

Sutton (G.)

PRESIDENT'S ADDRESS.

MAN'S POWER OVER NATURE,

AND

MEDICINES AS MEANS BY WHICH HE AIDS AND
CONTROLS THE LAWS OF LIFE.

AN ADDRESS

DELIVERED BEFORE THE

INDIANA STATE MEDICAL SOCIETY,

MAY 17TH, 1870.

By GEORGE SUTTON, M. D.,
OF AURORA, IND.

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Man, a lord over the animal creation, has also delegated to him power over the operations of nature, which depends upon strict obedience to her laws. Permit me, then, to present a few preliminary remarks on the grand system of laws by which all nature is governed—a theme intimately connected with our science, and the subject under consideration—as the object of our profession is to correctly interpret and properly aid those laws of nature which govern the operations of the human body.

Change seems to be impressed upon all the movements of nature, producing order and discord, growth and decay, youth and old age, and life terminating in death to reappear in a succession of youthful forms. Discord and harmony are intimately associated throughout all the operations of nature, as far as we are capable of investigating, and upon the discords in the operations of life as witnessed in the human system, depends our knowledge of diseases, the laws which govern them, and the science of medicine.

Discord, in physical nature, is but the changing of one form of harmonious action into that of another; and changes extending from the atom to the globe throughout the universe is evolving an infinite variety of forms and movements, which unfolds, like a grand panorama, the will of Deity.

"All nature is but art unknown to thee,
All chance, direction which thou canst not see.
All discord, harmony not understood,
All partial evil universal good."

We find harmony and discord intimately associated in the operations of the physical, the vital, the moral, and the intellectual laws. The beautiful harmony in physical nature is seen every where. We find it in the laws of light, in the laws of sound, in the laws of gravity as seen in the grand movements of the heavenly bodies. We see associated with the harmony, the laws of discord—in the storms, tempests, and tornadoes spreading death and desolation in their tracks, in the great conflagrations, in volcanoes, the earthquakes engulfing whole cities and laying in waste vast tracts of land; and it is probable that the laws of discord extend beyond our globe, seen in the showers of meteorites and meteoric bodies that are drawn from their orbits and come crashing to our earth. In the changes and disappearance of comets from our system, as Lexel's comet of 1770; the division of Biela's comet in 1846, and its subsequent disappearance as seen even in the centre of our system—the sun; in the violent commotions that appear to be going on on its surface; the dark spots moving with immense velocity; the tongues of flame or projections of light darting thousands of miles beyond its borders; the occasional brilliant flashes of light as seen on its surface, and which appear to be intimately connected with grand magnetic storms occurring upon our globe. There are reasons also to believe that temporary discord extends far beyond the boundaries of our solar system, as seen in the variable stars which suddenly appear shining for a short period only, the spectroscope revealing the combustion of hydrogen. The human mind can scarcely comprehend the mighty and violent movements which may be regarded as discords necessary to bring about these vast conflagrations as seen so brilliantly from distances so remote as almost to be beyond the power of estimating them. These, however, are only the discordant notes which occur throughout the universal harmony of nature—presenting new forms by the destruction of the old—variety in unity.

In the laws of life these harmonious operations are beautifully made known in the development of the germ as it emerges from a mere microscopic vesicle through a series of metamorphosis to the full development of an organized being—evolving a form in accordance with the class, the order, the genera, the species or varieties to which it belongs—assimilating to itself certain material elements of our globe from which it is formed and developed; and in the human race these laws transform the germ to the infant, the infant to the child, the child to the youth, the youth to manhood, and then with fully developed and matured intellect in harmony with surrounding nature, give to this being power to view from amidst a changing, and dissolving, and growing body the great and wonderful volume of

nature, and hold communion with Deity through his laws. But we find, also, discords in the operations of the laws of life, as seen in the vast variety of diseases to which living bodies are subject—the pain, the suffering, the disordered vital power, and death terminating in the destruction of the body. We see the harmonious operations of the moral laws, where the moral faculties are properly balanced or trained; where men live in peace with their fellow men, and promote the interests and welfare of others by respecting their rights—doing unto others as they would have others do unto them, and strictly obeying those laws which promote happiness and good-will amongst men. But we see discord, again, arising from ungoverned passions or instincts, producing efforts to invade the rights of others, selfishness, bad feeling, frauds, thefts, robberies, arsons, murders, assassinations, and crimes of every kind; and upon a larger scale, producing wars, carnage, destruction of property, desolation, unhappiness, and misery in all its varied forms.

We see harmony in the operation of the intellectual laws, where the mind is governed by truth and well stored with useful knowledge; where the judgment is correct, thereby promoting the welfare of the individual and advancing the interests of society. We see also, again, the opposite in those who are governed by ignorance and error, bringing upon themselves misery, poverty, and frequently ruin. Thus we see intimately associated in the operation of nature harmony and its opposite, as seen in the intellectual laws as truth and error, in the moral laws as good and evil, in the vital laws as health and disease, and in the physical laws as order and what we call discord. Man feels that he is under the control of mighty, irresistible, and overwhelming powers in the great system of nature that impels him onward through a series of changes, from the development of infancy to the decay and decrepitude of age; but at the same time he feels that he has, to a limited extent, the power of correcting the disorders around him, of guiding or directing the laws of nature, by properly interpreting and strictly obeying them. This power, feeble as it is in comparison, appears to me to be the resemblance that man has to Deity, making him a subordinate lord upon our globe, for it is more than probable that the supreme power governs the universe not by creating new laws, but by guiding or directing the forms and actions of things according to laws which are now in existence, and which are possibly co-eternal with matter, as it is difficult to conceive of a time when the universe was without matter, or matter without force, or force without law.

Man, as a ruler, guides the operation of the intellectual laws. He knows that by proper culture mind increases in power, that truth

is the proper aliment for the intellect, and thus, by truth and culture, develops the mind to greater powers and comprehension. He guides or controls the moral faculties in their growth, brings the passions under the control of reason, and by a system of social laws lessens the amount of moral disorder or evil upon the globe.

Over physical nature, his power is still more wonderful. In the majesty of a "god-like" being he directs the operations of her laws to advance his happiness, and summons to his aid invisible powers that perform for him wonders like those which are told in stories of fiction, or tales of the Arabians. The mere recital is like the wildest flights of poetic fancy, but reminds us of the power delegated to man over nature. He sends his thoughts not exactly upon a flash of lightning, but by the same power, the invisible electric force, from country to country, from continent to continent, outstripping the progress of time, and by holding communication with his fellow man in the most distant parts of the globe, instantly annihilating space.

He enslaves the ancient elements, fire and water; and obedient to his will they perform the labors of the genii of romance. They spin, they weave, they grind, they saw, they dig, and also plough the ocean with his palaces, enabling him to battle with the wave, and bid defiance to the storm.

He binds the god of the ancient fire worshippers to his chariot and car of commerce, and makes this power transport him across the continent, outstripping the antelope in speed; and as his fire car winds its way amidst the solitudes of the Rocky Mountains with the sound and appearance of a moving volcano, it startles the wild beasts from their lair, and shows to the savages of the far West the irresistible power of knowledge and advancement of civilization.

He melts the sand from the sea-shore, out of which he forms instruments that increase the power of human vision more than a thousand fold—by which he explores the intricacies of our organization, and unfolds the wonders of cell-life, showing us myriads upon myriads of cells, cells within cells, cells emerging from cells, constantly undergoing transformation, into organs, and tissues, and muscles, and bones, and building up the system into a harmonious whole, drawing their nutriment from a fluid in which he discovers cells, or disks more numerous than the human mind, with all its powers, can comprehend.

He directs his vision through this aid to the far off regions of space, and not only brings to view unnumbered globes, but by the aid of the spectroscope, formed from the same material, shows us the elements of matter of which some of them are composed.

He seizes the sunbeam in its rapid flight, and by its laws directs it to paint the most accurate images of our friends by which every lin-

eamment of their features are recalled with the fondest affection when time has mouldered their bodies in the dust.

He mixes matter together in certain proportions, and by the aid of chemical laws suddenly produces a force that is irresistible, which enables him to tear open the mine, or blow assunder the mountain that stands in his way.

But we see these laws, powerful as they are, working blindly in obedience to the will of man, either for good or evil. The same force that tears open the mine produces death, destruction, and misery upon the battlefield. The fire that drives the car across the continent, and labors so faithfully for the wants of man, is used by the incendiary to destroy the noblest works of art. These laws are blindly obedient to the directions of the spiritual principle—mind, to the intellect or will of man to a limited extent upon our globe, to the infinite mind or will of Deity, as seen in the evidences of design throughout the vast variety of nature.

"All are but parts of one stupendous whole,
Whose body Nature is, and God the soul."

We have thus recalled to mind, in this brief summary, that discord is a part of the plan of nature, and that man, the resemblance of his Creator, in the power delegated to him over the laws of nature, has power to correct, to a certain limited extent, the disorders around him, to guide or direct the intellectual laws to the development of mind and order, the moral laws to the suppression of crime, immorality and disorder, and the physical laws to the promotion of his happiness as seen in the wonders presented by modern civilization. This brings us then to the subject we had originally in view—the power which man, a lord of creation, has over the laws of life in correcting their disordered or perverted actions, of changing the discords of disease to those of harmony and health.

The question then arises, are the laws of life an exception to the powers which man has over the laws of nature? We believe they are not; and it would certainly appear superfluous and out of place to attempt to discuss this question before a body of medical gentlemen who are fully aware of the vast amount of knowledge man has accumulated in relation to the laws of life, both in health and disease; also, in relation to the operation of those agents by which he governs or controls the disordered actions of the living body; and also, who are fully aware of the rapid advancement in every department of medical science—did we not know that there is a tendency at the present time, not only with the public at large, but even by members of our own profession, to distrust the power, and under-

value the efficacy of the principal means by which we control the laws of life, and a disposition to trust to the innate powers of the vital laws alone for the removal of their disordered actions, although we know that when the laws of life have not power to resist the commencement of disorder, there is danger of the perverted action bringing about the destruction of the living body, as thousands upon thousands of human beings die annually from disease; and we know also that disease is a retrograde movement frequently towards death, to correct which arose the science of medicine.

It certainly can not be true that man has been laboring under a delusion for more than two thousand years in supposing that he has power of aiding or directing the laws of life, and that during all this period he has been accumulating knowledge in the medical profession and endeavoring to build up a science, the foundation of which rests upon error. We think that it can be demonstrated, however, that the science of medicine is founded in truth, and that man does wield an invaluable power over the laws of life—a power similar to that which he does over the intellectual, the moral, and the physical laws, guiding and directing them in their abnormal actions, and that he is not only a minister of these laws, but rises at times to the dignity of a lord over their operations.

Within a few years we know that a marked change has taken place in the medical profession in the treatment of diseases, showing at least a clearer knowledge of the powers of the system, as well as a clearer knowledge of the tendency of several diseases to recovery unaided by art; but also showing what I think we may regard as the danger of passing from the extreme of over medication to the opposite, thereby allowing diseases to terminate fatally that might be cured, and neglecting remedies of undoubted efficacy. Changes are not always progressive. We all know the tendency to extremes, and that truth generally lies between extremes. We know, also, that delusions and erroneous views often become popular from mere imitation, and spread through the community like epidemics. The extreme views to which the treatment of disease is now tending, and the prejudice against the use of medicines, I think, must be familiar to every gentleman present. Allow me to make a short digression in directing your attention to a few instances of this prejudice, some of which I have seen published within the past year in some of our popular journals which have a wide and extensive circulation. In an essay bearing the title of the Aims of Modern Medicine, published in the Quarterly Review, Littell's Living Age, and some of our Medical Journals, which have spoken of it in the highest terms, we find such ideas as follows:

"Do we not ask whether the whole thing be not a dramatic performance, got up to amuse while we take our chance of life or death; or suspect it of being a haphazard handling of a two-edged sword? Every one professes a faith, or want of faith, in physic. In truth, it is an anxious question for patients, and also a serious one as respects the estimation in which the profession as a whole deserves to be held, whether medicine is walking hand in hand in progress with her sister arts of utility. Has it advanced since the time when those who now claim to teach were pupils?" Again,

"What is now principally feared by the shrewder class is, not so much inflammation as the panic which it causes. They almost prefer that those who have to deal with it should shut their eyes, than open them and act upon their fright. A fashionable physician, who is a learned physiologist and acute observer, was summoned to a case of rheumatic fever of some days duration; in the consultation he pointed out that there was extensive inflammation of the heart, to the great terror of the family doctor. 'Oh! dear! what will you think of me? How can I forgive myself for so neglecting my poor friend's case?' 'Pray, do not be distressed,' was the comforting answer, 'it is just as well you did not find out the pericarditis, you might have treated it.'"

Is this the proper doctrine to teach? It certainly can not be the correct course for a physician when called to treat a case of rheumatism, and find that it has attacked the tissues of the heart, to make no effort to arrest its progress. Is there no virtue in the alkaline treatment in this disease? Is it still the best course of treatment to recommend six weeks in bed for rheumatism? Does this agree with the experience of physicians present? I can bear testimony to the good effect of alkalies in this disease, and also believe that we have now the most conclusive evidence *that rheumatism depends upon an acid circulating within the blood, which has a poisonous effect upon the tendons, and that certain alkalies will neutralize and eliminate it from the system.* Again, in another place we find the following:

"Dr. Haughton has recently been laboring hard to measure with scientific precision the values of muscular exertion, growth, innate warmth, secretion, freely balancing them one against another, in order to compare the amount of food consumed. He boldly tackles a conundrum as apparently hopeless as multiplying the poker by the scuttle and making out what the coals come to. Yet, in an address to a social gathering of medical men at Oxford last year, he was considered perfectly sane when he reckoned the increase of temperature

in typhus fever as the equivalent of daily climbing a ladder one mile high, or walking twenty miles fair heel-and-toe."

Now is there any thing so unreasonable in Dr. Haughton attempting to show the relation between matter and the generation of vital power as to deserve ridicule? From whence comes this heat and vital force if not from matter? If there is increased heat, is there not increased waste? Is not vital force intimately associated with matter? Do we not know that inorganic matter enters into the composition of vegetable bodies supporting vegetable life, and, under the form of vegetable compounds, into animal bodies sustaining animal life; and there certainly can not be any thing deserving ridicule in a man of Dr. Haughton's ability attempting to show how much matter must be consumed and changed by vito-chemical action to produce a certain amount of heat and vital power; similar attempts have been made by others. This paper, although probably written by a prominent physician and meeting with general favor, is evidently not written in the true spirit of one who has full faith in our profession. It has not the sound of that which is genuine. It manifests more a want of faith than a desire to extend our knowledge or advance our science; more of a disposition to find fault and point out the imperfections of our profession than to correct its errors or faith in its ultimate development. Let the address of Dr. Haughton and the Aims of Modern Medicine be compared by those who are unprejudiced. In the one is clearly manifested the feelings of a person soured with our profession; in the other an attempt to account for some of the most difficult problems connected with our science. The one shows distrust; the other hope and confidence, and an effort to advance knowledge. And if failing to do so no harm is done; while the other not only finds fault with the profession, but attempts to turn into ridicule those who are endeavoring to solve some of its most difficult problems.

I have directed attention to this paper from the wide circulation and approbation which it received, even from members of our own profession, as representing the prejudice and feeling which exists against the use of medicines and our profession at the present time.

Objections are also made to the science of medicine; because of its changes, its history, it is said, is principally a history of medical theories. Sir John Forbes, who probably did more to create prejudice against the efficacy of medicine in the treatment of disease than all other writers together, asked several years since, "What, indeed, is the history of medicine but a history of perpetual changes in the opinions and practice of its professors respecting the very same subjects, the nature, and the treatment of diseases."

It is not necessary to present numerous instances of this prejudice to our profession and the use of medicine. This feeling we know is the fashion of the day, and must be familiar to every gentleman present. It is my apology for directing your attention to a few arguments in defence of our profession, and the use of the principal means by which we aid and control the laws of life.

That changes have taken place in medical opinions and practice, appears to me should not be brought forward against our profession, as changes in opinion accompany the development of knowledge upon our globe. It is the natural consequence of progress—the search for truth. When truth is found, changes in opinion cease. As man advances from ignorance to knowledge, he passes of necessity through myths and errors. They surround him and often retard his progress. In the early ages of society, in fact in all ages, the imagination endeavors to account for things which are not fully understood. It is just as natural for the properly balanced mind to draw conclusions from what it sees, as it is for water to seek its level. The power to think is the principal faculty that elevates man above the inferior animals. It is the instinct of our nature prompting to the discovery of truth, and gives rise to speculations, hypothesis, and theory, which are the pioneers of knowledge extending into the unknown. To interpret the operations of nature in all instances correctly, to see truth unmingled with error, requires the powers and means of an advanced knowledge far superior to what is possessed by mankind at present. We see difficulties and changes accompanying the progress of other departments of knowledge—in natural science, theology, and law. We are all familiar with the theories and speculations accompanying the progress of astronomy, geology, and chemistry. Also, we are aware of the vast variety of myths and opinions in the theologies of the different races of mankind; also, the errors and wrongs connected with the laws of different governments and countries; the absurd laws for the burning, imprisonment or punishment of witches that were formerly in force, even in our own country.

Progress in knowledge is necessarily attended with difficulties, and must be slow and undergo changes. Facts must be carefully examined, their relations ascertained, truth separated from error; and as truth is more clearly perceived, changes in opinion take place, even our errors become our teachers.

It is certainly wrong to condemn our science because its growth is attended with changes, and changes which are similar to what have taken place in the growth of nearly all other branches of human knowledge; and is it not equally wrong to suppose that with all our

accumulated knowledge we have made no progress, and have no more power of guiding or controlling the laws of life, or curing disease now than was possessed two thousand years ago? But we contend that as it was designed that man should be a lord over nature, and have a certain power delegated to him to control her laws; that it was also designed that the science of medicine should arise with the progress of knowledge, that its development should be prompted by nature herself, which furnishes a language by which diseases are made known, also remedies in the medicines around us which are means by which diseases may be removed, and that nature also gives man the desire to unravel her laws and advance in knowledge with the great law of progress which seems to be developing higher orders of intellectual power, and higher orders of living bodies upon our planet.

That our science has its origin in our instincts, and grows with the development of knowledge and man's power over nature, I think may be seen in the fact that there is scarcely a race of human beings upon our globe but what has some system of medical treatment. It is almost as natural for man to seek relief when suffering, as it is for the new born infant to draw its nourishment from its mother's breast, and the sympathy that has been implanted within us for wise and benevolent purposes, prompts us to aid in giving relief.

The mother cannot remain inactive while her child is screaming with agony—the very cry of itself is the language of nature asking us for relief. It arouses our feelings, which are seen in the tears of sympathy, and the desire to do something. That aid at first is simple, like the beginning of all human knowledge, but becomes more enlarged as man advances in intelligence.

There are laws beautifully adapting means to ends, extending through all nature; these are generally admitted to be evidences of design. We believe in these evidences of design as seen in ten thousand instances around us, in the formation of the eye to see, the ear to hear, the teeth to grind our food, &c., and we believe that the feelings of pain and distress which are implanted within us are also evidences of design, urging us to obey those laws which promote health and our well-being, and also warning us when the laws of life are perverted in their actions, of danger or impending destruction, pointing out to us the seat and nature of disease and prompting us to aid the powers of the system in its removal; an instinct as much as that which warns the animal race of danger, or prompts the mother to protect and feed her young.

This sentinel, varying in degree or kind according to the tissue or

organ diseased, give rise to a variety of language, familiar to every gentleman present, such as uneasiness, tenderness, throbbing, burning, pulsating, gnawing, tearing, smarting, stinging, cutting, lancinating, and so on throughout a great variety of language. The violence of the pain we know is not always in proportion to the danger, but it is a sign, when viewed with other symptoms, by which disease may be made known. Every organ or tissue when diseased, and every disease, has its own peculiar language and pain, in connection with other symptoms when compared with the standard of health, assist in pointing out the nature and seat of disease, which is still more clearly revealed by *post mortem* examinations. Why this sentinel warning us of danger and prompting to its removal? Although it does not occur in every disease, still there are but few diseases but what have some form of uneasiness, presenting its own peculiar language by which it is made known. Without attempting to remind you of their classification, we know that there are diseases not only of the blood, but every organ and tissue of the system, presenting a great variety of abnormal action. The ability of the physician to diagnose disease correctly is so rapidly advancing that I think we may safely say that in time it will be perfect.

Disease is the natural enemy of man, producing suffering and tending to his destruction, for few comparatively die from old age. From the Carlisle tables of mortality we know that out of every 100,000 that are born, 14,631 die within the first year, 25,790 of that number within five years,—disease carrying off nearly the whole of this number, pulmonary diseases and diseases of the nervous system and digestive organs being the most prominent. If nature unaided was capable of removing disease, why this terrible mortality? Does it not show that in the removal of her own disorders for the advancement of our own well being nature cannot be trusted. She brings about change to be sure, but this change is frequently the destruction of the body. She operates according to laws which may be guided by intelligence, a fact long known, and has given rise to our science, the object of which we know is to avert those movements that tend to the destruction of the living body.

We pass by the question, as foreign to our subject, how far the human mind itself is governed by laws, and whether all human actions, as well as all nature, is not governed by laws of necessity. We, on the present occasion, regard man as an agent having a power delegated to him by which he may control and guide the laws of nature to a certain extent, to bring about his intellectual development and advance his happiness.

Nature has general laws for the continuance and preservation of

the animal race, as well as laws for the destruction of the individual. We find also the instinct of self-preservation, and most animals are furnished with some means by which they may protect or preserve themselves, at least to some extent, from their enemies. This is seen in thousands of instances, from the horns on the cattle to the sting of a bee.

Man is not an exception to these laws of nature, and placed upon our globe powerless, but has also means furnished of protecting himself from his great natural enemy, disease. Being endowed with reason, nature teaches him, in a system of rewards and punishments, to obey her laws and prevent disease, and also as an intelligent being furnishes him means in the remedies which are found in the vegetable, the animal and mineral kingdoms, by which he may guide and control the laws of life in removing their disordered or abnormal actions. The different and peculiar effects of medicine upon the living body we believe to emanate from the same design that gave to other substances the power to nourish the system, and gave to the human race the feelings of pain; also the instinct to seek relief when suffering, and gave to the laws of life the natural language by which the nature and seat of diseases are made known. They are all the effects of laws. From whence comes the direction of these laws if not from Deity. We do not pretend to say that all substances that are used as medicines were intended as remedies in disease, for it is the province of man as an intellectual being to separate truth from error, but we believe that there are substances which from the peculiar effects they produce upon the system, were designed to be used by man in the removal of his diseases. Different substances we know select different organs or parts of the system by an elective affinity for their action, some exciting, others diminishing the vital power; some dilating, others contracting the capillaries; some exciting, others arresting the secretions; some affording nutriment to the system, others neutralizing or eliminating poisonous substances from the blood. Every person must admit, however, that the results of the operation of medicine upon the human system cannot be foretold with the certainty that belongs to the calculations of mathematical formula, because causes innumerable may modify this operation, but they act nevertheless by laws which are liable to modification, similar to the laws which govern the operation of living bodies in general. Even the germ is not always developed perfectly, for we occasionally have monsters with double heads or double bodies, and other malformations; but it is a law that certain substances may sustain, be assimilated, and aid in the development of the living body; that others again when introduced in

certain quantities within the living human system, shall have a tendency to be eliminated without nourishing, and some of them in being eliminated arouse the natural secretions of the organ or gland through which they are eliminated, as explained by Headland. Thus, as we all know, one class of substances will act upon the mucous membrane of the respiratory organs and excite the natural secretions of this membrane, by which we have expectorants; others will act upon the kidneys, increasing their secretion, and thus we have diuretics, and others again upon the skin, giving us diaphoretics, and thus we have substances that arouse the different secreting organs and surfaces in the system; and we have others again, as opium and narcotics, acting upon the nervous system; ipecacubana and emetics acting upon the stomach; sulphate of magnesia and cathartics upon the alimentary canal; iron upon the blood; astringents upon the fibre of the system, &c., &c. The power of all in producing effects varies according to the quantity, illustrated by Marshall Hall's graphic description of the effects of strychnine: "Its least action being that of an invaluable spinal tonic; its mean action that of an invaluable spinal stimulant; its most violent action that of a thunderbolt;" showing that medicines, like other things in nature, are agents which produce good or evil according to the manner in which they are used.

The laws which govern the operations of medicines upon the living body are a part of the great system of nature, and it is certainly just as much the operation of law that opium should allay pain, or alcohol act as a stimulant, as it is that gluten, starch and sugar should sustain and nourish the body. It is also in accordance with the laws of nature that man is endowed with powers to use the agents around him to ameliorate his condition and advance his happiness, but upon the condition that he correctly interprets and strictly obeys her laws. Reason tells us that substances which produce such a variety of effects upon the living body, whether the result of design or not, may certainly be made available to guide the laws of life within the human system, and aid them in returning from disease to health—may be used to bring about the natural crisis or tendency to recovery—may be used to eliminate poisons from the system, and remove the cause of disease—and we believe that experience confirms what reason teaches. Diseases are as much under the control of laws as the vital operations which produce health, and there are diseases which have a tendency to the destruction of life when once commenced as surely as fire to burn if not arrested.

That man has a power of arresting disease, of directing the laws

of life, is not to be proven by reason alone. It can be demonstrated that he does avert impending death and direct the laws of life to the restoration of health, and that we have cures as well as recoveries.

Excuse me for presenting a few instances of this power which, although familiar to every gentleman present, may probably assist in illustrating our subject, and perhaps it is well to occasionally briefly review our power, as some persons seem, from their distrust and prejudice of the medical science, to have almost forgotten that man can render any aid whatever to the operations of life in the restoration of health.

We see this power of guiding and aiding the laws of life clearly demonstrated in surgical skill. A man gets a limb crushed and ground to fragments beneath the wheels of a locomotive. Now we know that the only hope of preserving life is the aid which art can give to nature, and it does afford this aid; but if the injury is of a minor character, in which nature can succeed in bringing about a recovery, we know that it requires a long period during sloughing and disintegration of bone, before the dead parts are separated from the living, and the individual restored again to health, while in a few moments, by intelligent interference, the dead may be separated from the living flesh, and in the first case, the powers of the system sustained by stimulants, and the laws of life by the law of adaptation, directed to act under new forms to the restoration of health, in a comparatively short period. In these cases the laws of life are aided and directed within their sphere, as certainly as mind directs the laws of physical nature.

In dislocation of the joints nature is again powerless, and a cripple for life is produced unless nature is aided by art. For instance, dislocation of the hip joint—a little manipulation by a rotary motion, familiar to every gentleman present, will often reduce the injury in a few minutes, but if this mode fails, by placing a fulcrum on the groin when the dislocation is on the dorsum of the ilium, or in the proper position for the other forms of dislocation of this joint, and by bringing the leg over it as a lever, we may lift the head of the femur over the rim of the acetabulum, and by proper motion reduce this dislocation almost in less time than the mode can be described.

A calculus forms within the bladder, it increases in size until unable to pass the urethra—pain, anguish and suffering are the consequences. Here nature is again, as we all know, powerless to remove the disease. We know that by intelligent interference—removing the stone—the patient in a short time, in a very large majority of instances, is again restored to perfect health. The same

assistance is rendered to the laws of life in wounds of arteries, aneurisms, ovarian tumors, fistula, retention of urine, and many other diseases.

In obstetrics, we meet with cases of deformity, malformation and malposition, in which nature is again utterly powerless to afford relief, and death must necessarily be the consequence unless nature is aided by intelligent interference. We all know that proper assistance may save both mother and child.

We see the same aid rendered in some of the diseases of the eye. Nature forms cataract, but nature is unable to remove the disease. The patient, in total darkness, is an object of pity. The surgeon with his knife, like the wand of a magician, almost in an instant restores sight to the blind, and enables the mind, through the laws of vision, to again enjoy the beauties of surrounding nature through the brilliant light of day. It may be said that no person doubts the efficacy of judicious surgical treatment, because it is self-evident. These instances show, then, that in such cases at least, man does control and guide the laws of life, and is it not strong presumptive evidence that if he can guide them in one instance he may in others, and that the boundary to his power as a lord upon our globe is wide, extensive and undefined?

But we know that it is equally self-evident that the laws of life are aided and guided to the restoration of health in many of the diseases which the physician is called to treat. Some diseases, we know, are self-limited, and nature unaided will frequently effect a cure; in others, when left alone, the tendency is to death, and others again will remain stationary for years, nature appearing to be powerless to remove them unless aided by art. Some of the diseases which are now regarded as incurable, are probably only so at present from the fact that our science has not yet arrived at that degree of perfection which time is destined to develop.

• Now we know that the object of the physician, in a large number of cases which he is called to relieve, is to equalize vital action or functional activity, also frequently to remove exciting causes of disease. Take for instance the common and simple disease of torpor of the alimentary canal, producing constipation, with all its attending evil consequences. No person can doubt for a moment that a mild cathartic, in a proper dose, will almost invariably arouse the dormant power, and enable the alimentary canal again to perform the physiological action of removing excrementitious or waste matter from the system. The cathartic, we will admit, has produced an abnormal action as an irritant, but this abnormal action, lasting for a short time only, is more conducive to health, by arousing action,

than the torpor in which nature allowed the alimentary canal to remain. He also finds it necessary to remove exciting causes of disease, as for instance, a child, obeying the instincts of its nature, overloads its stomach with indigestible food; disease is the consequence,—a gentle emetic, transient in its operation, is administered, the exciting cause removed, and the symptoms of disease at once cease; or a person, from the same cause, is suddenly attacked with the excruciating pains of colic, (which often is a fatal disease amongst some of the inferior animals,) the stomach and bowels are unloaded with appropriate remedies, an anodyne given, and the suffering in nearly every instance quickly relieved. The good effects of these remedies in these instances are almost as invariable as the operation of any of the laws which govern living bodies. Why the physiological actions which produce this retrograde motion of the stomach, if not to relieve it in such cases? Does it not show the same design or adaptation of means to ends as is shown by the sensitive membrane placed at the entrance of the trachea to guard against the lodgment of foreign bodies within the lungs? But we know nature sometimes fails to produce this retrograde motion of the stomach when required. Then the administration of an emetic, which, acting by its laws, excites this action of the stomach, and aids nature, as the irritation of a cathartic excited the alimentary canal, and produces the desired relief. These cases are so familiar and so self-evident to every gentleman present that it might appear almost unnecessary to even allude to them, but they appear to me, although like reviewing the most simple and elementary principles of our profession, to lie at the very foundation of our subject, for if the laws of life can be guided or aided in one instance, where, as we before mentioned, shall be the limit to our power? They show that man has power over the vital laws, but present no better evidence of the good effects which may be produced by medicines when properly used, than is seen by astringents contracting the fibre of the system, diuretics arousing the action of the kidneys, diaphoretics acting upon the skin, opium allaying pain, and anesthetics producing insensibility, &c., &c. Or another class of remedies, the efficacy of which we cannot see how any person can doubt, such as quinine in curing malarial fever, iodine in glandular diseases, goitre, &c., alkalies in rheumatism, bromide of potassium in certain forms of epilepsy, iron in anemia and chlorosis, iodide of potassa in certain forms of asthma, arsenic and sulphur in certain forms of skin disease, and, I think, we may safely say mercury and iodide of potassa in syphilis. These remedies then, I think, beyond all controversy, do give man a power over the laws of life in the removal

of disease, and his power over disease is still more clearly seen in the fact that he has made comparatively harmless one of the most loathsome and terrible scourges that ever afflicted the human race, and that he has discovered means, in the quinine we alluded to, by which he now sets at defiance the poisonous malaria of the swamp and the desert, and it is more than probable that this discovery, in addition to a knowledge of medicine, has recently assisted a noble member of our profession in exploring the tropical and unknown regions of Africa, presenting to the knowledge of the civilized world the wonders of that tropical climate—beautiful lakes and rivers—new animals and races of men, showing the sovereignty of civilized man over nature and his grand mission upon our globe. As evidence also of this power of man over the laws of life we see by statistics that mortality has steadily decreased in those countries in which medical science has arrived at the highest degree of perfection. It steadily decreased during the first portion of this century in Europe, and probably in this country, which we must ascribe, I think, to improved medical treatment, and to the development of *sanitary science*, which is also a branch of the medical science. It is well known that the mortality in England during the middle of the last century was almost one in forty-three, and that about twenty-five years ago it was reduced to about one in fifty-eight. In London in the same time, it was reduced from one in twenty to one in forty, and throughout France and other portions of Europe in nearly the same proportions. During the last year, however, I see that a writer in England is endeavoring, by statistics, to show that the mortality of certain diseases in that country has been, within a few years, on the increase, which he attributes to a change of treatment—a subject which appears to me to be worthy of the most careful investigation.

The flood of light, which is pouring in upon the mind of the physician from every department of our science, and which is annually advancing our knowledge and skill—and the improved means by the aid of the stethoscope, the speculum, the test tube, the thermometer, ophthalmoscope, laryngoscope, the sphygmograph and microscope, which is immeasurably increasing our powers in unravelling disease, have, no doubt, occasionally given physicians such confidence in their power as to cause them almost to forget the powers of nature in the cure of disease, and prompt them to such extremes of active and vigorous treatment as occasionally to bring discredit upon our profession. But this is an evil which corrects itself—it is an evil that grows out of the confidence the physician

has in his own power—an evil intimately associated with progress or improvement—the desire to do the utmost that can be done.

We know that in our science truth and error are intimately associated in its present state, which arises from it not having yet arrived at maturity, consequently there is danger of those who see only its truths, having too much confidence in our power, and those again who see only its errors, having distrust and placing too much confidence in unaided nature.

But that physicians possessing the light of modern medical science, aware of the rapid progress which it is making in every department, should be skeptical of the good effects which may be produced by medicine and pass to the extreme of distrusting their power for good, appears to me far more remarkable than that they should have too much confidence in their ability to cure disease.

If evil occasionally arises from the improper use of medicine it is a consequence which accompanies the use of other agents, and he who viewed only the evil effects of fire upon our globe, although terrible in their consequences, would be considered unwise to recommend its abolition from the uses of civilized life. Every physician who has seen the good effects of an emetic, of a cathartic, an expectorant, a diuretic, an astringent, a tonic, a diaphoretic or anodyne (and what physician has not?) has seen demonstrated the good effects of medicine over the laws of life, and is it not almost as irrational to discard medicines because evil consequences occasionally arise from their improper use, as it would be fire, because it occasionally produced conflagrations, loss of life, and other evils? The physicians who are engrossed with the evils which accompany our profession, see not clearly its great truths, and consequently have no faith in its sublime and ultimate destiny. Is the vast amount of knowledge in the science of medicine, which has been accumulating for more than two thousand years, to be of no avail, except that of showing the laws of life and unraveling the structure and organization of living beings? and during all this period, has man been laboring under a delusion in supposing that he can aid nature in the removal of her disordered actions in the living body, although prompted to the effort by an instinct which is almost as manifest as that which prompts the mother to protect her young?

The conquests and growth of knowledge are slow. Science can afford to wait for ages to develop, for her triumphs are coequal with the duration of man upon our globe. Our science is evidently only yet developing; it is far from having arrived at maturity, being only about two hundred and forty-two (242) years since Harvey made known the circulation of the blood, and it is only about thirty-

three years since the primary form of organic matter, the cell formation, was discovered, and physiology, pathology, histology, organic chemistry, physical diagnosis, have all been developed within a short period—many of the most important discoveries, as we are all well aware, but recently—such as vaccination, quinine, chloroform, hydrate of chloral, &c., and as each year is adding new discoveries and new remedies, can we possibly define the limit of our knowledge and power or the boundaries of our science? Even the decay of old age itself may possibly be arrested, to some extent, by the progress of our science—for we know that one of the consequences of age is a calcareous deposit, the hardening of the tissues, and is there any thing unreasonable in the theory which has already been advanced, that a solvent may be found that will prevent, or dissolve and eliminate this deposit, and consequently arrest one of the effects of age for an indefinite period?

The time past has been occupied in laying the foundation of our science, in unraveling the structure of the human frame, the laws which govern it, the nature of disease; and the future, we firmly believe, is to reveal more clearly the means and laws by which diseases are cured. As remedies have been found to cure some diseases, is there any reason why they may not be discovered to prevent or cure all others? If we can make comparatively harmless the most loathsome of self-limited diseases—the small pox—may we not find remedies to prevent or control all other self-limited diseases?

The editor of the London *Lancet*, in the last August number, noticing the essay "The Aims of Modern Medicine," from which I quoted, has some remarks peculiarly applicable to our subject. He says: "The skepticism concerning the power of medicine is ill timed, in days when it admits of demonstration that intervals between fits of epilepsy may be extended to weeks instead of days, and months instead of weeks; that a large proportion of cases of tatanus have been remedially influenced by medicine; that the fatal tendency of phthisis, in a large number of cases, may be greatly or practically overcome; that pain and other neurosis are more effectually opposed than ever before. In days when the treatment of rheumatic fever is so enlarged and improved that a physician, who has seen exceptionally much of it, can say, as he did in our columns of the 1st of May, 'In all my cases I have only one instance of original heart complication when the fatality of simple acute inflammation has been almost nullified; and generally speaking, when medicine is a pleasure and a strength to the patient.' We know that there is a fashion of skepticism abroad, a fatalistic acquiescence in the actual; but this is no temper for a physician who

has to do with actual conditions that are very objectionable, and who has medicine and measures within his resources which have accomplished the above results. We repeat that there is scientific proof of the most important powers in medicine, which, coupled with clearer notions of the benignant tendencies of disease, make medicine a more noble and more hopeful profession than it ever has been in the history of the world." We believe these views to be correct, every sentence of them. If our science has not yet arrived at that degree of perfection necessary to enable us to treat all disease satisfactorily, we certainly can not advance it by destroying confidence in the power of our remedies to remove disease. Physicians who want faith in our science, who distrust its power to do good, assist in keeping back the more ardent and restless and keeping them within proper bounds. They do good also by directing attention to the powers of nature in the removal of disease. But it is not to this class of physicians that we are to look for the discovery of new aids—new remedies for the cure of diseases—they also do harm by destroying interest in our science, lessening confidence, discouraging experiment, preventing enthusiasm, and consequently might possibly retard the progress of medicine. If their views should become popular they certainly would drive high-minded, honorable men from the profession; for what physician with high and honorable feelings would practice an art if he had doubts? In the language of the "Aims of Modern Medicine," "whether the whole thing be not a dramatic performance got up to amuse, while we take our chance of life or death, or suspect it of being a hap-hazard handling of a two edged sword." Those who distrust the power of medicine, and would depend upon the powers of nature alone, seem to have forgotten that many diseases have a tendency to death, and that every disease is an evil, and in all cases is a struggle between the laws of harmony and those of discord within the living body—a struggle, too, by which intelligent aid may often change the conflict in favor of the laws of harmony and health.

Let the physician have full faith in his glorious mission—labor to advance his science, and he will inspire confidence in the community and faith in his patients, and that faith will assist him in developing his profession and in removing disease. Correct judgment and accuracy of discrimination, knowledge and skill, we all know are necessary in the proper treatment of disease—knowledge in comprehending the nature of disease, knowing what ought to be done, what we can do, what remedies are applicable, when to aid nature and when to depend upon her powers—skill in applying our knowledge, in forming a correct diagnosis, in selecting the most appropriate

remedies, and *discontinuing the use of medicine at the proper time*. No greater difficulty does the young physician encounter in the practice of his profession than in learning the proper time to discontinue the use of medicine. It is one of the secrets of success with the successful practitioner, and is generally acquired by experience. Our medical books abound with remedies for the treatment of disease; but few, if any, have accurately pointed out those symptoms which show at what time they should be discontinued; and it appears to me that a most important addition to medical education would be to direct more attention to this branch of knowledge, and the diagnosis and treatment of the tendency to convalescence. Teach the young student the symptoms of returning health, how it may be favored by proper nutriment and other means, when active remedies should be discontinued, and the danger of continuing them too long. I am well satisfied that on this subject a most important and unwritten department lies yet open for future development—a more thorough knowledge of which will assist in removing the suspicion that the use of medicine is a “hap-hazard handling of a two edged sword.”

Now, I think, from what has been said, that I will not be misunderstood, or that it will be supposed for a moment that I am advocating an active course of treatment in all cases which the physician is called to relieve. There are diseases that require, with our present knowledge, but little if any medicine. It is not the active treatment or quantity of medicine so much as the skill in its use that I am contending for. My principal object is to show man's power over nature as a sovereign; that nature obeys him when he obeys her laws; that it is his province to interpret her laws correctly, and that he has a power over the laws of life as he has over the physical, the moral and intellectual laws; that they are not exceptions to this power; but by the *proper use* of means which nature furnishes in the remedies around him, as she does nutriment to nourish his body, that he controls and aids the laws of life, corrects disordered vital action, averts approaching death, neutralizes or eliminates poisonous substances within the system, thickens the blood, mitigates suffering, awakens the dormant powers of the system, improves the tone of the stomach, thereby imparting strength, and assists the laws of life in equalizing vital action; and that the *improper use* of medicines is attended with evil, as the improper use of all other means which nature has placed at our disposal.

We believe that it is evident that a vast and unexplored field lies yet open for development in our profession, the boundaries of which it is impossible to define. Is it not probable that we are now just en-

tering upon a new era in medicine, and that chemistry, which has principally been a science of analysis, is destined yet to be a science of synthesis, and to become the basis of rational therapeutics? Around us are the elements of matter out of which myriads of combinations may yet be formed, whose power over the living body may be more wonderful than that of the hydrate of chloral, chloroform, nitrous oxide or alcohol. We know that the brilliant conceptions that flash across the mind of man are intimately connected with the action of matter on life, the blood upon the living brain, and substances may yet be discovered whose power of stimulating or exciting the functions of the brain will be immeasurably superior to that of alcohol, and others whose power of producing insensibility may be far more safe than that of chloroform. I have such full faith in the future progress of our profession that I believe we are only in the dawn of what is to be the most grand, and by far the most noble science upon our globe—grand in the number of branches of knowledge upon which it is founded and which are now being developed, noble in the objects of benevolence it has in view. The most profound questions of the age are intimately associated with our profession. The problem of life upon our planet, the relation of life to matter, the relation between matter and mind, the question of equivocal generation, the question from whence come the development in quantity of vital power; the question of a correlation of vital and physical forces, the origin of species, the question whether the overm or germ under different circumstances can bring forth different forms of animal life. There are great questions intimately associated with the philosophy of our profession. Of some of these questions we have now but mere glimpses, but sufficient to show the probability of a great system of laws, which, if they are ^{ever} fully unravelled, will more than probably be by the philosophical physician.

The principle of life, whose laws it is our profession to regulate, we know is the most wonderful of all the wonderful phenomena presented upon our globe. The physician understands more clearly than any other class or profession, that it is the same power throughout the myriads of living forms, whether seen in the protozoa or the highest order of animal life. He sees more clearly that the difference between the various forms of living beings depends more upon the direction of development than upon a difference of vital force; as it is scarcely doubted by the physician that the same kind of power that circulates the blood of a reptile circulates the blood of the highest order of mammalia, and that the principle of life has been continually appearing under new forms of organization from

the earliest ages, presenting man in this period of the history of the world when viewed as an animal, independently of a spiritual nature, as the great representative of cerebral development, as the mammoth and the mastodon in a past age were the great representatives of the development of muscular power. We understand, also, more clearly than the geologist, from our knowledge of anatomy, that if a time should ever come in some far distant future, when man, with the present races of animals, should pass away like the races of extinct species of animals that we find entombed within our rocks, and other and higher orders of intellectual beings should occupy his place, that they, in examining the strata of our globe, would find associated with works of art, the remains of man, which, from his capacious skull and peculiar organization, we know would at once preeminently mark him as the great intellectual being of the present period. Our science has a tendency to enlarge the mind, to liberalize the feelings, and is worthy the attention of those who love to study the operations of nature.

I have endeavored to show that man, formed in the resemblance to Deity, is a lord over the operations of nature; that discord is a part of the plan of nature; that man, from the powers delegated to him, is capable of controlling, to a limited extent, the laws of discord around him, as seen in his control over the intellectual, the moral, the physical and vital laws; that nature prompts him to the development of knowledge, which gives rise to arts and science; that she furnishes him means by which he may guide and control her laws, and that our science is merely developing, and is yet destined to be the most grand and noble upon our globe.

The subject is so extensive, and the time permitted me so short, that I have merely been able to present an outline of the topics which should have been more fully discussed.

Before closing my address, allow me to direct your attention to several subjects of a practical character:

1. That some plan should be adopted by which we may have an annual record of facts, briefly showing the health or sickness of the different counties or localities throughout our State, the prevalent diseases, the seasons of the year in which they have prevailed, &c. These facts would be invaluable in the future. They would also furnish data in writing the medical history of our State; also valuable in showing the relation, if any, of health or sickness to meteorological changes, as meteorological records are now kept in different parts of our State and published by the Smithsonian Institute.

2. The disease known as "milk sickness" should have a careful

and thorough investigation before it entirely disappears from our State. Let another effort be made to ascertain its etiology and pathology, and why it always prevails in the same circumscribed localities, frequently having the appearance of being intimately associated with a fatal disease amongst the cattle, known by the name of trembles, which should also receive a careful investigation. If the disease is a misnomer let it be proven such, and the uncertainty as to its etiology and pathology removed.

3. We should have a report upon necrology, or short biographical notices of prominent physicians who have died within our State.

4. Also a report upon the relative mortality of children residing in cities and the country, as far as it is possible to ascertain.

5. Also a report upon the changes which diseases have undergone within our State since its first settlement; what diseases, if any, have disappeared, and when new diseases made their appearance.

These subjects, we think, are worthy of your consideration, as the united efforts of members of our society may collect and preserve much valuable information in relation to them, which there is now danger of being lost forever, from the changes continually taking place and the passing away of the old members of our profession.

