at least depress a portion of the frame through nervous sympathy, and are likely to be more or less absorbed and thus to contaminate the whole system; and a very large number in the catalogue of diseases, have their germs planted and sprouted in derangements of the stomach. Promptly and thoroughly to aid the system in casting out such impurities by emesis, is therefore one most powerful method of entirely cutting short a number of affections at their very outset; many maladies are greatly shortened in their course, if not wholly checked, by such a measure; while some affections are utterly incurable without the aid of this most powerful treatment.

208. *Physiology of Emesis*. — The immediate physiological cause of vomiting, is a sudden contraction of the diaphragm and the abdominal muscles upon the stomach — the stomach itself contracting at the same time in its own muscular structure, as well as being greatly compressed by the action of the muscles above and around it. By a sudden and strong action of this kind being brought to bear in and upon all sides of this organ, its contents must of necessity be expelled; and the situation of the muscular fibers of the diaphragm and cardiac orifice is such, that these parts alone remain uncontracted during the general shortening of the fibers; therefore the upward channel of escape is the only one left open. This freedom of the cardiac orifice is a necessity during inspiration; and this same pre-arranged freedom becomes the means of escape, and therefore of safety, in the many cases that call for the induction of emesis. (In the horse and a few other animals, a cartilaginous valve within the cardiac orifice prevents vomiting.)

209. The compression of the stomach must of course be considerable. No slight lessening of its volume will expel its contents. If the materials present are of considerable bulk, their expulsion will begin at a limited state of contraction; but when the organ has been so nearly emptied that only a few drachms of any thing remain in it, this debris can not be cast out except by a compression of the organ to an extreme degree. In most cases, vomiting probably still leaves a portion of solid or fluid contents in the stomach; but the act can undoubtedly be carried to the almost complete obliteration (for the time) of any gastric cavity, or in other words to the expulsion of the last ounce of whatever may be in the organ; and in numerous instances it is important to remember that induced emesis *must* be carried to this extreme point of ejection, ere the offending

substances will be dislodged and the source of disease be removed.

210. The act of vomiting, therefore, is the very opposite of a relaxed condition. This is shown not only by the condition of the structures in the act itself, but by the facts that, *first*, no vomiting takes place during the full operation of any strong relaxing influence; and *second*, that vomiting ensues when the relaxing impression passes off and prompt reaction follows. Thus, when any mechanical violence has produced concussion, and the patient lies prostrate and pale, no effort at vomiting takes place so long as the state of extreme depression lasts. The patient is then profoundly relaxed; but when this relaxation begins to pass away and the tissues to rally from the state of depression, vomiting is likely to ensue. The longer the prostration lasts, the longer will all efforts at vomiting be delayed: the more sudden and vigorous the reaction, and its consequent contraction, the more sure and forcible will be the emesis. We see in this familiar instance that it is the *sudden* transition from one extreme to the other, that determines the vomiting; for if the relaxation pass off very gradually, and the organism recover its tone slowly, the contraction will not be likely to prove sufficient to cause any upward evacuation of the stomach. Again, if a person is slowly brought under the full relaxing influence of lobelia, he will not vomit while that influence continues. The constitutional effect of this agent is in fact *utterly opposed to emesis*; and so long as its impressions are profound, no ejections from the stomach will take place. But if sudden relaxation have been induced by it, and then the structures return suddenly to a state of contraction, this contraction will be inclined to pass as far beyond the true medium in the one direction, as the lobelia had carried it from that medium in the other direction; and then vomiting will take place quickly and effectively. But if the relaxation pass off gradually, and the contractile function return slowly, it is not probable that any vomiting will take place.

211. In the above case of prostration from the accident, reaction can be hastened by stimulants, and especially by stimulants with astringents. These of necessity arouse and consolidate the overwhelmed and relaxed fibers; and as they do so, the tissues return to their contractile state so suddenly as to carry them beyond their normal standard for the moment, and this quick momentum in oscillation makes vomiting certain. Were no stimulants used, (by stimulants in my writings, I never mean any form of alcoholic liquor, §52,) few cases of concussion would react with sufficient rapidity to cause much vomiting; but in proportion as stimulation is liberal and the response to it vigorous, will the reaction be speedy and the vomiting forcible — though perhaps but transient. In like manner, if stimulants and astringents are used freely while a person is profoundly relaxed with lobelia, contraction will be hastened and thorough vomiting induced. And in cases where a person is prostrated by carbonic acid gas, or by a large dose of a narcotic which has not yet been absorbed, or by the presence in the stomach of food which is rapidly passing into a state of putrefaction, a large dose of almost any stimulant or stimulating astringent — in the form of fluid, so as to act instantly — will generally procure emesis in a short time. In all such circumstances, capsicum, myrica, polygonum, serpentaria, and other agents of the same stimulating character, may be followed by prompt vomiting; while lobelia, boneset, camomile, or ipecac, would induce no vomiting whatever, but rather make the relaxation worse and the patient more uncomfortable. In the case of any narcotic

poison and putrefying food, the exhibition of a relaxing agent would favor the more rapid absorption of the poison, and thereby increase the danger. (§55.)

212. Again, in cases where the stomach is extremely sensitive and vomiting occurs repeatedly and persistently in consequence, the relaxants are among the most potent of all agents in checking this distressing symptom. A very weak infusion of spearmint, or catnip, or camomile, or lobelia, given in small doses, at short intervals, will quite surely allay the excitement and put an end to the vomiting — providing that acidity of the stomach has first been relieved. The infusion must be quite weak, and the dose quite small; as otherwise the strong and sudden relaxing impression would be followed (in the then tense condition of the stomach) by such a sudden return to contraction as to cause more violent vomiting for the time, though pretty large doses of lobelia at short intervals would ultimately relieve the tension and put an end to the unnatural vomiting.

213. From these well-known facts, it would appear as if all relaxants were anti-emetics, while all stimulants were emetics. But this conclusion would be entirely too general; for the experience of ages shows that vomiting can but seldom be induced in practice without the cooperation of relaxants; while in all but a few conditions, stimulants would be a vain dependence in securing this act. The fact simply is, that emesis is a compound physiological action, resulting through a rapid transition from two opposite conditions — a *sudden* change from considerable relaxation to an equally considerable contraction. If a due grade of relaxation is already present, stimulants are all the extraneous aid that the system may need in any effort to eject the contents of the stomach. If there is already a high grade of excitement with tension, relaxants only may be required for the purpose. But in the great majority of instances, it will be necessary to give a goodly portion of relaxants to loosen the structures; to follow these quickly with stimulating astringents to invite a rapid oscillation to contraction; and by this alternation of impressions, the act of emesis will be brought about. By examining the subject in this physiological light, and by remembering that remedies act only on tissues while the vital force produces all the functional results, (§146,) the complexities and anomalies that appear to surround emetics, will be made plain. And it will also be understood that no relaxant, as such, is, in any sense, directly emetic.

214. *Procurement of Emesis*. — From the above considerations, when properly examined in connection with the points elucidated in sections 145 — 153, it will be seen that the course to be pursued in procuring emesis, must vary according to the circumstances in each case. Taking an ordinary case of depression, and the subject may be studied in three general steps. 1st. Diffusibly stimulating and somewhat astringent articles are to be used, in the form of warm infusions; and continued at moderate intervals till the system has been pretty well aroused, and an outward flow of the circulation secured. The stimulants put all the structures into a state of general activity and firmness, arouse the susceptibilities of the frame, and incline the circulation to an equalized action; while the astringents consolidate the mucous accumulations in the stomach, and give solidity to the coats of that organ. 2d. A full portion of a relaxant is to be used, (and we look upon lobelia as the most potent article in this connection,) for the purpose of loosening all the tissues, and

also of favoring the separation of the now consolidated mucous substances from the coats of the stomach. 3d. Stimulating astringents are again to be used, much more frequently and at shorter intervals than before; and these now induce a rapid contraction of the structures from the relaxation that had been given by the lobelia; and in this the act of vomiting takes place. All the lobelia does not expend itself at once, and so the act of emesis is not likely to be completed at once; but as the last drinks arouse to an act of contraction, this may be followed by a further transient relaxing impression from the partially unspent lobelia; and to this will again succeed contraction and vomiting from the further use of the drinks. In this way, these two conditions may slowly alternate for an hour or two from the use of a single draught of lobelia; and at each alternation, the detachment of the viscid mucus from the stomach will be more complete, and the impression upon the system at large will be greater. Between each oscillation, the true anti-emetic character of lobelia will be manifested in a period during which the relaxation it induces puts an end to all attempts at vomiting and all feelings of nausea.

215. It is necessary, in such case, to use stimulants and astringents previous to inducing relaxation, for then the oscillation of the relaxant will cause the tissues to pass through a wider range in their changes, and thence the subsequent reaction will be more marked. Besides, when the system is already depressed, an immediate dose of lobelia would relax it deeply, but leave it unsusceptible to the after impression of the stimuli; whereas previous stimulation secures this susceptibility and then the relaxant makes but an ebbing wave, while the further use of stimulants will, as it were, catch the momentum properly belonging to the first stimulants, and thus complete the action. Hence, when the system is profoundly depressed, ordinary stimulants will not answer; but quite strong preparations must be used, and these continued for hours before any lobelia is given. A tea of the officinal composition powder meets all ordinary cases; but must be made pretty strong for very bad cases, or even receive an extra equivalent of the capsicum; and in some chronic maladies, even this may need to be used for several hours, ere the lobelia is administered. On the other hand, when the system is in a great state of excitement, only the mildest stimulants and astringents are required, and these in but small proportions with some cutaneous relaxant — as two parts of zingiber and geranium, with six parts of asclepias, continued at intervals of twenty or thirty minutes, and even aided by a tepid sponge bath, so that a gentle perspiration shall be secured before any lobelia is given.

216. In the case first suggested, (§214,) two drachms of powdered lobelia herb infused in a suitable quantity of tepid water, may be given in two doses ten minutes apart. After that, the patient would need no more lobelia, especially if he had not vomited even when full quantities of tea had been given subsequently. Acting upon the impression that the lobelia is the emetic, and that all the vomiting now comes by its influence, there is a strong temptation to repeat the lobelia unless the vomiting take place promptly. But we have seen that the *full* impression of lobelia is contrary to the act of vomiting; and hence its repetition now would but delay the emesis indefinitely. A regular use of the composition drink, in quantities of two fluid ounces or more every fifteen minutes, is usually all that is required; although, as above, cases of extreme depression may

require an additional portion of capsicum. If the stomach is in a state of acidity, the action of the lobelia will be almost neutralized, (§141;) and then it will be advisable to give five or ten grains of the bi-carbonate of soda in a portion of the tea, which will at once liberate the lobelia and be followed by vomiting in a short time. But in cases of fever of a high grade, or in any form of arterial and nervous excitement, it is usually preferable to give the lobelia by small quantities with the relaxing diaphoretic named in the last section. By this measure, the system is slowly brought under its influence; and then a full draught may be given as before, and the same tea used afterward. This is called using lobelia in "broken doses," and is a plan very suitable to the above circumstances; or small pills of lobelia seed or extract may be used at intervals of an hour, with the relaxing and moderately stimulating diaphoretics between. In most typhoid cases, on the contrary, the stomach and heart may be so relaxed that no lobelia should be given by the mouth; yet the small bowels, gall-ducts, and tubuli of the liver, be obstructed by degenerating accumulations that imperatively demand the action of an emetic. The bowels then may first be unloaded by a cathartic injection, suitable stimulating drinks be in due time followed by a drachm of lobelia powder in mucilage as an injection, (to be retained,) and the stimulating drinks then continued. This method of securing emesis is of immense value in such cases, and also in others where the central organs of circulation are much prostrated.

217. From the manner in which the first two steps in giving an ordinary emetic may thus be varied, it will be seen that the procurement of vomiting is not a blind and bungling routine, but a process of the clearest and most philosophic accuracy. While Allopathic and Eclectic practice has made this act a piece of crude empiricism, the Physio-Medical system thus makes its different steps so many movements of scientific demonstration. And while the first two steps can thus be varied so greatly according to the condition of the case in hand, (§166;) the practitioner can also vary the third step in the process, according to the particular end which he wishes to accomplish. If he want to leave all the fibers of the frame pretty thoroughly relaxed with a soft pulse and a tendency to free perspiration, as in any case of ordinary fever or recent cold, he will make his last drinks mainly of asclepias, with moderate quantities of zingiber and polemonium, and but limited portions of the mild astringents. If the case is one of bilious or bilious-remitting fever, where the liver especially needs relaxation, he can add a fair portion of eupatorium perfoliatum to the articles last named. If the case is a typhoid one, where little astringency is allowed, but considerable stimulation needs to be left as a permanent impression, he can use equal portions of asclepias and zingiber, with suitable quantities of capsicum. In chronic maladies, where a general flaccidity of the tissues needs to be remedied, the usual composition powder answers every purpose; but if the laxity is great and the depression extreme, an additional portion of myrica and capsicum may be put to this. In this manner, the practitioner can leave behind any impression upon the tissues that varying conditions demand ; and by hurrying the operation of an emetic, he can confine its principal effects to the stomach and the contiguous parts, or he can retard the operation and thus make an impression on the most remote structures of the frame.

218. *Purposes Served by Emetics*. — From the above sections, it will at once be

inferred that emetics may correctly be applied to a wide range of conditions, and to a great variety of circumstances. The first and most direct use is for the evacuation of the contents of the stomach. For this purpose they may be given in the case of recent ingesta causing colic, cholera-morbus, chills, spasms, etc.; or when partially decomposed food induces a typhoid condition, relapse in any form of fever, or the aggravation of any acute form of disease. In sub-acute and chronic cases, they serve to remove those accumulations of viscid mucus which form a prominent difficulty; secure a better secretion of a better quality of gastric juice; and so extend their influence to the liver and gall-ducts as to secure the dislodgment of that degenerate bile and even gall-stones which so often mark a large class of chronic difficulties. Hence their repeated and persistent use is almost indispensable to the cure of severe dyspepsia with indigestion and acidity; of chronic dysentery and diarrhea; chronic liver complaints, and intermittent difficulties, with other forms of disease dependent upon these conditions of the stomach and hepatic apparatus. In all obstinate cases of this kind, suitable emetics exert an influence upon the organs in question, which it is impossible to obtain by tonics or hepatics alone. The multifarious forms in which troubles from this origin present themselves, at once suggest how wide a field emetics may here occupy. And their repetition at moderate intervals is then often called for by the fact that, when the foul contents of the system have thus been removed, the unwholesome materials that so often saturate the entire frame will soon find their way to the stomach, and again call for ejection. In this way, emetics are the most universal and effective of all known *depurators*.

219. But their action is by no means confined to these central organs. Largely by the influence of the diffusives employed, partly by the freedom secured through the ejection of morbific materials, but mainly through the peculiar contractions of such large muscular expansions upon the central blood vessels in the direct effort of vomiting, emetics are most powerful promoters of an outward circulation. The act is directly accompanied by diaphoresis ; and if the internal obstructions are fairly removed, (for which purpose a cathartic should sometimes precede an emetic, §175,) the skin is thereby left with its circulation much improved and its functions exalted. By this means, a great advantage is gained over internal congestions; and this equalization of the flow of blood, though not taken into sufficient consideration by all physicians, is in some cases of even more value than the ejection of the morbific materials themselves. Every tissue of the body is thereby embraced under this general influence ; and the secretions of the bowels, lungs, and kidneys, are as much promoted and improved as are those of the skin. As a consequence, emetics always promote expectoration and urination; often facilitate catharsis in a decided manner; give liberty to the menstrual flow, when it has been suddenly and violently obstructed; arrest uterine and other hemorrhage by distributing the blood; aid in a remarkable manner in relieving pneumonia, bronchitis, pleurisy, dysentery, hepatitis, puerperal fever, and all other internal congestions; and rid the system of animal and other poisons, and greatly promote the absorption of dropsical effusions. They also at once relieve asthmatic and other forms of difficult breathing, expel eruptions most vigorously in exanthematous maladies, put an end to all febrile excitement by casting

out the provoking causes of fever, and frequently allay spasmodic contractions. To one who is accustomed to look upon emetics as being useful only to evacuate the contents of the stomach, this broad summary of their influences may appear somewhat enthusiastic; but whoever has not employed them with reference to their thus equalizing the circulation, breaking up congestions, restoring nervous equilibrium, and giving freedom to all the secretions, has lost what may properly be considered among their principal virtues.

220. *Improper Uses of Emetics*. — It is not a pleasant thing to take an emetic; physicians like to please their patients, when possible; and therefore it often occurs that emetics are avoided, or even ignored, in conditions where their use would surpass any and all other measures in decisive benefit. Evidently this procedure has been used many times when it was unnecessary and its marvelous efficacy in such a wide range of maladies, has led some to resort to it as if it were the central remedy in every case. This has begotten a strong popular aversion to emetics, and to the Physio-Medical system; and our opponents have not been backward in spreading the impression that the giving of emetics constitutes nearly the whole of this system — just as the exhibition of calomel for so long a time constituted the brain of the Allopathic practice. Among physicians who are more ready to fawn than to do right, emetics have thus come to be held in much disrepute; and many now avoid them when the very safety of a patient depends upon their timely use.

221. Both these courses are wrong. Emetics have an astonishing power in removing the causes of disease and arresting a variety of dangerous maladies; but even at their best, they constitute only one part of treatment, and can never be made to take the places of baths, cathartics, diaphoretics, or tonics, when agents of either of these classes are called for. On the other hand, it is absurd for a physician to deprive himself of an instrument of such wonderful efficiency; and humiliating for him to yield his own scientific judgment to the whims of a patient. And this is not the wisest course for the patient himself; for it would indeed be criminal to trifle with his life by resorting to inefficient means at a time when all knowledge proved that an emetic was absolutely demanded, and to dally with light pleasantries till the hour of hope had fled forever. When an emetic is not needed, on no account let it be given. When it will be of small efficacy, and other and more agreeable measures will accomplish the work effectually and without any risk to the patient, do not resort to this procedure. But when it is indicated, and when disease would be aggravated and precious time be lost by "trying" other methods of cure, then resort to the emetic at once and vigorously, and bring in other remedies after this one has accomplished the work for which it is designed. The duty of the physician is not to tinker with a patient, and let life ebb out before his eyes while he neglects one-half his work till it is too late to do any thing but sum up his bill. His business is, so to understand his profession that he shall be able to determine clearly as to when an emetic is needed and when not needed; and when he can thus scientifically discriminate in the cases intrusted to him, it is for him to attack disease with any and every and the strongest forces at his disposal, and to insist on having obeyed thoroughly any prescription he may make, or else to withdraw from all responsibility in the case. The medical man who has not sufficient firmness of character for this, is not at home in this calling; but will surely

bring discredit upon his profession and disgrace upon himself.

222. It is not necessary to name each case where an emetic should not be given. Such a task would be futile; for in the changes that occur during any form of disease, a certain course would be eminently proper at one time, but equally improper at another. (§155, *et. seq*.) The intelligence of the physician should enable him to distinguish these changes, and then to give or withhold an emetic according as it will or will not answer a necessary purpose. From the foregoing sections, the precise indications that an emetic will fulfill can be readily determined. Its use, then, may be summed up under some such general rule as this: *Give them when the stomach and liver are oppressed with unhealthy secretions and morbific materials, which are not likely to be removed in safe season by other measures; and when accumulations in these organs are not only weighing upon other portions of the frame, but when they are oppressing the nervous system and are proving decided obstacles in the way of an equalized circulation*. In all conditions that may be classified under this rule, the employment of emetics is positively indicated; but under all other conditions, they are not indicated. They are not required when the stomach and liver are free from foul substances; when their secretions are healthy in kind, even though not sufficient in amount; when depression of the nerves is not at all dependent upon the unwholesome condition of the digestive and hepatic organs; when a cold surface and unbalanced circulation do not spring from these organs; and when there is organic disease of the heart. These conditions embrace a wide range — including also all cases in which emetics have at first been indicated, but have accomplished their work. By possibility, emetics may be given in many of them, and do some good; but that would be making an unpleasant and inappropriate measure accomplish work that could be done far more pleasantly and effectively by other means. In many of the cases — as for instance, when emetics have done the full measure of their work in a typhoid case, or in a case of indigestion in a patient of delicate frame, and others of the kind — their continued use would prove a source of decided exhaustion.

223. The idea is many times suggested that such and such a patient is *too weak to take an emetic*. We have no hesitancy in denying unqualifiedly that this is ever the case, when the conditions point to the need of this agency. The idea is based upon a misapprehension of the cause of the weakness and of the nature of vomiting. Let the patient be of a feeble constitution, sinking rapidly on the tenth day of a typhoid fever during which no emetic has yet been given, or (if given) no evidence obtained that the liver has been effectually emptied and a flow of wholesome bile obtained. Or let it be a delicate woman in the third day of puerperal fever, in whom the lochia remain suppressed and the stomach unrelieved. Two more prostrated and rapidly sinking patients need not be sought for. When the cause of the sinking is inquired into, it will at once be found in the semi-putrid condition of the stomach, liver, bowels, and whole frame. Unless the corrupting mass is cast out speedily, and effectually, death will be inevitable. A strongly stimulating emetic is superior to any and all other measures to do this; it is indeed the one grand measure for both cases, and to which all other measures are but second. It is absurd to suppose that the frame can not now endure the very thing it needs. That idea belongs to Allopathy, and has no place in Physio-Medicalism; and perhaps in no one thing are the

consequences of the two systems of practice more plainly seen than in this. An emetic of tartrate of antimony would certainly destroy the patient; but a lobelia emetic helps cast out the one great source of danger, sets the circulation free, and at once places the patient on the way to health. It is an utter mistake to imagine that, when an emetic is needed, any patient whatever is too weak to take it. Lobelia emetics then bear up the frame, and do not cast it down; and the great danger lies in not giving such an emetic with sufficient promptness and vigor, and in company with sufficiently powerful stimulation.

224. In sub-acute and chronic cases, it is advisable to give an emetic in the evening, and to allow the patient nothing to eat that night. The earlier practitioners of this system were in the habit of allowing food of a pretty solid character, soon after the completion of vomiting; but wider experience has shown this to he unwise, as the stomach is not then in a good condition to digest. Diluent foods are at such a time very likely to sour upon the stomach; and a night's rest from aliment will be a decided advantage. Circumstances may dictate an emetic at some other time of the day; but even then, food should be abstained from for several hours, though the patient might yet feel hungry and find himself inclined to use a liberal meal. In acute cases, the same general rules should be observed.

225. When apoplectic or epileptic symptoms, or croup, has been excited by the recent use of too much food, an emetic should be given in a form to secure vomiting in the shortest possible space of time. In cases where no such emergency exists, a slower method should be followed. In all febrile and chronic cases, an emetic that operates and is completed within an hour or so, extends its influence scarcely beyond the stomach; and then the patient enjoys probably not one-half the benefit he might otherwise obtain from it. When a profound impression is desirable, the whole operation should cover a period of at least three hours. Hence, in fevers, the diaphoretic treatment should be pushed steadily till the skin is moist, before the full emetic is given; and the stimulants in chronic cases should be used moderately for several hours. After the lobelia has been administered, the use of stimulants at intervals of five or eight minutes is too rapid; and fifteen minutes are better, till an hour or more has passed, and then the draughts may be given oftener. If the patient complain of chilliness and sighing, the lobelia is predominating in its influence; and then stronger stimulants should be used, and be given rapidly.

226. When an emetic is to be given in phrenitis, meningitis, or any other acute or chronic accumulation of blood upon the brain, (and the same remarks apply to acute turgescence of the lungs,) the greatest care must be taken first to obtain a good circulation and functional action over the whole surface. Unless this is done, the outward determination of blood caused by the emetic is so forcible, that, the vessels toward the head being the only ones freely open to it, a strong and detrimental pressure may thereby be thrown upon the brain. The same facts pertain in every case, even in chronic ones, and when the brain is suffering no irritation; but then the determination causes merely a little headache, though it is *always* best to obtain an equalized circulation (to at least a fair extent) before giving an emetic. On this same account, an emetic must not be given in any case of sanguineous apoplexy or threatened extravasation of blood; nor in jaundice, dropsy, distressing symptoms of indigestion, etc., if caused by organic

disease of the heart or its valves; nor in large central aneurisms.

227. All acids interfere with the diffusion of lobelia, (§216;) hence any preparation of this article on vinegar is of no value as a general emetic. It will excite rather sudden emesis, and may be of service in hooping-cough and a few cases of croup; but its action is confined too much to the stomach, and vomiting thus secured will be of insignificant power in promoting the general distribution of blood and freedom of the secretions which are so valuable in emesis. (§219.) Indeed, vinegar lessens the secretion of the skin, and probably that of the kidneys also. Lobelia in tincture is too diffusive, as well as too irritating to the nerves, for emetic purposes. It may be a preferable form for some antispasmodic purposes; but is certainly not equal to the infused herb or seed for emetic uses.

228. The *frequency* with which emetics are repeated depends entirely upon the nature of the case. In acute difficulties, one every twenty-four hours, for two or three days, will be quite sufficient. Sometimes one alone will answer. When a system saturated with poisons (as in typhoid, scarlet, or puerperal fever) causes a re-accumulation of deleterious substances in the stomach in a few hours after an emetic has been given, (§218,) it will have to be repeated oftener. The abatement of perspiration, quickening of the pulse, increasing heat of the skin, and advancing delirium, all show that the morbific obstructions have not been removed, and that further emesis is demanded. Sometimes, in such cases, not more than twelve hours should pass till the procedure is repeated; in some desperate typhoid cases, I have induced light vomiting by enema once an hour for fourteen hours, before the green ejections gave way to natural bile and the center of the difficulty thus yielded; and I have known practitioners, in the most terrible cases of scarlatina, give six powerful stimulating emetics in twenty-four hours, before the patient could be made secure. Truly extreme cases demand such vigor. In chronic maladies, once in three or four days may be often enough. The trouble here is, that this treatment will not always he persisted in. In acid dyspepsia, chronic liver complaints, and similar maladies, the emetic treatment may require to be carried on perseveringly and evenly for some weeks; without which it will accomplish but little, but as a result of which the physician and patient will have the satisfaction of seeing the most utterly intractable of such cases finally yield.

229. An emetic always requires to be associated with and followed by other treatment. The nature of the case will determine what this should be. For purposes of depuration, it has been usual to follow an emetic with an injection to unload the bowels; and then, after a rest of one or several hours, but while the diffusive impression remained, to give a vapor or a tepid sponge bath. This association of measures was called a “Course of Medicine,” and this term should not be applied to one or two of these means, but to the whole three. Such a “course” is of immense power in breaking up sudden obstructions, and cutting short acute attacks; and in many thousands of instances has its *timely* use interrupted and terminated the onset of colds and fevers which under any other management would have run a protracted term. The discoverer of this “course” — Dr. S. Thomson — would have deserved the highest honors due a benefactor and a man of genius, had he never performed any other labor for his race. In febrile cases, suitable diaphoretics are to follow an

emetic; while in all chronic cases, proper tonics and cathartics (usually hepatics) are required. The action of the emetic is never to be left unassisted, as its impressions will pass away in a few hours; but the advantages it has brought to the organism, are promptly to be secured and sustained by other suitable agencies. Let it be added that Prof. A. Curtis greatly improved on Dr. Thomson's method of giving emetics.

EMMENAGOGUES AND PARTURIENTS

230. *Emmenagogues* are agents which promote the catamenial flow: *parturients* are those which stimulate the expulsive efforts of the uterus. Although the two are technically different, the same agents will usually promote both ends. A great many remedies influence the uterus and ovaries either sympathetically or through the beneficial impressions made upon the body at large; and the number that can be said to act specifically upon these organs, is not very large.

231. In seeking to promote the menstrual flow, the practitioner must duly consider the conditions which have led to its suppression. In chronic cases, the monthly function may cease from general prostration, with indigestion, deficient assimilation, torpid liver, feeble outward circulation, etc. In such cases tonics, hepatics, emetics, stimulating diaphoretics, and similar general measures, must be mainly depended on, according to varying circumstances; and direct emmenagogues used after these measures have accomplished their work — and then but sparingly. In more recent cases, uterine congestion may follow sudden exposure; and then a tepid sponge bath, with such relaxing or stimulating diaphoretics as the skin may require, will usually restore the catamenia. Uterine atony is often accompanied with general atony of the pelvic structures; and then the stronger tonics, with a full share of permanent stimulants, and stimulating applications outwardly, will be the best emmenagogue course. Strong resinous evacuants — as aloes, jalap, podophyllin, etc. — usually excite the uterus by their stimulation of the lower bowels; but any resort to them for such a purpose is bad practice, although mild cathartics and cathartic enemas may sometimes be used to advantage.

232. But the uterine structures may themselves be at fault. Like other portions of the frame, these may depart from the natural standard in different ways, namely: The muscular fibers may be too rigid or too much relaxed; the nervous tissues may be chiefly at fault, either by lack of susceptibility, or from too great sensibility, with feebleness; or the circulation may be deficient or engorged. Of course the judicious attendant will carefully determine which particular condition is present, before he attempts to treat any case; though too generally the plan is blindly to select any article that is pronounced a “powerful emmenagogue” — by which compulsory management serious mischief and suffering for life are sometimes engendered. The delicacy and extensive sympathies of the female organism demand the utmost carefulness in all circumstances.

233. Most beneficently has the Creator provided means for restoring this important function, and furnished remedies for the varying conditions. Thus, camomile is the best of relaxants for all cases of feebleness with irritability; leonurus is a superior tonic for feebleness and non-irritability; myrrh meets most atonic conditions; caulophyllum is of the first efficacy in nervous feebleness with cramping tendencies; cimicifuga is at once adapted to insufficient circulation; while the large list embracing such articles as polygonum, angelica, senecio, hedeoma, etc., furnishes means to remedy engorgements and congestions. By applying the several agents to the conditions for which they are designed, or

combining them in such forms as individual cases require, the practitioner can influence this excretion in a most efficient and sanatory manner.

234. These same facts are applicable in cases of parturition; although even more decided care in discrimination, if possible, is needed here than in the use of emmenagogues. The several parts of the uterine substance may be similarly at fault; in addition to which, labor may be retarded on account of extreme rigidity at the os uteri. Manifestly it would be foolish to use compulsory measures upon the body of the organ, while such local rigidity existed; and in like manner it would be out of place to use a nervine relaxant when the entire muscular fibers were flaccid, or to give a muscular stimulant when the pains were not attended with a due interval of relaxation, or to use any of these when cold extremities and irregular and ineffectual contractions indicated that a viscid state of the stomach was a bar to all proper expulsive efforts. Under the latter circumstances, a very prompt emetic will give instantaneous relief, and probably be followed by the most sudden and satisfactory uterine efforts; nothing will prove such an effectual parturient in rigid os tincae, as a few small doses of lobelia infusion; while the bark of myrica — or its combination in the composition powder — probably has no equal for cases in which the whole system is in a state of laxity, and the uterine fibers especially feeble in their contracting force. In like manner caulophyllum, polygonum, senecio, uva ursi, and other agents of this class, have their appropriate places; and if each is administered at the proper time, its influence will be reliable; but if an agent suitable only for certain conditions is exhibited when quite different conditions are present, it can accomplish no good result, because it can not give the kind of assistance that the frame requires. It is worthy of especial mention that various astringents have a marked parturient action upon the uterus. Myrica, already spoken of, is one of the most powerful of all the stimulating parturients; uva ursi is also an excellent one; while trillium, leaves of rubus strigosus, hamamelis, and others, are equally valuable. These are not applicable when the vagina is dry and hot; but are to be employed when the parts are moist and soft, and even a trifle flaccid. They are usually combined with some nervine relaxant, as cypripedium, when the united effect becomes quite stimulating. If to this some xanthoxylum or other stimulant be added, or if the astringent is combined with asarum or a very small quantity of serpentaria, the stimulating action is sudden and vigorous. Such parturients anticipate flooding in flaccid and leuco-phlegmatic females. They are not emmenagogue, but the contrary; yet in amenorrhea with atony, astringent stimulants like myrrh and myrica, or trillium and viburnum with capsicum, will prove emmenagogue.

NERVINES, PARODYNES.

235. We use these terms as meaning agents which relieve the nervous structures from pain. Our Allopathic neighbors chiefly employ the term *Narcotic*, to express the same idea; and *Sedative* and *Anodyne*, as classes of Narcotics. A scientific phrase should represent an idea clearly. The true action of a Narcotic was fully discussed in sections 86–93; and as no Physio-Medicalist can possibly accept such a method of assuaging pain, neither can he accept the terra Narcotic as applicable to any class of his agents. Dunglison defines *sedatives* as agents "which directly depress the vital force;" and hence this word is equally objectionable with narcotics. It has been the custom for our people to use the word *anodyne*; but the above author defines an anodyne as an agent which " acts by blunting the sensibility of the encephalon, so that it does not appreciate the morbid sensation." Thus these three Allopathic terms describe only those articles which mitigate suffering by destroying the natural sensibility; and as the idea of such an action is not consonant with the laws of life, we can not accept either the agents or the words that describe their action.

236. The word *Nervine* answers a very good purpose; for as all pain is apprehended by nervous tissue, all relief must be obtained by suitable action on that tissue. Yet many articles expend their power largely upon the nerves, without being especially available in relieving suffering; while on numerous occasions relief is obtainable by articles which do not particularly act upon nerves as such. Thence the term nervine is not sufficiently exact; though usage has attached to it a very clear purpose, and it will therefore answer very well. Nevertheless, I would respectfully suggest to the profession an entirely new term in this connection — *Parodyne*. This I derive from the Greek prefix, *para*, "contrary to;" and *odyne*, "pain." The compound word would thus apply to agents that acted contrary to pain; and in the light of Physio-Medical principles, would present the understanding that they afforded relief by remedying the conditions on which the pain depended, without impairing nervous sensibility.

237. Looking upon pain as a physiological warning of danger, it follows that different forms of danger will occasion different grades and characters of suffering. As each particular condition of disease is a departure of the structures from the healthy standard, and as the duty of the physician lies in giving such agents as will restore the normal standard, no corollaries can be more clear than: 1st, That marked differences in pain indicate differences in the condition of the part; and, 2d, That these various conditions can not be met always by the same agent, and therefore that pain can not at all times be relieved by the same remedy.

238. Pain may arise: 1st, From acute irritation; as of crude substances passing through the bowels and exciting inflammation, a superficial bum or scald upon the surface, etc. 2d, From sudden accumulation of blood upon a part; as in pleurisy, the colic following exposures, chilblains, or other achings of the skin following sudden changes from cold to heat, etc. 3d, From a grade of local congestion that will presently be followed by suppuration; as the throbbing of an abscess. 4th, From the approach of gangrene; as in phlegmonous erysipelas, lacerated wounds, carbuncles, etc. In each of those general classes of cases, the suffering has its own peculiar acuteness and other characters, and a corresponding

state of the pulse and the secretions. The conditions being widely at variance, the symptoms will vary also; but in one and all of them, the patient endures pain — and the dull, deep anguish of threatening mortification in class fourth, is usually more prostrating and unendurable than the more sharp and lancinating suffering of class first.

239. Conditions so widely dissimilar as are here grouped together, can not possibly be met by the same agent; nor even by the same class of agents. In the first class of cases, demulcents and the most diffusive relaxants will be called for; while in the fourth class, the strong stimulants will be required, and these in considerable quantities. Every physician knows how necessary it is to distinguish between a colic and a case of inflammation of the bowels; and an ordinary abscess requires a very different course of management from that which would cure a decided carbuncle. The man who would attempt to manage them all alike, would soon learn his utter inability to relieve his patients. His demulcent drinks, and weak spearmint or catnip tea, would do well for the inflammation; but would be powerless to relieve a severe colic. The colic might be abated speedily by a strong composition tea, or some compound tincture of myrrh; but the use of these in the case of inflamed bowels, would further excite the sensitive membranes, and exasperate the suffering. A lobelia and elm poultice perhaps could not be surpassed for the relief it would afford in a superficial burn, or a gathering breast; while a carbuncle would obtain no ease till treated with ginger, or perhaps considerable quantities of capsicum. Reverse, now, the order of appliances, and the ginger with a very little capsicum would greatly increase the suffering in the bum or the abscess; while the lobelia and elm to the carbuncle would be followed by a deeper grade of suffering and more profound general prostration. Indeed one of the most common errors of the young practitioner is to seek the cure of gangrenous forms of disease by the use of too much relaxation — which course will steadily increase the misery, and favor the absorption of the decaying juices in the part. (§55.)

240. In the eagerness with which medical men search for means to abate suffering, these facts are too generally overlooked. While they are seen and remembered with sufficient distinctness in a few cases, they are not recognized in the mass. The ruling passion is, to relieve pain; and when an article is found to answer in one case, or in one large class of cases, there is a tendency to accept as a conclusion that it will be equally appropriate to all other cases. For instance, when it was learned that lobelia made a. superior application in a very large number of local cases — relieving pain and arterial excitement — it was too generally concluded that it would always relieve suffering. This led to its employment in many cases where it would be of no use whatever; and in some cases where its relaxing influence was not at all wanted, and where an increase of suffering would follow its employment. Again, cypripedium was found to be an excellent nervine; and from this it came to be almost universally relied upon in every class of nervous difficulty. But decided feebleness, as in putrid conditions, finds far surer relief to the nerves in such diffusible stimulants as ginger and prickly ash — while the deep prostration of advancing gangrene will have its peculiar form of nervous agitation decidedly increased by cypripedium, and will be improved by such stimulants as the composition powder, serpentaria, or even capsicum.

241. Such observations as these teach the physician that it will be futile to set down to the credit of any agent that it will relieve pain, and then attempt to use it under all circumstances. Unless he will carefully distinguish the conditions that have given rise to the pain, and then adapt his measures to the necessities of the case in hand, he can not rationally hope for success. For as pain arises when the tissues have passed into unhealthy conditions, and as these conditions may vary to such an extent as to be the very opposites in separate cases, ease can not be secured till the healthy condition has been restored. (§84.) If the pain result from too much irritation, sensitiveness, tension; relief can come only by relaxing and diffusing. If the suffering have been provoked by stagnation, and incipient putrefaction; relief can be secured only by stimulating, sustaining and invigorating. This is why the opium and nightshade of the Allopathist, and the aconite and veratrum of the Eclectic, do not cure pain. They do not restore a natural condition, in any case. They merely stupefy; and they do not do even that, till Nature has struggled against them until she can struggle no longer. When their effects have worn off, the nerves are left weak and sensitive, and are more easily provoked to suffering than they were before. (§93.)

242. It is often charged against Physio-Medicalism, that it can not relieve pain as effectively as can be done by the narcotics of Allopathy and Eclecticism. This is a mistake. Our agents can secure more effective relief than theirs; for they are calculated to restore the tissues to a healthy condition, and then there can be no pain; while the narcotics never do and never can bring the tissues to a healthy standard, and hence their relief is but an approach to the stupor of death. (§87.) But Physio-Medicalists have not yet learned all the resources of their own system in this direction; nor the proper places and modes of applying those that are known. We have too generally confined our attention to lobelia, and cypripedium, and skullcap, and a few others. But our Materia Medica is, without question, supremely rich in this class of agents. We can not imagine that the Creator, who has provided such an abundance of sanative agents, and given them such a wonderful power over the simplest and also the very severest forms of disease, has left suffering man with insufficient means for quieting his aching nerves. If there is any deficiency, it comes from man's lack of diligence in research; and from his failure to study the rules for justly applying each agent, so as to have it so used that it will act in harmony with the requirements of the system.

ANTISPASMODICS

243. The term *Antispasmodic* is applied to agents which prove serviceable in relieving muscular irritability with excessive contractions — as in all forms of spasms, cramps, and convulsions. In every such case, the muscular irregularity is dependent upon the fact that the nerves will fail to respond to the vital force with freedom and smoothness; and hence the life power reaches the parts in weakened and interrupted waves. This fact covers all spasmodic affections, whether manifested through voluntary or involuntary muscles. Thence it will at once be apparent that a large variety of conditions may serve as inciting causes for such deranged nervous response; and that the nerves themselves may be in a state either of excessive tension — as in tetanus; or excessive irritability with feebleness — as in hysteria; or extreme feebleness — as in subsultus tendinum in a typhoid case. In any rational attempt at cure, the physician must consider these facts and determine the state of the tissues in each case.

244. Of course the first step in treatment is the removal of any provoking cause — as when faeces in the middle bowel cause cramp in the legs, or worms in the stomach excite general spasms, or irritated gums are the cause of infantile convulsions. And if a turgid state of the brain is the exciting condition; or cerebral or spinal irritation, or the irritation of a stone in the bladder, is the provoking cause, these must be met by agents suitable to their several natures. Thus it is that antispasmodic treatment is largely of the kind that may be called *revulsive* — the turning away disease from its original seat, and thereby giving relief to the dependent and remote parts. All such treatment is of a character that scarcely aims at the nerves and muscles directly, but reaches them secondarily. (§151.)

245. And of agents that do act directly upon the nervous tissues, no one class can possibly fulfill the requirements at all times. In the majority of instances, the nervine relaxants are the most powerful antispasmodics — as lobelia, cypripedium, cimicifuga, etc. Of these, lobelia is altogether the most direct and powerful; and in all spasmodic cases, some one or other of the relaxants will be required. But mere relaxation can not always suffice — indeed that alone would sometimes be worse than nothing, as when subsultus came from sheer exhaustion with cerebral congestion. In the case just suggested, an outward determination of blood, with full stimulating support to the arterial and nervous systems, is positively demanded. Relaxants alone can not fill these several indications; but while they will serve to prepare a way for better vital action toward the surface, that action itself must be sustained by diffusive stimulants, such as polygonum, or zingiber with capsicum. In a case of severe shock of injury, when the blood has receded strongly toward the centers, large doses of most powerful stimulants, with some relaxants, would be required to diffuse the circulation and allay spasmodic action. The same may be said of the spasms of cholera — a case in which lobelia alone, by relaxing further the parts which were already too much relaxed, would be followed by an increase of the crampings. In hysteria, and general nervousness, the lightest diffusive stimuli are again required; and tonics that combine some stimulation with relaxing power — as camomile, liriodendron, leonurus — become necessary in any measures designed for permanent relief. On the other hand, when uterine or intestinal irritation accompanies any form of spasmodic

irregularity, no form of stimulus must be used internally, but such pure relaxants as lobelia, or cypripedium, with demulcents, are used by the stomach, while stimulants may be applied on the outside.

246. Thus it will be seen that the term antispasmodic is a very indefinite one, and embraces both relaxants and stimulants, tonics and alterants, the most diffusive agents and the most permanent. It is always a mere relative term; and while relaxants in some form and to some degree will be needed in all muscular contractions, the vast majority of cases will require some stimulation, and cases of extreme and sudden depression will call for the very strongest stimulation. The majority of the best antispasmodics combine within themselves both stimulating and relaxing properties, in varying proportions — such as caulophyllum, scutellaria, polygonum, asafoetida, etc. The most powerful agents of the two classes are often combined, as in the compound tincture of lobelia and capsicum.

COMBINING REMEDIES

254. Allusion has been made, (§52,) at different times, to the fact that the tissues frequently require a combination of influences. It is only on rare occasions that the isolated action of any one class of remedies — whether relaxants, stimulants, or astringents — will meet all the requirements of the frame; while the great majority of maladies call for a combination of at least two of these, in some proportions. Thus, a true synocha may at times be managed almost exclusively with the relaxants asclepias, lobelia, and leptandra, and these may also be used to much advantage in almost any febrile case; yet an ordinary "cold" (congestion) requires in addition some such mild stimulant as zingiber or polygonum, a typhoid case some capsicum at certain of its stages, (§161,) a case of common scarlatina a more liberal use of capsicum with zingiber, while malignant scarlatina and diphtheria, and similar strong tendencies to putrescence, would need large quantities of capsicum compared to the amount of the relaxants. (§260, 267.) Such illustrations might be multiplied almost indefinitely; but this proposition is the natural outgrowth of the points discussed in sections 159 to 166, so we will at once pass on to an examination of the rules according to which the physician must meet these requirements.

255. The Maker, in his munificence, has bestowed compound properties on by far the greater number of the agents he has placed at our disposal. Only a moderate number can be said to possess one property only — asclepias, lobelia, and leptandra being the most pure relaxants, and capsicum the nearest to a pure stimulant, while the true astringents are most numerous. In very many instances, one property is so predominant that the agent is valued chiefly for it, though possessing other properties — as in boneset and euonymus among the relaxants, xanthoxylum among the stimulants, and hamamelis among the astringents. Taking in the vast number of our *true* remedies, considering the wide range of properties they occupy in this scale, and further remembering the diversity of organs on which they act and the diversity of times occupied in their action, (§131, 134,) and the mind will at once be astonished at the surprising sum of powers that have been provided for the relief of human suffering. This system is sometimes accused of being deficient in means; but when we observe that not less than 250 agents are already known to us, it is but a plain example in arithmetical progression to learn the influences that may he brought to bear for good by that number of remedies, presenting three general classes of properties in endless diversities of proportion, and each capable of entering into combination with the others. Let any man ring the arithmetical changes that may be made on 200 simples, and multiply these by 10 as a rational figure to express the diversities made by combination, and it will be seen that the extent of the instrumentalities possessed by Physio-Medicalism is somewhat astounding.

256. When different properties are associated in an agent, they maintain a fixed order in the exhibition of those properties, namely: The relaxant influence diffuses itself first, the stimulating influence comes second and usually lasts longer, and the astringent influence follows last and is sustained the longest. This holds uniformly true, whether the total action of the article is prompt, as zingiber; or slower, as polygonum; or quite slow, as podophyllum. It is not to be understood

that there is a distinct interval of repose between these actions; for usually they as it were overlap one another — the one commencing before its predecessor has been fully expended, so that they measurably act in concert. The great advantage of this order is at once seen in secernent agents — as where the relaxing properties of fraxinus loosen the tissues of the gall-ducts and liver tubuli, and are followed by a secretion of bile and a separation of the viscid secretions already present, and the subsequent stimulating properties impart to these structures an energy of action which results in the dislodgment and final ejection of these materials. In very many cases, the bile would not be cast out without the aid of a stimulant, as in such conditions a relaxing influence would fill only one of the requirements of the structures. The same facts certain when stimulating relaxants act upon the stomach, uterus, circulation, or other parts. And when an astringing influence follows stimulation, the final impression is that of consolidating the fibers somewhat, lessening their secretion, and leaving them in a state of higher activity resembling tonicity. Where the three influences follow one another in due order and in fair proportion, the results are first depurative and then stimulating tonic — as is the case in the action of the composition powder, where the tonic impression (from the nature of the articles used) is extended throughout the system rather than confined to the stomach. A reversion of this order, as in making astringing quinine precede relaxing and stimulating secernents, is a reversion of Nature.

257. In the majority of instances, the different properties of an article are expended upon the same series of tissues. But this is not universally the case; for the relaxant quality sometimes is diffused largely to the surface, while the stimulating is expended more internally; and astringency is most likely to manifest itself upon the more central organs, while the accompanying stimulation is more distributed. These facts are, however, true only to a limited extent; as no agent, nor any one property of an agent, is confined to a single part or set of tissues, however prominently its chief action may be expended there. (§131.) Hence it is possible for an agent to combine in itself all three of the acting properties of relaxation, stimulation, and astringency. It is only by judging this to be the case, that we can understand the full action of the bark of xanthoxylum, which is prominently stimulating to the capillary and arterial circulation, relaxing to the skin and serous tissues in a smaller degree, and ultimately somewhat astringent to mucous tissues. The leaves of hamamelis furnish an instance in which prominent astringency is combined with gentle relaxation to the nervous peripheries and stimulation to the kidneys; and the same may be said, in varying degrees, of the root of trillium and the bark of populus tremuloides. But in all such cases the requirements of the system, (§165,) or the influence of a combined agent, (§264,) may determine the united properties of the article upon some one organ. Its action then will be exhibited with an energy that the agent had not been supposed to possess, simply because all its strength is concentrated upon one point. An instance in point is seen in the excellent parturient action of uva ursi when given under suitable circumstances.

258. But the combinations made to our hands by Nature, though so perfect in themselves and so powerful, will not meet all the requirements of a medical practice. Thus, serpentaria is a relaxant and stimulant, reliably sustaining to the

capillary circulation, promotive of sweat, and warring against putrescence. Such qualities would seem exactly to fit it for all typhus conditions; but the moment we add the further fact that this agent also excites the alvine canal and promotes forcible evacuations, it will be seen that it can be used in only a limited number of typhus cases. We are then called upon to make such a combination of other agents as will meet the requirements of the case. Asclepias is a relaxant, and a decided promoter of perspiration; zingiber is a diffusive relaxant and stimulant, sustaining capillary circulation; capsicum permanently sustains the heart and larger blood vessels, and arrests putrescence. In these three agents combined, we find the very qualities needed in some stages of nearly all typhus cases. One case may require but little relaxation by asclepias, and another one much; one may scarcely require any capsicum, and another one need a free portion. (§159, 162.) By striking a balance between these several requirements, the physician can increase or lessen the proportion of either of the agents in combination, and thus meet the changing conditions of the case in hand. Other agents may be used in lieu of asclepias and zingiber, though none really fills the place of capsicum.

259. Leptandra is one of the best of all relaxants to the liver; and directly favors the secretion of more bile, and the loosening of bilious accumulations in the hepatic tubuli; but in numerous cases where the liver needs just such an impression, the leptandra alone would induce so much relaxation that the bile could not be ejected after it had been secreted and loosened, unless some capsicum, gentiana, or similar article were used to arouse the expulsive action. In cases of sudden and extreme prostration, capsicum is one of the most valuable agents for its action on the heart and arteries; but the prostration of the nerve centers may be so great that its impressions can not be distributed, but will remain in the stomach almost unexpended till associated with some lobelia or other nervine relaxant to precede it, and as it were open the way for it. This is very effectively done in the third preparation of lobelia. Similar illustrations might be suggested at great length.

260. The shades of difference that will present themselves in the shifting conditions of the system, are very numerous. The detection and proper appreciation of these are subjects to be treated of in works upon Practical Medicine. Having decided upon what varying proportions of stimulation and relaxation or stringency are required, the physician has it in his power to combine them at his pleasure; and he can also direct them to the same part, or to different parts, according to the requirements of each case. Relaxants being most diffusive, thereby secure a more prompt and more widely distributed action from any stimulant with which they are combined — provided that the relaxant is naturally more diffusive than the stimulant used, as when lobelia is connected with capsicum. If the relaxant is naturally low and local in its action, it will still secure great promptness and intensity of action upon the part from a similarly slow stimulant, as when leptandra is combined with capsicum. Thus relaxants both hasten and intensify the action of stimulants; so that the results of their combination will be more marked than from the *same quantity* of stimulants given alone. Much the same facts pertain to a moderate portion of stimulants combined with relaxants — the impressions made by the latter being more forcible than if used alone, as when zingiber or xanthoxylum

sustains the fullest diaphoretic action of asclepias. The physician fill need to bear these facts well in remembrance, when prescribing agents in combination; as he can thus secure a vigorous impression from a compound, and save much precious time by a suitable association of remedies, which he could not gain if he failed to unite them. The quantity of either one that shall be given in concert with the other, will depend entirely upon the requirements of the case in hand — it being customary to employ much less stimulation than relaxation, especially if using such stimulants (as xanthoxylum or capsicum) as have a great deal of acting power in a small bulk. Even when especially seeking or the peculiar influence of a powerful stimulus, it is rarely necessary to have it in excess of (or even equal to) the relaxant with which it may be combined.

261. The particular *kind* of stimulus used to sustain the tissues that are influenced by relaxants, and the relaxants to open the way for the better distribution of stimulants, will depend materially upon the condition of the patient and the objects to be obtained. In the case of using *relaxants* to which stimulants are to be added, the following suggestions will need to be observed: 1st. If diffusives are employed for the purpose of chiefly influencing the surface, diffusive stimulants should be selected, as zingiber, polygonum, polemonium, xanthoxylum, etc. If it is at the same time desirable to sustain the heart and larger arteries, or to secure an ultimately strong vascular action, or to counteract a putrescent tendency, a moderate portion of such a permanent article as capsicum should further be added, (or myrica may be used, if the case admit of an astringent;) but it is rarely proper to add capsicum to a diaphoretic relaxant without occupying the intermediate position with some of the diffusive stimulants just named. 2d. If slow agents are given for the purpose of influencing some particular organ, then a slowly acting stimulant like capsicum is to be selected in smaller proportions, or some tonic peculiarly stimulating to that structure may be used — as when gentiana is added to leptandra for the benefit of the liver, or hydrastis to rheum for the better effect of the latter upon the gall-ducts and bowels. When *stimulants* are being used, the same general course is to be followed — using diffusive relaxants like lobelia or asclepias when it is desirable to distribute the impression through the system at large, and local relaxants like eupatorium or verbena when the impression is most required upon more central parts. The employment of chelone or eupatorium with senna, is an illustration of the advantages to be obtained from combining a relaxant tonic with a stimulating evacuant.

262. Unless in cases of extreme tension of all the structures, (a condition very rarely observed,) it is injudicious to combine too many relaxants. Thus, a compound of lobelia, cypripedium, eupatorium, and camomile, would be so nearly a pure and general and permanent relaxant in its influence, that its use would also most surely occasion a feeling of languor and sense of exhaustion. (§54, 55.) However much the system might require relaxants, such a combination would quite assuredly carry the impression too far; and the patient might feel the worse instead of better for treatment, by thus overdoing one kind of medication and not sustaining the relaxed organs properly with stimulation. The same remarks would hold true if a tonic compound were made up of such nearly pure relaxants as eupatorium, verbena, liriodendron, and cypripedium; or if an alterative preparation were made from

arctium, celastrus, euonymus, and leptandra. In all such instances, the system will have its wants far better satisfied by a combination of two, or at most three, of the relaxants with a small quantity of one or two stimulating articles of the same general class, according to the second suggestion for the use of relaxants in the last section. The same general facts pertain in the administration of stimulants. A combination of xanthoxylum, caryophyllum, capsicum, and guaiacum, would be almost unendurable to the human stomach, so local and intense would be its impression; a tonic association of hydrastis, gentiana, sabbatia, and jeffersonia, would soon overexcite the stomach and cause misery and oppression; while an alterative sirup of guaiacum, stillingia, podophyllum, and menispermum, would prove equally objectionable. In all these several cases, mild and somewhat diffusive stimulating relaxants (usually called *aromatics*) will be requisite in order to secure uniformity in the remedial impression, and to be at all grateful to the stomach and system. There is a great tendency to make up *strong* tonic mixtures, and *strong* cathartic preparations; and some physicians deem it almost puerile, and a detraction from good remedies, to put orange peel or coriander with such tonics as gentian and sabbatia, and anise or fennel or ginger with such evacuants as juglans and apocynum. But such gentlemen are wholly mistaken, and are liable to weary the organism of their patients by a too forcing use of otherwise really good agents; for the principles of harmonious physiological action unmistakably prove that therapeutical science must dictate the balancing of all intensely stimulating and local remedies, by associating with them some of the diffusive aromatics as adjuvants.

263. *One Agent Influencing Another.* — All physicians are familiar with the facts that a diffusive relaxant given in warm infusion, will secure perspiration more speedily and surely than if given in any other form; and that certain relaxing tonics, (as camomile, eupatorium, and verbena,) by being exhibited in warm infusion will act as diaphoretics. (§136.) Warm water of itself is a relaxing diaphoretic; and in addition to presenting the medicines in a more diluent form, seems to carry them along with it to the surface. Capsicum of itself has but a limited tendency to act upon the blood vessels of the surface, preferring to manifest its chief power upon the central circulation; but when combined with warm water, it will manifest a decided impression upon the skin first, and upon the heart after the influence of the warm water has passed away. Lobelia combined with honey or sugar, exerts its power mainly upon the respiratory passages; and such a preparation is a largely relaxing expectorant, but will exert only a meager influence upon the circulation in any febrile case. The saccharine substances are themselves expectorants of the slightly stimulating order; and by associating lobelia with them, they seem to influence the expenditure of the remedy upon the air passages. If lobelia is prevented from diffusing itself through the system, it may so expend its power upon the alvine canal as to be followed by copious catharsis, (§141, 172;) and many agents which are readily enough diffusible in warm infusion, are likely to confine their principal influence to the stomach and bowels, or other central organs, if given by cold infusion. Even the astringing influence of myrica may be distributed largely among all the tissues of the body, by combining it with suitable relaxants and stimulants, (§206, 248;) the latter agents thus carrying

along with them a considerable portion of a medical property that rarely is felt beyond mucous membranes.

264. Instances of the above character are numerous. Many of them are well known to physicians of good experience; but the extent to which they reach, and the true principle to which they naturally point for making combinations, have never yet been discussed. After investigating these subjects for many years, and making numerous careful observations upon them, I offer the profession the following rule by which to guide their combinations: *An agent which influences two or more organs, may be largely diverted to either of them by being combined with an agent of nearly equal acting power which especially influences but one*. To illustrate, apocynum influences gall-ducts, bowels, and kidneys. Taking fifteen grains as an average dose, and combining that quantity with half an ounce of eupatorium purpureum, to be given by cold infusion, and it would be found that the larger quantity of the relaxing eupatorium will proceed to the kidneys, and open the way for the smaller quantity of stimulating apocynum, (§256;) and as a result of this combined influence upon the kidneys, the secretion of urine will be greatly increased, but no hepatic or alvine evacuation will follow. I have at times given as many as forty grains of apocynum in ten hours, thus combined, and obtained from it only the most trifling cathartic action. But now combine fifteen grains of apocynum with ten grains of serpentaria, in powder. Both agents will act upon the kidneys and bowels; but the apocynum here predominating, and the form of administration being most suited for action upon the intestines, the evacuant effect will be unusually sharp and thorough, while no effect whatever will be observed upon the kidneys — or at most no greater effect than will often follow a stimulating evacuant under ordinary circumstances.

265. In like manner, by combining a small quantity of ipecac with asclepias in warm infusion, a greatly increased action upon the skin will be observed; while ipecac with apocynum will materially enlarge the fluid stools of the evacuant, and with polygala will largely promote expectoration. Trillium and convallaria combined with caulophyllum, will both show a distinct impression upon the uterine organs; but if these two agents are associated with aralia and lobelia, the action of the whole will be determined toward the lungs. In like manner, almost any tonic can be directed to the uterus, by associating it with agents that have an especial reference to this organ; and such general articles as lobelia, capsicum, boneset, and others, can almost at pleasure be determined upon any organ by suitably combining them with other agents. The action of capsicum upon the liver, in company with leptandra, is well known; and it can with equal facility be diverted upon the uterus by associating with it such emmenagogues as senecio or such parturients as caulophyllum; or turned upon the kidneys by combining it with such diuretics as eupatorium purpureum or the leaves of amygdalis persica. It is only requisite, in any such case, that the agent thus diverted shall be subordinate, in the amount of acting quantity used, to the other or controlling article. The articles should also have some resemblance in the time occupied by their action; as an extremely diffusive agent, like gaultheria, might readily expend all its power upon the kidneys before the slow apocynum would begin to act at all, and then the apocynum would not be diverted from its more harmonious channel of the

gall-ducts and bowels by such a fleeting companion.

266. At first thought, these propositions might seem so anomalous as to be impossible. But we are perfectly satisfied, by continued observation, that these illustrations, and hundreds of others like them, are correct — the reader being careful to understand that not the *entire*, but only the far greater portion, of the properties of an agent may thus be diverted. And there is nothing anomalous in these facts, nor in the rule which they serve to establish; for a little reflection will show that they accord fully with the experience of the entire profession in combining relaxants and stimulants, as discussed in sections 259, 260; that they harmonize with the well-known doctrine of agents being directed by the vital force to the point where they are most needed, (§138,) at the same time showing how fully the sanative agents harmonize with the life principle, (§53;) and that they are but another and a wider form of employing influences to expedite or retard the specific impressions of remedies. (§135.) And the clear apprehension of this rule will show to the physician that the admixture of remedies should not be left to crude accident, but should be made a question of close scientific investigation; for the value of numerous articles can be greatly enhanced by giving them in suitable company, while an utter disappointment may be suffered in the use of many agents by unwittingly using them in compounds which determine their action to a point quite remote from the one at which they are desired. I can merely outline this interesting topic in this brief manner; but I commend to the profession its careful consideration as opening a field of great extent and diversity, and one which can not fail to yield rich advantages in daily practice.

TONICS

247. Under the term *Tonic* are included all agents which impart a fuller vigor and a stronger acting power to the system. Cathartics, emetics, baths, and similar depurating measures, secure to the frame a sense of relief and increased strength, merely by ridding it of depressing accumulations. But these are not tonic in the true sense of the term; as under this are brought only such means as give, by their own action, slowly and permanently, greater firmness to the tissues.

248. Derangements of the stomach are the most prominent origins of general weakness; hence it is customary to look upon tonics as agents that improve the condition of the stomach; and as digestion is the one grand function of this organ, a tonic has come to be held as synonymous with a promoter of digestion. While these facts are true in part, they are not universal; for other tissues than the stomach frequently need the true tonic influence, and some of the purest tonics act upon remote structures without promoting digestion at all. Thus, after the acute stage of scarlatina, the system is not unfrequently contaminated with the peculiar virus of that malady; against the depressing influences of which the composition powder is a superior tonic — at once consolidating the tissues, sustaining the blood vessels, and eliminating the virus through the natural channel of the skin. Cinchona and its alkaloid, (quinia,) are peculiarly tonic to the nervous centers, yet have only a limited action on the stomach, and quinia can scarcely be said to promote digestion at all. Juglans, in addition to being hepatic and cholagogue, exerts a very favorable tonic action throughout the bowels; but it has no influence in improving the function of the stomach, except through the relief it secures to the biliary organs.

249. Yet it is nevertheless the fact, that the great mass of tonics do act more or less upon the stomach. As the nourishment of the entire frame is dependent upon this organ, any general feebleness that arises from insufficient digestion is effectually reached by improving the digestion. And organs that are similar in structure, and intimate in sympathy, with the stomach, may be directly improved in strength by agents which otherwise expend their main influence upon the latter organ. (§129, 138.) Hence the uterus and its appendages are so largely and positively influenced by hydrastis, frasera, and similar stomachic tonics; though there are also tonics — as viburnum and leonurus — which particularly influence the uterus, and act on the stomach secondarily. Indeed, the propositions enunciated in sections 129, 131, and 138, have peculiar illustrations in the action of this class of agents; and while their use is demanded more repeatedly than almost any other class, the most careful discriminations must be made ere that use can be effectual.

250. *Classification of Tonics.* — Beginning with those which act chiefly upon the stomach, and tonics will be found readily divisible into three general classes, namely: 1st. Those in which stimulating qualities predominate, as hydrastis, gentian, helonias, sabbatia, etc. These possess a medium portion of relaxing influence; but the excess of their stimulation fits them for sluggish cases, in which the impressibility of the stomach is low. 2d. Those in which relaxing properties decidedly predominate, as boneset, verbena, liriodendron, camomile, etc. These have extremely slight stimulating qualities, (the boneset approaches a rather pure relaxant;) and hence are adapted to over-sensitive

conditions of the stomach. 3d. Those which possess a large portion of astringing power, as cinchona, cornus, salix, etc. These usually possess some degree of stimulation; but their astringency adapts them to conditions of sluggishness with extreme mucous relaxation. In using any tonic, then, the condition of the stomach and bowels must be understood, and the remedy selected accordingly. Thus the stimulating helonias or sabbatia would be out of place when the stomach was in a state of chronic irritation; and instead of imparting strength, would but increase the excitement and suffering; while camomile or boneset would exactly meet the condition, and impart grateful relief. On the other hand, boneset or verbena would be of no use when the stomach was sour and lined with viscid phlegm, the surface cold, and the bowels inclined to looseness; but such agents would increase the laxity which was already too great, and would thus cause the patient to feel more feeble; while hydrastis or cornus would give the tonic action desired. And again, cornus or salix would be wholly out of place when the bowels were constipated from rigidity of muscular structure and deficiency of mucous secretion, but would render the patient more uncomfortable by; adding to the alvine dryness and rigidity; while such an article as boneset or verbena would give effectual relief.

251. It is probable that every experienced practitioner has made some classification of the above character, at least with some of the leading tonics in prominent cases. But scientific accuracy requires that the classification be made universal, so that each and every tonic may be assigned to its appropriate place. And this classification must extend to those tonics which act so largely upon specific organs; so that time shall not be lost, and disappointment be endured, by attempting to improve digestion with quinia, which acts almost exclusively as a stimulating tonic to the nerves — scarcely advancing the digestive function at all; or by endeavoring to tone the nerves by the relaxing cypripedium, when the more stimulating scutellaria is needed. It is not to be expected that any tonic will confine all its influence to any one tissue, for in the nature of physiology this is impossible. (§130.) But when an article acts upon a particular structure with nearly its entire force, it will be weak practice to employ it for another structure upon which it expends only an insignificant amount of its virtues. And if the agent selected acts with specific qualities upon any particular organ, it must also be considered whether or not it acts as that organ needs at this particular time; that is, whether it relaxes, or stimulates, or astringes the part. By making such a classification, and such discrimination, the practitioner will be enabled to employ his tonics with great accuracy, and with corresponding good effect.

252. *Abuses of Tonics*. — These agents are subject to many quite wrong applications, from a misunderstanding of the true field they are calculated to occupy. So soon as a patient is feeble, or complains of feeling "weak," it is a too common practice to direct the use of tonics at once, without duly considering the occasion of that weakness. Quite too indiscriminately is the same general prescription made for debility arising from an enfeebled stomach, sluggish liver, occluded gall-ducts, etc. (§165, 166.) A moment's reflection will show that mere tonics can be useful only in the first of these cases; while in each of the others the retained secretion must be eliminated before any form of tonic can be of use. An instance of this kind is found in

the popular management of ague, where the antiperiodics (stimulating tonics to the nervous system) are almost the sole dependence; but where no cure can possibly be effected till suitable measures have been employed to cleanse the stomach and bowels, reestablish the functions of the liver and skin, and distribute a full circulation. When these things have been done, three-fourths of the disease have been removed; and then appropriate tonics will easily effect the other one-fourth, providing the secretions and circulation are still duly maintained. But in the antiperiodic practice, the nervous centers are pushed inordinately, while the secretions and circulation are not attended to beyond a moiety of their requirements; and as a consequence, while the nerves are for the time so forced as to forestall that nervous agitation which constitutes a "chill," the actual elements of the disease steadily accumulate and more deeply spread the roots of the difficulty.

253. In a still more marked degree are the tonics misapplied in some forms of fever, under the misnomer of their being "febrifuges." For example, take the very common employment of quinine in typhoid fever, typhoid pneumonia, and similar conditions of great prostration. However much the nervous system may demand sustaining under such circumstances, it is futile to hope that any strength can be imparted to it while the frame is saturated with the very elements of putrefaction which were the sole cause of that nervous depression. Manifestly, these semi-putrescent materials must be thoroughly ejected from the system, ere the nerves can be maintained effectually; as otherwise, any attempt to use tonics would be like trying to obtain sweet water from a stream whose fountain was tainted. It is true that the system must be sustained to a certain extent, in order to effect the process of elimination; but that support must be of a character to keep all the emunctories thoroughly open, while the circulation is duly maintained by diffusive and general stimulants. (§160, 161.) This kind of action is precisely that which quinine (and also salacine, cornus, etc.) does not secure; for while this article drives the nervous centers more vigorously than they even now require, it notoriously shuts up the whole round of secreting organs, and tightens up every tissue of the frame with unnatural tension. These facts have long been known to all schools of medicine; and hence no well-informed practitioner will attempt to give quinine till some impression has been made upon the emunctories. But even then, the general practice gives this article regularly quite too soon after the secretions have been started, and long before the frame has been relieved from the mass of impurities with which it had been saturated. The consequences of this course are seen in the dry tongue, confined bowels, parched skin, and protracted delirium, which mark typhoid patients under the quinine treatment for many days longer than is common under other and more suitable management. (§163.) Such a course of tonics, at such a time, can give no strength whatever; but will prove as useless as would strong food when the stomach was too feeble to digest it. It is only after the emunctories have every one been effectually opened, and through them the system purified completely of the morbific accumulations, that such tonics can be used, and then but sparingly. Previous to that moment, it is an abuse of good articles to resort to tonics under the false idea that they can impart strength. And by whatever name a malady may be known, the use of tonics, (especially of an astringent character,) before the secreting organs have been well opened, is a misapplication of

these articles — a rule, however, which does not affect the employment of stimulating relaxing tonics with secernents, to promote secretion in chronic cases.

DOSES OF MEDICINES.

267. The practitioner naturally desires to know what quantity of an article should be given. This is a question to which no definite answer can be returned; for the temperament of the patient and the conditions of the structures will have much to do in determining the amount to be used. All that can be said of any agent is, that a stated quantity of it is an *average* dose for an adult, when certain effects from it are desired; and then the practitioner should so fully understand the differences between the susceptibilities of temperaments, and the variations made by age, sex, and present state, as to increase or diminish this average according to the case in hand. A few general considerations will indicate the leading facts on these points.

268. First, then, every agent has its own amount of strength, or acting power, in a given bulk. The differences in this respect are very wide. One or two grains of capsicum would represent a full average dose; but twenty grains of asclepias would manifest no greater amount of action than the two grains of the other agent, while fifteen grains of apocynum or eight of podophyllum would equally represent a fair influence of these articles. As capsicum expends its strength rather slowly, doses of it need seldom be repeated oftener than once in four hours for chronic cases, or once an hour for acute cases, and not always so frequently as this, (§134;) asclepias expends itself more quickly, and usually requires repetition every hour or less in acute cases, but is scarcely applicable to chronic cases unless in slowly- acting combinations; while both the nature of apocynum and podophyllum, and the physiology of the organs they act upon, dictate their repetition at long intervals — as twenty-four or even forty-eight hours, yet occasionally oftener. (§176.) These facts are easily recognized when an article is to be used by itself, but it is necessary also to bear them in view when forming compounds, lest an agent be given in too large or quite too small quantities, or a slow agent be used with those which require frequent repetition. (§264.)

269. The conditions of the organism being the same, it will be found that persons of the nervous temperament respond to the action of remedies more quickly than do others; next in promptness is the sanguine and the sanguine-nervous; the sanguine-bilious comes third in order, and requires pretty liberal quantities; the bilious demands quite large doses; while the lymphatic, and a considerable admixture of the lymphatic with the bilious, will need quantities that to the nervous would seem almost enormous. In the same order will the doses need to be increased in frequency; for the intense activity of the nervous temperament will distribute remedial impressions much more rapidly, and therefore these will lose their effects more early, than in the bilious or lymphatic temperament; and hence the nervous and the nervous-sanguine require their potions at correspondingly shorter intervals than do the more sluggish On these accounts, it is generally preferable to select remedies mainly of the more prompt kind for the susceptible; and those which are slower, as well as more powerful, for the other temperaments. Thus, among tonics, such articles as camomile, liriodendron, frasera. and scutellaria, are more grateful to the nervous than would be gentiana, sabbatia, and jeffersonia; while the latter articles would be more effective and employable in the bilious and lymphatic. Note that the more intense agents are not to be employed in the susceptible constitutions, but that they should not be

used alone, and should be compounded with the lighter tonics greatly in excess; and *vice versa* with patients of more sluggish frames.

270. In persons of the same temperament, women are more susceptible than men. In speaking of the doses of an agent, the most customary average is that which has been found suitable for a middle-aged man of the sanguine-bilious temperament. From this it is probably fair practice to deduct one-fourth for a woman; and then hold these relative proportions between the sexes, as the scale of quantities is shifted up or down according to the temperament. Younger persons require much less than an adult; while quite old persons usually require more. The following table will give a fair approximation to the quantities required at different ages:

TABLE OF DOSES ACCORDING TO AGE.

Age 25. Let the full dose be.....l, or 1 drachm.

" 18 will require .....2-3ds, or 2 scruples.

" 14 .....half, or ½ drachm

" 7 .....l-3d, or 1 scruple.

" 4 .....l-4th, or 15 grains.

" 3 .....l-6th, or 10 grains.

" 2 .....l-8th, or 8 grains.

" 1 .....l-12th, or 5 grains.

The average dose of an article is sometimes divided into two or more portions, and given at short intervals, so that one portion shall be administered by the time the previous one had partially expended its strength. This is called giving an agent in *broken doses*; and is a method especially suitable to acute cases, when diffusive remedies are being used.

271. The habits of individuals often make a material difference in their susceptibility to medicines. Those addicted to alcoholic drinks, fermented liquors, and tobacco, require larger relative doses, according to their temperament, than those who have not pursued such habits. The users of opium are peculiarly blunted to all remedial influences; and it is often impossible to make any definite calculation as to the amount of any agent required to influence them — such persons often requiring twice or thrice an ordinary dose, if they are still using or have recently used the narcotic, though all cathartic agents have to be employed with the greatest caution on those who have recently stopped the habit. (§121.) Any mode of life which induces a full bony and muscular development — such as the stronger mechanical and all outdoor labors — will necessitate some increase of the average doses, while sedentary life and non-muscular pursuits increase the susceptibilities of the system to smaller doses. For the same reason, persons who are habituated to city life, are much more readily influenced than those who live in the country; and a city practice generally calls for the milder agents much more liberally than for the stronger ones. The differences in this respect are so great, that city residents usually require but about two-thirds as much of any given agent, other things being equal, as would be

required by persons of the same constitution who live in the country. It is from this great impressibility of city people, and particularly of those of them with an extreme development of the nervous temperament, that the pellets of Homeopathy effect any palpable results; for upon the more dense and muscular inhabitants of the country, such quantities even of poisons, (§105,) scarcely induce action enough to be noticed.

272. Different forms of disease also exert a most marked influence upon the amounts of remedies that will be required. Even here, however, the facts will be found but a new form of the rules already named as to the influence exercised by the varying temperaments. Where the malady is of a nature chiefly to involve the nervous system and greatly to exalt its sensibility, the doses of an agent will need to be materially reduced. This not unfrequently occurs in cases of irritated stomach and bowels, highly excited uterus, erethism of the brain and spinal cord, and constitutional irritability. In the majority of such cases, and especially such as are of recent origin, quite small portions of any remedy will produce the full effect of larger doses in ordinary cases, and sometimes the system will seem to revolt at the too violent impression made by even a reduced portion, and will require the agents in almost Homeopathic attenuation. In such cases, however, these limited quantities, especially of diffusive remedies, will need to be repeated at quite short intervals, as for nervous temperaments. (§269.) In cases, on the other hand, where the nervous impressibility is much lowered, and the vital action greatly depressed, the quantities will need to be increased much beyond the average. Such is the case in cerebral congestion, pulmonary congestion, and all other congestion — especially as relates to outward appliances (§142;) dropsy and all forms of serous effusion, tardy or suppressed exanthemata, malignant scarlatina and diphtheria, low typhoid, and all forms of putrescent maladies; and in the presence of such uneliminated viri as those of scarlatina and syphilis. In some of these instances, it will not only be necessary to enlarge the common quantities of most of the remedies, but it may seem almost impossible to administer enough of suitable articles — the sensibilities being so deeply blunted, that really enormous masses of even the stronger stimulants must be used.

273. In all cases, again, that particularly involve the fibrous and fibro-serous tissues in a state of high tension with excitement, large portions must be employed, and the repetition will have usually to be rather frequent. Among instances of this kind may be named true synchona, tetanic convulsions, articular rheumatism, periostitis, and most cases of bilious intermittent fever and acute hepatitis. Such conditions may be considered as the greatest extreme of the same density of fibrous structure that makes bilious temperaments so tardy in yielding to remedial impressions.

274. These suggestions, while correct as therapeutical laws, can be but general; and the specific application of them is to be left to the province of Practical Medicine. But it remains to be noted here, that great perseverance in the use of remedies is sometimes a matter of the first importance. While a moderate quantity may, in a limited time, overcome the diseased condition in a great many cases, other cases will require large quantities and much time. The word *time* is here used relatively; for while six or eight months might be but an ordinary

period to occupy in the treatment of some chronic cases, three or four days would be a long time to continue some particular management in some acute maladies. There is a strong disposition among many physicians to change their prescriptions at every visit, without duly considering whether any change in the condition of the patient requires such change in the management. (§166.) This is the more apt to be done if the case is not improving. In some instances, this course is adopted on the mistaken idea that it will give the friends increased confidence in the skill of the practitioner; but probably in most instances grows out of the system of prescribing specifics for disease by name. (l55.) The moment the physician allows that idea to have place in his mind, he feels that he has not "hit upon the right remedy" each time that he finds his patient unimproved from is last prescription; his next step must be to "try" something else, in the hope of getting the right thing; and thus he drifts long without any confidence in his own diagnosis or in the correctness of his therapeutical applications, while the poor patient is as a football to the doctor's daily "tryings." When poisons are the articles administered, the condition of the invalid is a truly wretched one; and it becomes simply a question which is the stronger, the poisons or the sufferer's constitution. The true Physio-Medical practitioner, studying disease only as certain conditions, and dealing in agents that are perfectly harmless, first decides upon what class of agents are required in each case; and then he gives the selected articles till they accomplish their purposes, be the quantity great or little, be the time long or short. If his patient does not improve as was expected from visit to visit, the same treatment is to be pursued all the more vigorously; but no change is to be made till such a change of conditions is diagnosed as shall make other or additional treatment necessary. It is no part of the Physio-Medical philosophy decide that certain remedial impressions are needed in aid of Nature, and then to stop short of making those impressions to the fullest requirements of the case. (§64.)

275. The question is sometimes raised as to whether remedies do not lose their power to affect the frame, by being long continued, so that the dose will have to be increased. Such is the use with all poisons, against which the organism has to establish continual warfare; but I have never found it so with truly sanative agents. An article (as a cathartic) may be given in excessive quantities, and so weary a part by over-stimulation of it (§57;) and while that weariness lasted, the fair effect of the agent could not be procured by the average dose. Even in these cases, however, I have always noticed that, so soon as the weariness of over-exertion had been rallied from, the average dose of the medicine would have the same effect as before. In the continued treatment of chronic cases, it may be advisable to accommodate the stomach by changing from one set of articles to others of the same class; but this is a matter of pure accommodation to the stomach and palate, even as variation in food is desirable, and never, so far as my experience extends, becomes a necessity on account of any truly physiological remedy ceasing to exert its legitimate effect upon the frame.

DEMULCENTS — ESCHAROTICS

276. *Demulcents*. — Articles of this class have a beneficial impression under many circumstances, but their action is more physical than remedial. Applied outwardly, as in poultices, they retain warmth and moisture, and thus prove relaxing; and they also absorb unwholesome discharges, and serve as a vehicle to hold in position pulverized remedies of any class required. Inwardly, they lubricate the mucous surfaces, and prove soothing in inflamed conditions of the stomach and bowels. They similarly affect the lining of the uterus and vagina, whether given as a vaginal injection or used by the stomach; and nearly every remedy of this class seems to pass in part through the kidneys, whence demulcent drinks are always of much service in all forms of acute irritation of the urethra, bladder, prostate gland, or kidneys. They slightly increase the amount of urine; but their chief action is upon the mucous structures. They form valuable soothing injections, by themselves; and are largely employed as a vehicle for conveying powders by injection, so that the remedies may be the more quietly retained by the bowel, and act the more slowly. For similar reasons, they are many times used to convey very bitter or highly stimulating powders to the stomach. In some instances they are used in forming a pill mass, on account of the tenacity with which they bind powders together. Some remedies combine demulcent with their other properties, as symphytum, convallaria, liriodendron, and hollyhock. All agents of such properties are likely to exhibit much of their action upon the lungs.

277. *Escharotics*. — Agents of this class are not *remedies*. They possess no *curative* action whatever; but are useful only to break down and destroy small masses that demand some form of violent removal. They are admissible for similar purposes, and only on the same grounds, as the scissors or knife or ligature of the surgeon. Most of them are capable of destroying the healthy as well as the unhealthy structures; hence they should always be limited to the particular surface which they are intended to destroy, and should be so diluted that the really sound structures may be well able to resist them. (§73.) Such dilution must not be supposed to change the character of their action, but merely to lessen the amount of that action to a point controllable by most healthy tissues. Some escharotics are readily absorbed, especially if applied to any abraded surface, (§125;) and no escharotic thus capable of absorption should be applied, even for caustic purposes. It is a great mistake to suppose that an escharotic can improve the condition of any class of ulcers even of chancres. They will destroy weak granules; but a far better practice will be, to make application of such sanative remedies as will consolidate these incipient growths and stimulate better capillary action. In granular ophthalmia, this is particularly the case; and I am now, even more than formerly, opposed to the employment of any mineral escharotic in these cases, as such articles must be *very* weak in order to escape injuring the sound conjunctiva; and breaking down the very granules needed to heal the original abrasion.

278. *Chemical Reagents*. — In a few instances, chemical substances are employed in and upon the human frame for the distinct purpose of neutralizing other substances. This is done whenever an *alkaline* article — as soda, potassa,

magnesia, or lime preparations — is administered to correct acidity of the stomach. That action is a purely chemical one; but it never can *cure* such acidity, because the alkali does not act remedially upon the tissues of the stomach. On the contrary, if the alkali is given in excess of the acid present, the *free* alkali remaining in the stomach may prove injurious to this organ. And if the article is given a short time before a meal, or before the stomach has digested all that it can digest, it will neutralize the true gastric juice and leave the food in a condition to ferment rapidly. (§39.) These facts are sufficient to indicate that the use of alkalies for gastric disturbances, must be practiced with great watchfulness. By relieving persistent acidity of the stomach, articles of this class may partially avert a too great acidness of the urine, which is affected by the state of the stomach; but it is evidently a mistake to suppose that alkalies pass through the kidneys and thus chemically decompose calculi. Should they do so, they would unquestionably disintegrate the kidneys long before they reached the gravel in the bladder. Some sores with an ichorous discharge, are benefitted by an alkaline wash at each dressing. Theso-called) *mineral acids* are never usable, except as escharotics to remove warts and similar hard excrescences. The mild vegetable acids are frequent necessities to the system, as noted in the benefits often obtained from using acid fruits. This is mostly the case in bilious difficulties, or during the Summer season when the hepatic organs are easily disturbed. Vinegar is an admissible internal agent; but I can not fairly sanction acids like the citric or tartaric. Patients using acidulated drinks, need to be carefully guarded lest they employ them too freely. Washes of diluted vegetable acids are often good in skin affections, all such acids being somewhat stimulating.