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IS MEDICINE A SCIENCE?

It is with pleasure that I greet you as friends and workers in the noble and beneficent cause of sanative medication. This honorable and scientific body has imposed upon me the duty of addressing you on this occasion, and in scanning the field of medical literature for a subject for our consideration, I could think of nothing of more importance to the profession in general, or of greater moment to the public at large, than that which is involved in the answer to the question, "Is medicine a science?"

Science, as defined by Webster, "is a collection of general principles or leading truths relating to any subject, arranged in systematic order."

Dr. Austin Flint says: "The principles of medicine constitute medical science; the practice of medicine is the exercise of medical art." He also says: "The principles of medicine and general pathology are, in fact, synonymous terms, each term having the same scope of application." This is but one of the many statements which show that medicine as practiced by a large class of physicians is regarded as unscientific. And while we admire their honesty of heart, and are perfectly willing to lend them a helping hand out of their art-istic muddle into the noon-day light of a truly scientific practice, it is not our purpose at this time to discuss the merits or de-merits of the different schools, systems, or sects of medicine, but to show by well attested facts that every system of medicine making any pretentions whatever to science is either wholly scientific both in theory and in practice, or else their pathology and therapeutics are alike founded in error.

Dr. Beale, in treating of inflammation of the kidneys, says: "So far from disease bring universally a destructive process—a disintegration—it consists essentially, and in the majority of cases, of a too rapid increase of the living or germinal matter, of an addition to a part rater than a subtraction from it, and if in many morbid changes, increased destruction could be brought about, the diseased state would cease."

Now this statement involves at least three distinct and lead-propositions—involves a collection of general principles, arranged in systematic order—and all that is essential to constitute it a scientific arrangement, is to prove that they are individually and collectively founded on leading truths relating to this subject. For instance, if it can be shown, first, that man is a duad being, is composed of living and non-living matter, as is plainly implied in the statement; and, secondly, that disease essentially consists of a too rapid increase of the former of these two distinct elements; and lastly, that there are agents which posess fixed and definite properties, which, when given, will destroy the living matter, the practice of medicine will have been shown to be no less scientific than chemistry, astronomy, or mathematics.

Collectively, these propositions comprehend all there is in

medicine, so far as fundamental principles are concerned, whether they be true or false; and they are so intimately interwove, in part, that they (the principles and practice) must either stand or fall together as a systematic arragement.

Adopting the above statement then, as a text for what we have to say, we are at the very threshold of our subject forced to enquire into the physiology and physiological histology of man, in order that we may safely enter into the discussion of the principles and practice of medicine.

Did it ever occurr to you that a man, though he be dead, may, nevertheless, be a perfect organism? That a tree, though it be dead, is no less a tree? We look at the man and instantly recognize him as one with whom we conversed but a little while ago. His features are blanched and shrunken, it is true, but this is due to the recession of blood to the internal organs, as you all well know. We see all that was visible to the unaided eye while he yet lived as you and I now live. But what a change! And yet how little changed!!

We search in vain for evidence of structural derangement—not a fiber is missing, not a cell wanting; no lesion of structure can be discovered anywhere. A perfect organism! A lifeless body!! A motionless mass!!!

So also in the case of the tree, we find it perfect in its structural arrangement, its tissues all in their proper place, and its different parts united into one harmonious whole, so that we may readily determine its genius and species. The botanist will tell you that the time was when this mighty tree—towering to the skies—was but a minute particle of living matter, without structure, color or form. That it made for itself a protective covering, which was destined to become food for it during its infantile life. The farmer will inform you that the grain of corn, however perfect in outward appearance, has no power whereby it can appropriate the inorganic elements of the earth to its own growth unless it possess a living germ within.

And so we will find, if we go back in the history of man, when he too was but a minute particle of living matter, without form and void of structure, and follow him up, step by step, through all the gradations of developmental change, until

at last he has reached mans perfect estate, that this primative particle of structurless matter is the author and builder of every cell, fibre, tissue, structure, and organ of the entire body. We will find that this particle, trillions of times less than that which it has produced, has imparted life to that which was dead, and it became living matter. We will find that the multiplied millions of living particles which have resulted from the division and re-divisions of this primative particle, have surrendered a portion of their substance a sacrifice on the altar of death, that an organism of marvelous, though exceedingly simple workmanship might be produced.

This is not mere idle speculation, for we have seen this matter grow and divide, and re-divide, until hundreds and thousands had been produced out of that which had neither life or power of its own. We have seen this matter produce tissues, organs and structures out of that which was destitute of either. This is the only matter in the world that can convert other things into its own substance, and thereby grow, and multiply; and it is the only matter that can produce new tissue, and renew that which is old, and restore that which is lost. It is this matter that performs every secretory function of the body, and without it not one of the excretory functions could possibly take place. It is to these particles we must look for the source of the impulse by the exercise of which every and all vital phenomena are made manifest. And notwithstanding all these facts, it is this matter that the third proposition of our text would involve in destruction.

If we continue our investigations still farther we will find that all organs, tissues, and organisms, however diverse in appearance, in physical properties or chemical composition, are but the expression of the formative capacities of this living matter, which has neither color, structure, or form; neither physical or chemical properties, whereby we can differentiate that which will produce the lowest from that which will produce the highest organism in the scale of creation. It is only after they have undergone condensation in their outer part into formed material that we may determine the kingdom, the genius, and the species to which they belong. And notwith-

standing the countless millions of living, growing, multiplying particles that are brought into existence every day, they never make mistakes in developmental change.

Ought we not ponder well these facts then, before we judge them too harshly, and strike the fatal blow that terminates their vital existence. The command has gone forth, "Thou shalt not kill." Ought we not weigh well the pros and cons before resorting to the use of agents which, like the bush-whacker stealthily, and in the dead of night, strikes down the sentinels of our being, the authors of our organic existence, strikes down that which guards the very citadel of life—the brain—the organ of thought, of reason, of judgement, of love, of joy, of worship?

Man is a duad being; is composed of matter in two directly opposite states—living matter, and formed material. The first, the progenitor of the latter, is appropriately called bioplasm; the formed material is so named because it has been fashioned by that which was without form.

Having shown the first proposition to be founded on leading truths, which are general in principle, we will next ascertain if there are not means whereby increased destruction can be brought about.

Dr. Beard, of New York, says: "Opium will kill, and that, so far as it goes, is science." And so it is, since it is a leading truth in nature that—"All poisons, whatever their difference in other respects, agree in this they suddenly and rapidly extinguish a large proportion of the vitality of the system." Morphia will allay a cough, will obtund nerve sensibility, will destroy the power to think, will cure fits, will convert a reasoning, thinking, sentient being, into a lifeless, thoughtless, motionless, organism; yea, morphia will accomplish wonders. It is stated in Reynold's system of medicine, that "we may put and end to fits, it is true, by so far reducing life that function cannot manifest itself even in a disorderly manner." And we ask, who ever knew a dead man to cough; to cry out with anguish, or to reason upon the problem of life and immortality? Yes, my friends, death puts and end to physical suffering, suspends every vital manifestation, and arrests all organic

processes. There is seldom a day that we do not see a reported death from the destructive action of some one of the many agents, currently known as poisons, and constantly administered as remedies, which had been taken for the cure of an imaginary disease, a vital manifestation, a mere symptom of the pathological condition.

One individual had a gastralgia, or an enteralgia, superinduced by imperfect mastication and insufficient insalivation of his food, and resorted to the use of opium in some one of its forms to obtain relief from his suffering. What, deaden nerve sensibility and leave the putrefying mass undisturbed to work its septic influence!

Would it not have been better practice to follow the instinct of the cat or dog and obey the behest of the system by dislodging the offending substance? We think so, but all men do not believe alike.

It is stated by the most eminent authority, that strychneia, arsenic, corrosive sublimate, antimony, carbolic acid, alcohol, &c., &c., are poisonous; and some enthusiastic poison-mongers have gone so far as to assert that all things are poisonous, even the food we eat is not excepted from this sweeping charge. A man consumes more aliment at one time than he has gastric juice to properly digest and the consequence is a most unpleasant colic. The enthusiast, after having administered a dose of "quieting truck," looks up with a beaming countenance, and in the fullness of his joy says: "Didn't I tole ye so." We kindly secure a portion of the offending substance, which had evidently undergone fermentative change, and place it before him; but behold his countenance instantly express deep disgust. When we remember that the word poison carries with it the very import of death, and that man, or his bioplasm, lives upon the food he eats, we marvle how it can be that that which sustains life and vigor, also destroys life and motion.

Another individual contracts a cold, whereby the function of the skin is suppressed, and consequently an inflammatory condition of the kidneys is engendered. Does he seek to remove the cause of—the necessity for—the inflammation by resorting

to the use of sanative agencies to restore the cutaneous function? Evidently not, or his death would not have been recorded. He has been taught that disease consists essentially in a too rapid increase of the living or germinal matter, and that "the most virulent poisons are our best remedies," and being of a logical turn of mind, he concludes, therefore, that the sooner he encompass the death of this matter, the sooner the diseased state would cease. He took the poison that he might destroy the living and preserve the dead; and succeeded beyond his most sanguine anticipations. The result was strictly in accordance with the laws of nature, fixed, sure and definite. He hoped it would expend its entire influences at a given point. Vain hope! It entered the blood on its mission of death, and no man could say thus far and no farther. We are confronted with the statement, however, that quantity alters quality, and that he took an over dose.

Now we have always suspected that two q's was equivalent to one quack; but let that be as it may, it was evidently the poisonous quality he sought, otherwise the living or germinal matter would not have been destroyed, and hence the supposed disease would not have ceased.

In view of the above hypothesis it is claimed that the practice of medicine can never be reduced to a science, because the mind of finite being can near know, in any case, just how little quantity will be curative or destructive.

We have endeavored to determine this question by submitting the living matter of man, and animal, and reptile, to the influence of these agents under the microscope. We found that 1-7,000,000 part of a grain of strychnia almost instantly transformed the living germs into non-living fat globules.

Authorities state that the antimonials, the mercurials, arsenious acid, the mineral acids, phosphorous, etc., produce fatty degeneration, or molecular death of living matter, even when given in medicinal doses. We have seen hundreds of living, moving bioplasts "suddenly and rapidly" suspend all vital phenomena from the destructive influence of less than 1-40,000 part of a grain of morphia, and thus remain a dead and smeary mass. We have witnessed the death of living matter from the

effects of alcohol, chloroform, carbolic acid, aconite, hellebore, stramonium, and indeed a large number of such agents, even when used in exceedingly small quantities. We conclude, therefore, that nothing is more certain in this world than the death of living or germinal matter when subject to the action of these agents. I care not how minute the quantity may be the result is essentially the same in kind. And should but one single bioplast be destroyed the vitality of the organism is reduced just that much; there is one particle less to perform a function; one more to be eliminated as effete matter—in addition to that already existing—and hence an increased burden thrown on the excretory bioplasts, which are at the same time rendered less competent to perform their accustomed function by virture of the debilitating influence of the poison. We are free to confess, therefore, that he took an over dose, whatever the quantity may have been.

Many poisons have a preservative, as well as a destructive influence, however, but the question presents itself—what do they preserve and what from? In every instance in which we have examined matter undergoing putrefactive change, we have found myriads of living, moving bacteria and allied forms, and hence, we conclude that they are the active agents in the transforming process.

As an additional evidence in proof of this we site the fact that those agents possessing preservative properties—such as alcohol, arsenious acid, carbolic acid, etc.—when added to the decaying mass instantly arrest the putrefactive process, and the active living particles are at once reduced to the state of dead matter, and at the same time the formed material, or organic structure is prevented from undergoing farther change. We see, then, that these two properties, which are characteristic of many poisons, are, after all, dependent upon their destructive influence. They preserve the dead by destroying the living, they preserve the non-living formed material by preventing the growth and multiplication of the lower as well as the higher organism at the expense of this matter.

The preservative properties of these agents are not demanded for remedial purposes, however, since a loss of formed ma-

terial can usually be replaced by the living matter in the immediate neighborhood of the lesion, while death of the latter forever arrests developmental change. For instance, the cutaneous epithelia is constantly being desquamated on the one hand and just as constantly being renewed on the other by the germinal matter beneath. If the latter should loose their vitality the loss cannot be restored. Moreover, if the object is to prevent the ravages of these low organisms upon the non-living formed material the serum of the blood, which is caused to constantly traverse the formed material of every cell of the entire body, so long as the cell maintains its vital integrity, is the very best preservative known to the practical microscopist, and evidently the sooner a cell that has lost its vitality, and hence its power to function, is removed (even though it be through the instrumentality of these harmless little bodies) and its place supplied, the better it will be for the individual.

Again, if disease does consist essentially, and in the majority of cases, of a too rapid increase of the living or germinal matter, it would certainly be contrary to the plain teachings of science to use these agents for any other than their destructive properties. And if in a minority of cases the disease is essentially a destructive process,—a disintegration—these agents would be contraindicated, since they would prevent any reparative effort, Poisons, if used at all, should be given for the express purpose, then, of destroying life, or, more properly speaking, for the purpose of deranging living or germinal matter, so degrading it, rendering it so obnoxious that the pure spirit of God has no longer a fit dwelling place therein. I say "pure spirit of God" because that which is dead cannot impart life to the dead, or, for that matter, to the living either. How, then, came life in the early dawn of creation, when the earth was one vast wilderness of inanimate matter? It came from the living and that was God.

Now, we have conclusively shown that man, in his perfect state, is composed of living matter and non-living formed material, and secondly, that there is a class of agents which are eminently destructive of the living matter, in any and all quantities, and if it can be shown that disease is essentially a too

rapid increase of the normal bioplasm of man's organism, the practice of giving poison will have been proven to be purely and truly scientific, and *vice versa*.

An individual gets a broken bone; the surgeon approximates the two ends and then applies his splints and bandages, but unless the *vis medicatrix naturæ* does her part, union never takes place. The work of the surgeon it strictly in accordance with general principles or leading truths relating to this subject and is therefore scientific. But what does this thing we call *vis medicatrix naturæ* do in the reparative process, and how does it do it? First, the formed material at the seat of the injury has been so seriously deranged as to unfit it for the purpose for which it was intended, and hence, it must be eliminated, and the only way in which this can be effected is by the bioplasm in its vicinity converting this matter into its own substance. The same may be said of the effused blood in the surrounding structures and between the ends of the bone. There is, therefore, an extra amount of labor to be performed in clearing away the debris, and the living matter by virtue of the increased amount of pabulum thus supplied lives faster, or what is essentially the same thing, they grow and multiply at the expense of this bebris until their volume is in excess of the nutrient supply, and consequently formative change ensues. The mechanical pressure exerted upon the vessels by their increased numbers also has a marked tendency towards diminishing the nutrient supply, thus still farther favoring formative change. The result is most favorable, since it is in this way that the bone is surrounded with a combined splint and bandage far more perfectly adjusted than the most accomplished surgeon can ever hope to do. Moreover, they dowel-pin the two ends of the bone together by inserting a firm plug into the medullary canal, extending for some little distance in either direction. They also produce new formed material in the place of that which they have removed, and after this has been properly infiltrated with calcarious salts—in other words, after the lesion has been fully repaired—they remove the provisional callus and medullary plug, and all trace of the previous injury disappears.

Which constitutes the disease in this case, the increase of

the living matter, or the lesion of tissue, the solution of continuity? How long do you think it would require to repair the injury in case some one should stand by with a club, in the shape of a hypodermic syringe loaded with poison, and every time a workman commenced operation strike him a fatal blow? This is precisely what the third proposition inculcates, and is a logical deduction from the second.

Again, a man gets wounded with a leaden ball. The ball becomes encysted; the track of the wound is rapidly being filled up with granulation tissue, and all things promise a speedy and complete recovery. The encysting membrane is formed material and bioplasm is the only matter in the world that can produce it. The same is equally true with regard to the granulation tissue. The reparative process suddenly ceases, however, and the individual sinks lower and lower, day by day, until, at last he who was the very picture of health and manly vigor is finally consigned to the tomb "as the safest refuge from suffering and disease."

Let me repeat, there is no other matter known to man, or made by the all-wise Creator, that has the capacity to convert pabulum into bioplasm; no other matter that can produce formed material, and thus renew that which is old, and restore that which is lost; no other matter that can repair an injury or heal a wound, but living matter. And in order to do this it must increase more rapidly than in the normal condition of things, otherwise the growth would be only sufficient to meet the natural waste of tissue. And if any one doubt the destructive influence of alcohol, of iodine, carbolic acid, &c., let him take a drop of the matter discharging from the wound, and submit it to the action of any one of these agents, under a power of 1000-x to 2000-x, and he will have abundant cause to think differently. Again, if he deny the statement that bioplasm is the only matter that is competent to repair the injury, let him, (after having fully satisfied himself that the discharging material, which had failed to gain an attachment at the point of development, is living matter) inject carbolic acid into the tract of a wound that he finds is being rapidly healed, and he will be convinced that the granulating process was the

work of these elements, since carbolic acid kills the one and preserves the other—kills the living and preserves the dead. They undergo molecular decomposition, and that too quickly, a very different thing from the death of this matter as it occurs normally in the process of tissue formation, in which case there is simply a still farther condensation of matter which was fluid pabulum, semi-fluid bioplasm and solid formed material. Which constitutes the disease in this case—the rapid increase of living matter, or the lesion of tissue?

If the former, then science would demand the local application of carbolic acid, and the like agents. Moreover, since there is an increased demand for pabulum on the part of the living germs so that they may grow and multiply, and as this demand is being complied with, it would be well to reduce the supply of food, and give a little alcohol to modify the serum of the blood, and thicken the walls of the vessels, thus rendering the nutrient matter less permeable. And to make a sure thing doubly sure, apply cold externally—since this has a marked influence in producing condensation of the fluids and solids, and also greatly diminishes the caliber of the arteries and capillaries, thus still farther restricting the access of nutrient material.

If, however, the destruction of tissue, the lesion of structure, constitute the disease, the above course would not only be unscientific, but would be diametrically opposed to the efforts of nature to repair the injury. In this event, such a course could but prove pernitious in the extreme, even though the sincere prayers of the whole world should ascend to the throne of God to the contrary, for it would be adverse to his established laws relating to this subject.

One has an apoplectic stroke as a result of blood extravisation into the substance of the brain. The clot destroys a small portion of brain substance, and by its mechanical influence suspends the functional activity of a much greater portion, so that complete paralysis of the opposite side of the body ensues. The co-ordinated functions cannot be restored until this clot is removed and the injury repaired. This firm filbrinous clot is not, neither indeed can be taken up by the process of endos-

mosis, as some are inclined to believe, for in addition to its semi-solid condition, the vessels in its immediate vicinity are occluded by mechanical pressure, brought about in the manner just spoken of. The capillary, brain and blood bioplasts take on increased activity at the expense of this clot, and thus it disappears, little by little, until at last it is entirely removed, and the bioplasts have undergone formative change, some into brain cells, others into pabulum, and others into new capillary vessels, and thus the lost functions are regained, the lesion repaired, and the patient restored to his accustomed health, unless it so happen that a caudate cell had been destroyed, in which case the specific function over which it presides will be forever lost, since there is no other particle of living matter in the part, (if in the body), which is competent to rebuild and endow it, with like properties. If the rapid increase of the germinal matter constitutes the disease in this case, science would dictate bleeding, starving, and poisoning; but if the contrary be true, then we should favor the increase of this matter by resorting to sanative means to secure a free circulation of uncontaminated blood, so that the mechanical interference might be removed as soon as possible, and the lost functions thereby re-established.

Again, an individul has typhoid fever, as a result, perhaps, of the destructive influence of unwholesome food or impure water. The solitary and agminated glands of the bowels undergo molecular decomposition and are completely destroyed. Cornil and Ranvier state that: "It is the most elevated part of the follicle or Pyer's patch which first mortifies. * * * * The mortified part is soon cut off from the rest of the morbid tissue by a narrow border, then by a furrow, and it is subsequently eliminated in small fragments." The most elevated part is the part which first feels the impress of the destructive elements within the intestinal canal, and hence its early death. The only matter which can establish a line of demarkation, which can throw up a dyke between the mortifying and comparatively healthy tissues, is living matter. And it is this matter that repairs the injury after the glands which had been destroyed are eliminated, if repair be possible. Sta-

tistics will show that just in proportion as a poisonous, has given place to a sanative course of treatment, in the same proportion the per cent of recoveries from this form of disease has been increased. It is useless to ask then which constitutes the disease here, for, in addition to the above facts, those advocating the doctrine which is the foundation of a poisonous therapeutics, confess the falsity of the proposition in the statement that the disease must run its course, that is, nature must accomplish the cure, if recovery take place; and yet, forsooth, they claim the honor when the patient gets well. Strange inconsistency! they belie their words by dosing, first with one poison and then with another and another, thus not only counteracting the curative efforts of the living matter, but at the same time so far reducing the vitality of the system that complete, and I was about to say, eternal death is inevitable, unless the wet-sheet pack, or other sanative means be speedily instituted in lieu of the above. But we are assured that these agents are not given for the purpose of cure, but merely to guard against complications—that is, to guard against an indefinite something that only exists in the prolific imagination of the prescriber. And hence, the treatment will be vacilating and uncertain in character, just in proportion to the imaginative capacity of the author of said treatment. But mark the fact that the anticipated complication is always vital in character and consequently there is a gradual sinking of the vital energy from the moment the first dose of poison is given until the last; and who ever knew complications appear in the dead body? I cannot believe a practice founded upon a vapory nothing to be either scientific or artistic, but look upon such a course as wholly empirical, and that two of the most pernitious kind.

In order that we may not be accused of an effort to prevaricate or equivocate, we will accept, in conclusion of this part of our subject, the land-marks laid down by Dr. Beale, wherein the uriniferous tubules become filled, choked up, and greatly distended with the living or germinal matter which normally lines their internal surface in such immense numbers. These elements not only increase so rapidly under certain circum-

stances, as to fill and distend the tubules, but by their mechanical influence they prevent the water holding in solution some of the solid constituents of the urine, from escaping into the pelvis of the kidneys, and at the same time compress the intertubular vessels to such an extent as to lead to an anæmic state of the cortical substance of the organ, and consequent fatty degeneration, or other regressive change of those elements situated farthest from the source of nutrient supply, i, e., those most centrally located. Not a very desirable state of things we confess. But what must be done in the premises is the question of paramount importance to the patient, at least.

It is a law governing living matter, that when the access of pabulum is unrestricted they grow and multiply rapidly; if the nutrient exchanges are somewhat limited they do not multiply, but while they increase at the expense of the pabulum, on the one hand, they lose by formative change on the other, and the latter is prevented from accumulating injuriously by constantly being disintegrated and finally eliminated. If, however, the nutrient supply be wholly cut off from any number of living particles, they undergo molecular death, or fatty degeneration.

It is evident, therefore, that this rapid increase is dependent upon prior changes whereby the amount of matter, constituting their proper pabulum, is increased; or else that they are doing the work of other bioplasts in addition to that which properly constitutes the secretory function.

It is stated that cold is the most frequent cause of renal inflammation, and that when thus induced the morbid changes are extremely intensified. It is also stated by Drs. Beale, Bowman, and others, that the function of the renal bioplasts is to depurate the blood of the worn out elements—the tissue-detritus—of the body, that they live and grow at the expense of this matter, converting them into their own substance, and thus preventing them from accumulating to the serious detriment of the entire economy. It is also well known that the skin and kidneys complement each other in both their secretory and excretory function; and hence when the perspiratory function of the former is suppressed, the calibre of the arteries

and capillaries reduced, the nutritive changes greatly diminished, and the cutaneous bioplasts condensed and rendered inoperative, the fluid and tissue detritis normally eliminated here, must be depurated by the kidneys, or else accumulate in the blood, thus rendering it unfit for the purpose of general nutrition, and death, inevitably, will be the final result. The superabundance of excrementitious matter thus thrown back into the general circulation, so to speak, can be depurated in no other way, and, hence, we claim that the rapid increase of the living or germinal matter is essentially conservative in nature and tendencies: That it is the physiological duty of the renal bioplasts to eliminate this matter, and that when circumstances arise demanding compensative action on their part they must call for additional workmen, must take on increased activity, and that this is in the direct line of their specific function. We also claim that the subsequent fatty degeneration, as well as the circumstances directly leading to this result, are equally conservative in character. For the tubules could not be freed from their burden did not the centrally located elements undergo fatty change, and final elimination by the expulsive force of the accumulated water above; and the mechanical pressure which leads to this result, also diverts the major portion of the blood from the corticle to the medullary substance, where it is acted upon by the living germs lining the loops of Henle. And after the convoluted tubules have been freed from a part of their contents and the pressure thus removed, the blood again flows in its accustomed channels; and if the primary conditions, leading to the increased access of pabulum at this point, has been removed, the tubules are speedily rehabilitated with their normal epithelial lining. For it must be remembered that those bioplasts situated immediately upon the basement membrane, those nearest the source of the nutrient supply, are never entirely deprived of pabulum, since death and final expulsion of those most distant from the blood current, would necessarily have occurred before such a state of things could come about. By way of illustration, we will take a strip of bibulous paper, and bring one end in contact with a small quantity of water. You see at once that the entire amount of

—let us call it pabulum—is exhausted by that portion nearest the nutrient supply, and the remaining portion is starving, so to speak.

Suppose, now, this paper was living matter, and the water was the circulating blood, and that to this blood we add a destructive agent—a poison—which would be the first to suffer death, that most distant from the blood current, or that lining the basement membrane, and which alone can rehabilitate the tubules with their normal epithelial lining in the event of a better state of the economy at large? Kill the latter, and you subject the entire organism to the deleterious influence of the retained secretion, or more properly, excrementitious substances that should be secreted. You cause the death and final expulsion of the entire contents of the tubules, and they eventually become reduced fibrous cords, incapable of performing any function, providing co-ordinate vitality does not cease before this extreme condition has obtained. You kill the living elements lining the loops of Henle, also, and thus prevent their compensative action. You taint every drop of blood circulating through the entire body and thus render it still less fit for nutrient purposes. You convert a condition which is easily curable, if properly treated, into a fatal malady, as is evidenced by the fact that all the leading authorities, as well as the lesser lights who advocate such a course, boldly assert that Bright's disease—so called—is incurable. And yet there is no more difficulty in remedying this condition, when properly treated, than is the case in the majority of other ailments to which the human family is heir. Science demands that the cutaneous functions be restored, by diverting the excess of blood from the kidneys to its normal channels; by relaxing the condensed cutaneous bioplasts, and stimulating them to increased activity. And if the renal blood vessels have returned to their embryonal or bioplastic condition, science demands that formative change be induced as speedily as possible, so that they may be enabled to reduce their calibre, and thus prevent the increased access of blood to these organs. It only remains for us to show that there are agents, which, when given, will exert their influence in these directions without en-

tailing injury on any part of the body, to establish our scientific pretentions upon a sure foundation.

We have tested the influence of a large number of our therapeutical agents upon living matter, under the microscope, and found them entirely free from destructive properties. We are able to determine in this way the precise influence which they exert in each individual instance; and, hence, are not required to adopt the "cut and try" rule that is so much in vogue by some, and which is evidently characteristic of the empiric.

Under the influence of capsicum the living matter seemed instinct with life and increased animation. Their movements became more and more vigorous until their internal granular commotion, and their external transfiguration were almost tumultuous. After they had lived "too fast" for five hours, in one instance, they were no less happy; not in the least cast down; in no wise exhausted, but as intensely energetic as at any former time, and caused us to exclaim stimulate, stimulating, stimulated, who would decline the beneficial effects of this best, purest and strongest of all stimulants, a stimulant that is not followed by depression, as always happens when Alcohol, and other falsely so called stimulants are taken. But what about that terrible poison, Lobelia, of which a certain class of medical men are so exceedingly dubious? Well it refused, even in large quantity, to kill a single particle of living matter; on the contrary they seemed to delight in its soothing influence. They were much less vigorous in vital movements than was the case when feeling the impress of capsicum. Indeed, when compared with the latter, they seemed indolently happy; languidly contented; would spread themselves out to such a degree that they would become as thin a-s t-h-i-n, well a good deal thinner than my imagination, and had they not possessed an eye single to the welfare of their digestive organs they certainly would not have accomplished the feat of again changing form. They appeared less granular, and more highly transparent than did those under the influence of capsicum, hydrastis, sanguinaria, &c., and left the impression on our minds that they were impressed by a pure relaxant.

Under the influence of hydrastis, sanguinaria, and some other agents, the living particles seemed to experience formative change in their outer part, and in the case of frogs blood assumed a fusiform shape, which was maintained so long as they were under observation. The change was in perfect accord with that which occurs in the process of tissue formation normally as was evinced by their general apperance, and by the fact that granular movements could still be seen in their interior. We infer, then, that there action is remedial whenever the nonstriated muscle cells, or other tissues, have returned to their embryonal condition, and the conditions which gave rise to this necessity, no longer exists. We infer that lobelia is remedial when the bioplasts are unduly condenced from cold or other influence; and that capsicum is remedial when they are sluggish, as is the case in every instance of supressed function. These agents, as well as all others, belonging to each class, will exert the same influence, however, whether their therapeutic influence is or is not indicated; and, hence, it is essential that we have an accurate knowledge of the leading truths of physiology and pathology in order that we may apply our remedies correctly. With the facilities at our command, there need be but little difficulty in obtaining this knowledge, and hence, the therapeutical measures instituted, can and should be just as truly scientific as is the practice of chemistry, or even mathematics. The chemist may be ignorant of the general principles or leading truths relating to this subject, and consequently fail to obtain satisfactory results in many instances. But chemistry is no less a science because an ignorant pretender has been unfortunate in his manipulations. Neither is medicine, when founded upon general principles or leading truths relating to physiology, pathology, and therapeutics, rendered unscientific by the failure of one or any number of its votaries to apply remedial agencies in conformity with these laws principles or truths.

Medicine, as practiced by those who resort to the use of poisons, under the mistaken idea that disease "consists essentially, and in the majority of cases, of a too rapid increase of the living or germinal matter," is erroneous, unutterably per-

nicious, eminently destructive—in the language of Prof. Chapman: "Horrible, unwarrantable, murderous quackery." But medicine, as understood and practiced by the well informed and truly conscientious physio-medicalist, is justly entitled to rank first among the sciences. For it is a system of medicine which has for its foundation the immutable laws of Creative wisdom; a system of medicine which recognizes the inalienable rights of the architects and defenders of our bodies to our protection and assistance; a system of medicine that does not inculcate the foolish and utterly absurd doctrine that the best means of preserving life is to destroy the living; that the best means of securing speedy reparation of structural loss is to kill the workmen; that the safest and best means of preserving our property from the destructive influence of the fiery fiend is to kindle the structure with the lighted torch.

And now, in conclusion, much has been done in the past in the interest of sanative medicine, and hence, of suffering humanity, but much as has been done there yet remains a work for us to do, and if we do that work as it should be done the time is not far distant, I verily believe, when the god of justice will enscrsbe on our banner, in letters of gold, that shall be read of all men, the magic word—Science.

Then, my brothers, if there be those who arrogate to themselves all the science and knowledge in medicine worth possessing, and who malign and proscribe us for opinions sake, let us answer with Nehemiah: "Behold I am engaged in a great work; I cannot come down."

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