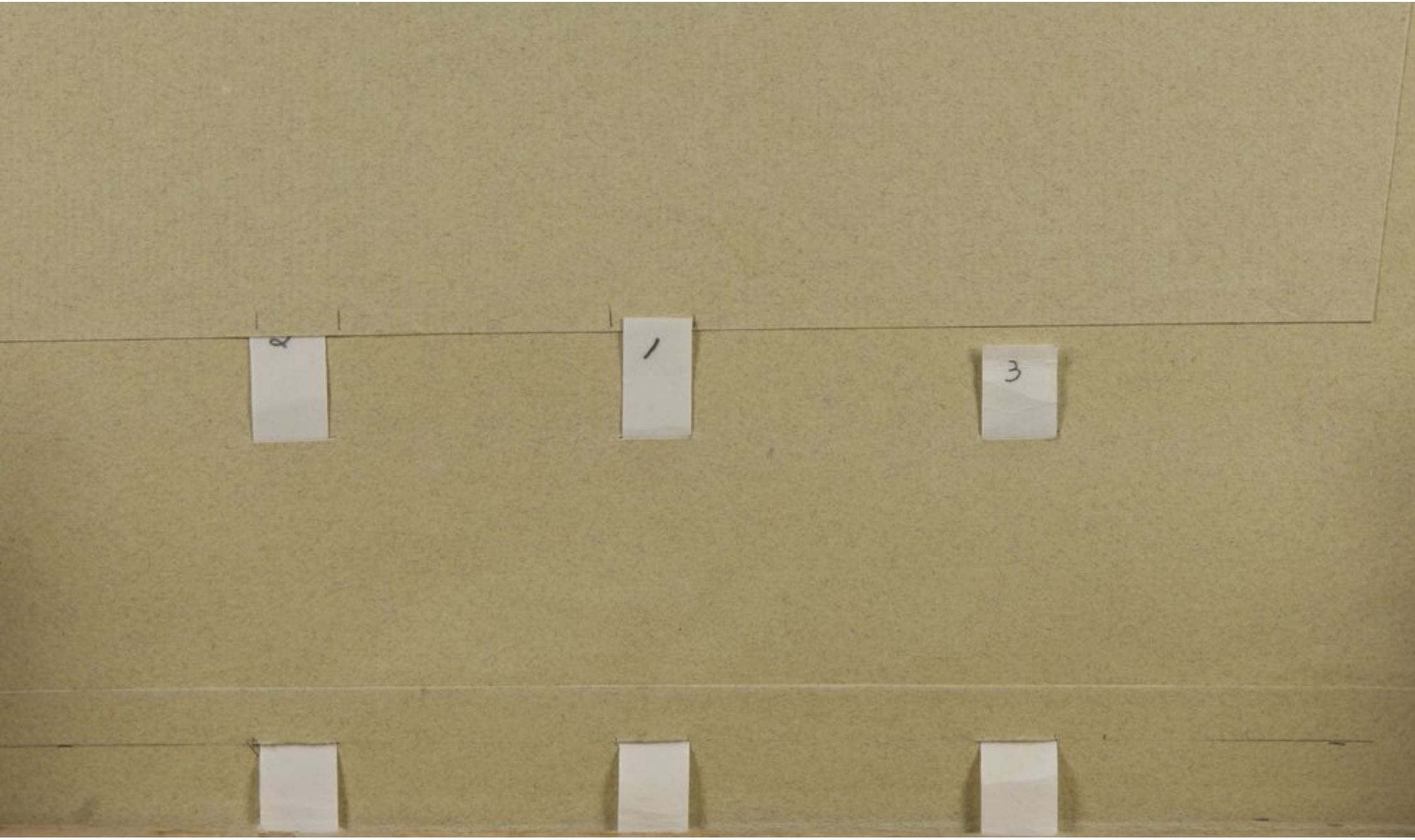
An address and lecture, delivered before the Botanic Society in Columbus, Ohio / by William Hance.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AN

ADDRESS

AND

LECTURE,

DELIVERED BEFORE THE BOTANIC SOCIETY,

IN

COLUMBUS, OHIO.

BY WILLIAM HANCE.

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TO THE READER.

In permitting the following Address and Lecture to be submitted to public scrutiny, the author is sensible of but one leading object—enlightening the public mind upon a subject of first importance to the health and happiness of the family of man. I know that my subject is an unpopular one; and, therefore, I shall be subjected to the reproaches of the malignant, the censure of the ignorant, the sarcasm of the interested, and the criticism of the prejudiced; but a consciousness of the rectitude of my motives, and of the goodness of my cause, fortifies my mind, in a great measure, against the otherwise unpleasant and insupportable effects of such a combination of formidable circumstances, which are ready at every step, to meet and overthrow my firmest resolution.

It is to the understanding of the unprejudiced, calm, impartial reasoner, and searcher after truth, that I expect to gain admittance and work conviction, if happily I should accomplish so much any where. The accomplishment of this is all I expect—it is all that I ask—it is all to which I aspire. Literary fame, although ravishing to the minds of many, no doubt, less ambitious than myself, with me has no influence. The acquisition of it is far beyond my reach; and is, therefore, far above my aim. If I am entitled to, or receive any praise or commendation, it must be for the sincerity of my motives, and for bringing forward, perhaps, a few new ideas, or for a new

and different combination of old ones. My limited acquaintance with some of the general, as well as minute and obscure scientific principles, may have led me into some technical errors, to which the liberal minded reader is desired to give the most charitable construction.

Connected with my leading object, is the desire to add something to the small stock of really useful knowledge on a subject, which, of all others of a sublunary nature, is most necessary to, and most intimately blended with, the happiness and duration of our existence. Any thing, however small, added to our limited knowledge of this all absorbing subject, ought to be regarded as an important acquisition, and its announcement to the world, hailed as a blessing to mankind, instead of being derided, contemned and persecuted. We are not bound to believe, or to receive, every *new* thing offered to our consideration and acceptance; but it certainly is the part of phylosophy and patriotism to give every thing, claiming to be useful, a candid, impartial investigation.

The science of medicine is confessed by the best men who have ever honored its splendid halls, or enlightened its mazy paths, to be in a very imperfect state; then why should we reject or condemn, without a close examination, a theory and practice merely because they are new or novel? There has been an almost continued succession of new and novel things, since the creation; and yet our knowledge as well as the improvement of our intellectual faculties remain very imperfect. I do not pretend to say, that Dr. Thomson's Theory or Practice of Medicine is in a state of perfection; but I do say and believe, that they approach nearer to this state than any other with which I am acquainted, or that I have reason to believe is known to, or practised by, the Medical Faculty of America or Europe.

My own peculiar ideas may not be correct: Reflection, and the development of new facts, possibly, indeed very probably, may enable me to see the error, either of some of my propositions or the deductions thereform; or I may be enabled to see what lies beyond my present circumscribed vision. New theorists, as well as their primitive disciples, are too apt to become enthusiastic; sitting down under the dangerous delusion that they have arrived at the maximum of knowledge—the great climax of human wisdom; and therefore, that the path of laborious investigation, if further pursued, is only trodden in vain. Under such impressions as these, knowledge never can accumulate, nor science flourish. And hence the reason why many new discoveries in the sciences, particularly that of medicine, have been so little productive of those great advantages so fondly anticipated by the discoverer and his early friends. With the discovery, has often times ended, and with the discoverer, has oftimes perished the emulation and the spirit which originally led to the discovery.—But mankind are becoming more and more enlightened; and the spirit of investigation is becoming more and more conspicuous and beneficial.

The *Thomsonian System* of Medicine offers itself to the notice of mankind, with no ordinary claims to a thorough and candid examination. Professing to be a system at once cheap, safe, and salutary, and within the comprehension of both men and women of ordinary capacity; whilst on the other hand, the old systems of medicine are acknowledged to be expensive, dangerous and inefficient; it certainly has every thing to recommend it to a close investigation and to command our strictest attention. And I most cordially ask and desire of every individual who values the health and happiness of himself or family, candidly, seriously, and critically to examine the merits

of the Thomsonian Theory of Medicine; and endeavor by every consistent means to make himself acquainted with the Practice; divesting himself as much as possible of his prejudices; and not depending on what others who are unfriendly to this practice tell him; but examine, see, and know for himself; and I am confident that any reasonable person, who thus takes the trouble to investigate for *himself* will arise from the investigation amply, and satisfactorily remunerated for his toils.

W. HANCE.

ADDRESS

TO THE

BOTANIC SOCIETY.

Fellow Members of the Botanic Society:

AGREEABLY to the appointment of the Annual Meeting, I present myself before you at this time, and, in the discharge of the duties assigned me, crave, what I trust I shall cheerfully receive, your charity and kind indulgence.

But previous to entering upon the duties assigned me by the last Annual Meeting, permit me to congratulate you, and the friends of the Thomsonian System generally, upon the continued and increasing success, which has attended the promulgation of this excellent System and Practice of medicine. It appears from the best information, that Dr. THOMSON's new system of medicine is, in many parts of the country, assuming more and more importance, and acquiring friends and advocates not only in the lower and middling classes, but also in the highest ranks of society. Even in places where this practice has not been formally introduced, it is acquiring an important character. In the City of Philadelphia, as I am credibly informed, this "novel" practice of medicine is assuming an aspect of importance with the mercantile community, in consequence of their frequent intercourse with our western merchants who are constantly resorting to that great metropolis for the purposes of trade.

From the South the accounts are very flattering: The Thomsonian System, so far as able advocates and practitioners have gone with it, has carried conviction to the minds of a numerous people; in which number is embraced many persons of the first respecta-

bility, whether we regard their wealth, talents, or influence; and very judicious arrangements have been made by Dr. THOMSON's General Agent, HORTON HOWARD, for spreading it there, to an extent commensurate with its superior importance in the scale of national and individual blessings. The high character which this system has acquired, and its rapid extension in the southern states, so much alarmed the Medical Faculty there, that they commenced a number of suits at law, against *Thomsonian* practitioners, with a view of stopping its progress; but their utmost efforts were crowned with bitter disappointment, and their sanguine and wanton attack ended in their own discomfiture,

The friends of this system, in the East, have also been attentive to their duty. In the State of New York, where the most powerful and, for a time, successful exertions were made by the Medical Faculty to destroy this infant germ of rational medicine, almost every restriction has been removed, by an enlightened legislature. The Thomsonian practitioner, in that great and enlightened state, no more has to hazard, for relieving an afflicted fellow mortal, his liberty nor his fortune; but goes forth in the noble work of healing the sick, confident of the power, the innocency, and efficacy of his medicines, and of his just and righteous protection by the laws of his country. This great revolution in the medical jurisprudence of New York, is owing, it is believed, in a great measure, to the unwearied exertions of Dr. JOHN THOMSON, aided by petitions containing the signatures of between forty-five and fifty thousand persons!

Here also, in the West, we have not been wholly unmindful of the great duty we owe to ourselves and to mankind; although there seems to have been too much apathy and indifference with many of us in making proper exertions to procure the removal of those legal restrictions which our enemies fondly hoped might overthrow this infant institution. This apathy, no doubt, has arisen from a consciousness, on our part, of the superior efficacy of the Thomsonian System, together with a belief that the citizens of this enlightened state would so far appreciate its value, as to render the medical law a dead letter on our statute book: and we have not been wholly disappointed. However, some of the Medical

Faculty, as I am informed, having taken alarm at the inroads made upon their practice by the *Thomsonians*, have so far descended from the dignity of a learned and liberal profession, as to put in force the law, against those, their rival practitioners of medicine; which will probably have an effect in some measure, in some places, to retard the progress of this excellent system, whereby many may be deprived, for a time at least, of the great advantages to be derived therefrom.

It, therefore, behoves us, my friends, not only for ourselves—it is a duty we owe to the world and to posterity, to make every reasonable exertion to remove every obstacle which may, in any way, prevent the utmost extension of this practice. Although, at the present time, we may receive for our toil and anxiety, little else than scoffs and sneers, derision and contumely, yet we may console ourselves with the assurance, that a day will arrive when the scene will certainly be changed. Yes, my friends, I anticipate the day, when Dr. THOMSON and his little band of followers, will be looked back to, by mankind, with feelings of gratitude and veneration, of respect and commendation: And these feelings will become the more lively and intense by contrasting the power, number, and malice of his opponents, with the comparative weakness of Dr. THOMSON and the smallness of his band of friends, who, together with himself, have, with so much fortitude, borne, and already in measure triumphed over, the scoffs, the sneers, and the persecutions, of a blind, infatuated, and ungrateful world!

The Medical Faculty, and many others, perhaps, may think me enthusiastic, in anticipating a time when Dr. THOMSON's and our own labours will be thus appreciated by mankind. They may, and no doubt do, also accuse us with being actuated solely by sordid and selfish motives: But, my friends, let their thoughts or accusations be true or false, it detracts nothing from the real intrinsic merits of the incomparably valuable system which we are endeavoring to disseminate in the world. They may impeach our motives, they may stigmatise our characters, they may vilify our conduct; but all this affects not in the least the immutable principles upon which the Thomsonian System is founded; nor does it in the least, pervert the efficacy of the medicines made use of in

its practice. If they have no better arguments, and I know of none better than these, to oppose us with, they will certainly find their opposition "no better than beating the air, which would be far more innocent."

But to be accused of selfishness in advocating a good cause, is no new thing: Accusations of this nature, were often applied to the early promulgators of the christian religion; and with how much truth I leave for you and the world to judge. And the course pursued by the opposers and persecutors of the primitive christians to stop the progress of christianity, is by no means dissimilar to that adopted by the opposers and persecutors of the Thomsonian System. Each, in their turn, have called to their aid the secular power, to accomplish their purposes.

But facts, I believe, have, and ever will, confirm this truth, that the direct effect of all interference of government with the science of medicine, under pretence of improving it, is to pervert its channels, retard its advancement, and check its consummation.

The direct and infallible tendency of our medical law is to crush the enterprising spirit of improvement, so conspicuous in the present age, and to check the advancement of knowledge in the healing art; just as any *legally* established form of faith and worship crushes the true spirit of religion, and retards the advancement of spiritual knowledge. "Experience and facts will confirm the truth, that the world has suffered more from learned impositions and quackery upon all subjects, than from ignorance." Witness, for instance, the domination of the Pope of Rome, and his inferior dignitaries, bishops, cardinals, &c. together with the priests and confessors. And the English Episcopal Hierchy, holds the laymen in England, in the same kind of bondage, though not so severe. The Medical Faculty, more generally, perhaps, than other profession, become wealthy; and there is much complaint, amongst all classes, of their extravagant charges, whilst but few are aware of any method of freeing themselves from this kind of extortion, so long as the practice of medicine is secured by law exclusively to a certain class of the community.

Nevertheless, there is no doubt that such as are practising on the *Thomsonian System*, under legal authority from Dr. THOMSON,

can recover pay for their services, if justice be done according to constitutional law. But prejudice, too often predominating over law and justice, in our courts, has prevented some of our practitioners from attempting to force a collection; believing it less hazardous to depend upon the casual honesty of the world, than upon the uncertain justice of a court of law. These things have operated, and will continue to operate, until the medical law is repealed or properly modified, as a serious inconvenience to our practitioners, as well as the public at large; because no person can afford to spend his time, and make use of his medicines, to relieve the sick, without a reasonable compensation therefor.

Bear with me, my friends, a little longer, whilst upon the subject of the medical law, and, for the present, I will leave it.*

To foster weak or infant institutions whose objects are good, by legislative provisions consistent with public justice and individual rights, I think is highly commendable: But what are we to think of the Medical Profession for coming forward in the strength of manhood, aided by the wisdom and experience of age, the lights of science, and advantages of popularity asking for exclusive privileges, and legal protection against those whom they effect so much to despise for their ignorance and inconsistency? The natural inference is, that medical science holds out appearances much more specious than solid, or there could have been no necessity for a law to protect it against the intrusion of *quacks*. Such a law as this, can, therefore, be looked upon in no other light than as a prop "showing the weakness of the edifice" which it is intended to support.

If all the glitter, the show, and the splendour, fancifully attached to medical science, affords no efficient passport to employment and distinction—if it affords no efficient protection to a solitary professor, nor to the whole Medical Faculty, united—if they are unable, with all their boasted advantages over the "empiric," the dealer in "nostrums, &c. &c. to obtain employment, without the aid of a special law to secure to themselves an exclusive patronage, how little must all their learning—all their laborious, midnight

*Alluding to "An Appeal to the citizens of Ohio," &c. &c. which has since been published.

studies, and pouring over volume after volume of ponderous books, avail them in the eyes of the world?

It was a rule laid down by the great author of christian morality and religion, "By their fruits ye shall know them." And again; "Every man shall be rewarded according to his works." These declarations are no less true with regard to many of the ordinary concerns of the world, than in affairs appertaining to religion. If the *fruits* of the present popular practice of medicine are so unsavory that the people are unwilling to buy them, how can they be blamed for not "*rewarding*" the Profession, unless *compelled* to do so by *law?* In other words, if the success of the old practice of medicine does not insure to its practitioners the public patronage, why should laws be made to exclude others from practice, in whom the people have more confidence?

I ask nothing more from the Medical Faculty than to meet us on even ground, and then let public opinion, which seldom errs, decide. But to submit to a calm and impartial decision, at the tribunal of public opinion, is what they manifestly wish to avoid, or we should never have heard of a medical law. We have a right to ask, and to expect, from liberal and enlightened legislators, to be placed upon equal ground; and the faculty, relying upon their superior attainments, ought to be—they certainly will be, willing to yield it to us. But should we fail in soon having our just rights restored to us, we may still persevere in well-doing. We are all, no doubt, satisfied in the belief, that the Thomsonian System and practice of medicine is far superior to the popular practice of the present day; and in the end, our perseverance will undoubtedly be crowned with success in obtaining our just rights; and also, in establishing for this System of medicine, that high character which its exalted merits deserve.

But as it was at the first ushering in of the Gospel dispensation, many, because of its simplicity, believed not in it; so it now is and may, for a time, continue to be, with the cause in which we are engaged. The fact that the *Thomsonian System* is adapted to the capacities of persons in the more humble walks of life, constitutes, with some, an insurmountable barrier to a belief in its efficacy and usefulness. But it was to "the poor the Gospel was preached;"

"not many rich, not many mighty, not many noble were called." These latter classes of persons find much more difficulty in overcoming popular or fashionable prejudices than the former class does. But even of the rich, the mighty, and noble, we can boast of a very respectable number, who "have borne the cross and despised the shame" which some affect to think is attached to a right of membership in the Botanic Society.

Look at the City of Cincinnati, the great emporium of our commerce, and the seat of medical science in the West; and if we there find a larger proportion of popular characters, embracing this system of medicine, it is because they are more enlightened, and better informed upon this subject, than they are in some other places. In such a place as this too, we expect to find popular prejudices taking a much deeper root than in the country and less populous and wealthy towns and villages; yet in this city may be seen men who move in the highest ranks of society, zealously and fearlessly engaged in its promulgation, in a most disinterested manner. And if we cast a look through the widely extended country wherein this practice has been introduced, we may also see many persons of talents and the highest respectability earnestly advocating the Thomsonian System; besides a host of others who are anxiously and honestly endeavoring to introduce it into extensive usefulness.

Our enemies, perhaps, may say, that but few of the advocates of this system are men of science; and that they are, therefore, not capable of judging of the value or correctness of any matter embracing scientific or philosophical principles. Suppose we admit this to be a fact; and what then? are they not capable of judging of things which manifest themselves to the external senses? Can they not discover the difference between the effects of different medicines upon the human system? When they administer medicines with their own hands, and prove their superior efficacy upon themselves in removing disease, may they not be permitted to judge of their value? The man who dare respond no! to these important interrogatories, impeaches the moral, the physical, and the intellctual character of his fellow man. If the great mass of the community are incapable, without the aid of science, to

judge of these things, how is it that one physician acquires any pre-eminence over another, in his profession? The evidences, both theoretical and experimental, in favour of the Thomsonian System, have become to diffuse—too much accumulated, for its enemies to hope to break it down by bare assertion; as for evidence, they have none but what is of doubtful and ambiguous character.

I was, myself, amongst the earliest and, perhaps, most ardent friends and advocates of the Thomsonian System, in the State of Ohio; and watched, at times, with painful anxiety, its successful progress and dissemination amongst the people. Yes, my friends, the time has been when I stood measurably alone, an object of pity with some, and of scorn and contempt with others, to breast the impetuous torrent of slander, contumely, and abuse, poured forth from a thousand tongues against this excellent system of medicine, and against myself; but I have measurably outlived it all, and even more; as I was informed that a fruitless attempt was made to have me indicted for murder! And thus you may see, from this very brief sketch of a part of the vicissitudes attending the introduction of this new mode of practice into the centre of Ohio, that I had reason to watch its progress with no ordinary feelings of interest and anxiety.

But I was not destined long to stand alone as the advocate of Dr. Thomson's System of medicine. An event took place as unexpected as has since proved useful to the Western and Southern states, and perhaps, eventually, may prove equally so to the world. An acquaintance of mine had an attack of pleurisy; and here I was called, and first demonstrated to the intelligent mind of our distinguished friend and fellow laborer, Horton Howard, the superior efficacy of Dr. Thomson's mode of practice. In this case he saw such sudden and astonishingly salutary effects produced, that he could not resist the impressions of duty which he felt, to become immediately, for the benefit of his own family, acquainted with the knowledge of the means of producing such an extraordinary effect. Death had very recently, with its dark, terrific form, invaded his peaceful and happy mansion, and deprived it of two of its beloved inmates! In those two cases, the best medical aid, in addition to

his own knowledge, had been procured; but death, that last enemy which we shall have to encounter, quickly, and suddenly, put an end to their anxious exertions to protract the fatal period!

The reflections which those melancholy events naturally produced in his mind, together with demonstrative facts before his eyes, removed in measure his pre-conceived prejudices against the Thomsonian System of medicine; and he immediately applied to me for, and obtained, a knowledge thereof. And here I cannot well omit noticing a remark which he made to me as introductory to the application for the knowledge of this system, and which I wish could be strongly impressed upon the mind of every individual whose prejudices prevent him from adopting Dr. Thomson's system of medicine. He observed, that although his prejudices were deep rooted and strong against a practice so contemptible as he had conceived this to be, yet when he saw such salutary effects produced by it as he had reason to believe, from his own knowledge, reading, and experience in the practice of medicine, could not be produced by any other mode whatever, he believed it to be his duty as a man and a christian, to forego his prejudices, and make himself acquainted with it. The result was, he became fully acquainted with the Thomsonian System, and, ultimately, as fully convinced of its great utility and advantage to the human family. Immediately after he had become convinced of this, he commenced, very earnestly and disinterestedly, recommending it to his friends and others, I believe, from the best of motives, wherever he went; and subsequently, yielding to the strong importunities of Dr. Thomson, and the anxious solicitations and advice of his friends, he was appointed an Agent for diffusing its blessings more extensively amongst the human family. The result of his exertion in this great cause, you are in some measure acquainted with; it will be sufficient, perhaps, to say, that under his influence it has spread and extended itself, from Michigan in the north, to Florida in the south; and from New Jersey in the east, to Illinois and the Lead mines in the west.

The extension of the Thomsonian System of medicine in the west, has far exceeded my most sanguine expectations. I saw it in its infancy with scarcely a friend who dared publicly to advocate its strong claims to universal adoption by the human family. I have

seen it progressing from this small beginning, and gradually acquiring able and influential friends and advocates amongst all classes of the community, and in all parts of the country. It has been tested in hundreds of families since its introduction into the western and southern states, and, with but a very few exceptions, all are satisfied of its utility. And last, though not least in its favor, the Medical Faculty, though determined in their opposition, have not opposed it in any thing like a rational nor, may I not say, honorable way. All that they or any of their friends have done, has been done, either by enforcing the medical law, or publishing some ridiculous, inconsistent, and malicious tales in the newspapers, very similar in their nature to a pamphlet, entitled "the People's Doctors," &c. attributed to *Dr. Drake*, of Cincinnati; and which is very justly considered as one of the most contemptible publications on this subject, that was ever offered to the public.

Although they have been challenged to the contest, they have done nothing more, at best, than to let down their own dignity by treating a serious subject with ridicule. They have never shown the fallacy nor falsity of the *Thomsonian Theory*, nor the *absurdity* of the *Practice*, so much talked about; and that for the most cogent and obvious reason, they never could. They have never attempted it, and, in my opinion, they never will—they must be sensible of failure if they do.

I have now, perhaps, dwelt, sufficiently long upon this part of my subject. I shall proceed, in my lecture, to give some hints respecting the Thomsonian Theory, with some of the evidences which have presented themselves to my mind, in proof thereof.

It may be proper, however, to observe, that a portion of the proposed lecture is the substance of several numbers, published under the head of "the Thomsonian System" in the National Enquirer: But as I had not then gone so deeply into the subject as I now propose going, and as I had not an opportunity of closing the subject, previous to the discontinuance of that paper, on account of ill health, I supposed it might not be unacceptable to this society, again to take up the same subject, as I should thus have an opportunity of adding additional proof to those already adduced, and of bringing into view the remaining parts of the subject, as originally contemplated.

LECTURE.

When any thing new is offered to the world, claiming for itself superior advantages over whatever may have been in any way similar to, and preceding it, the rational inquirer expects that something demonstrative of the justness of such claims should accompany it. The best evidence, however, which might be adduced, in proof of the utility and value of the incomparable system which I am the humble advocate of, it is not expected will be adduced here; indeed, you who now hear me do not need this evidence; you have already had it in the salutary effects of Dr. Thomson's medicines, administered by your own hands. I will, therefore, proceed to the explanation of Dr. Thomson's theory of disease, offering in proof thereof such evidence as I have been able to collect, in confirmation of the same. And I believe that I shall not much vary from the truth in asserting that every unprejudiced person who becomes thoroughly acquainted with Dr. Thomson's theory of disease and method of cure, is delighted with their beauty and simplicity.

According to his theory, the principle of life or animation is derived from heat or caloric; and disease and death are caused by its too great diminution. He contends, that as the body is formed from the *four* elements, earth, water, air, and fire, each in corresponding proportion to the other, it is necessary, in order to preserve the best health, that this proportion should be kept up.

I am well aware that the *learned* will sneer at what they may term ignorance in Dr. Thomson for styling earth, water, and air, elements; since those native compounds have been analyzed and found to be composed of several different substances. To this class of critics I will only observe, that speculative and scientific

nicety, was far less an object, with "the acute-thinking THOMSON," than practical usefulness.

I presume it will be conceded by all, that it is from the four substances which THOMSON, as well as the ancient philosophers denominate elements, that all organized bodies, both animal and vegetable, are formed, and from which they derive their subsistence. Hence the necessity of those substances existing in their different and peculiar forms; and they are, therefore, as perfectly the elements of organized matter, as oxygen and hydrogen are the elements of water. And it may be further observed, that those substances exist in a natural state; being formed by some process of natural chemistry with which we are unacquainted; and in this state have existed from the beginning, and in this state will continue to exist to the end of time. Consequently, if they are not *simple* elements they are *natural* ones; and for every useful or practical purpose, in treating of the Thomsonian System, this distinction is deemed entirely sufficient.

That caloric or heat is the moving principle or cause of life, (motion) it may be observed, that although there could be no life without earth, water, and air, to form a body from, yet without heat to give motion, there could be no life or animation. Dr. THOMSON reasons thus: that *heat* is *life*, and *cold* is *death*. You scarcely need be told, I presume, that *cold* is a mere negative term of convenience, and expresses nothing more than the absence or diminution of heat. He regards *disease* as a battle between *heat* and *cold*, and, therefore, whichever of the two has possession of the body after death, must be the victor; and the one which is absent from the body is vanquished; the vanquished being regarded as the moving principle. Heat, agreeably to Dr. THOMSON's theory, is the acting principle; earth, water, and air, the subjects acted upon. At death, and frequently before, the natural heat leaves the body; and hence the familiar saying, "*Cold as death.*"

It is evident to any common observer, that when heat is abstracted from the atmosphere and surface of the earth, to a certain degree, many things become fixed and inert. A drop of water, for instance, falling on a stone at the freezing point of temperature, immediately congeals, and would there remain to the end of time

if the relaxing power of heat did not return to dissipate it. In winter the vegetable tribes either cease to exist or become stationary in their growth; and insects, worms, and reptiles, either die or bury themselves beyond the reach of frost, or lie dormant; as do also some quadrupeds, until the rays of the vernal sun return to animate and invigorate them in common with the whole creation. And what a contrast does the returning animation, the bloom, and the beauty of spring, form with the cold, lifeless, and dreary winter; when the fields and the forests are divested of their verdure—when even the brute creation is deprived of its natural vivacity and vigour. But how great the change—how wide the contrast, when

"Vernal music softly sounding,
Echoes through the verdant grove;
NATURE now with LIFE *abounding*,
Swells with harmony and love."

The brute creation, instead of standing in shivering groups, reluctant to move their cold-stiffened limbs, are now seen in active recreation; the various feathered tribes are engaged in warbling their different notes as testimonials of their happiness; and even man must acknowledge that he feels sensations of pleasure and animation in unison with the general joy. Life and activity pervades every part of the animal and vegetable creation; and what but the warming beams of the vernal sun, or the gentle fannings of southern gales, could produce all this hilarity and animation?

The returning warmth of spring disenthrals myriads of insects from their eggs; and such animals as have lain dormant through the winter, again by its influence return to life. The fields and forests which had been stripped, by the "winter's cold," of their emblems of life and beauty, again resume their verdant covering; and nature seems as if "bursting forth into new life." The roots and branches of such vegetables as survive the frost of winter, being invigorated and expanded by the heat of the sun, absorb the peculiar nutriment adapted to their growth; the branches resuming their beautiful foliage, but to be again divested of it by the cold of autumn. But in what peculiar manner plants absorb or inhale their nourishment, and manufacture it into organized matter having all the different characteristics of stalks, leaves, blossoms, and

seeds, is, perhaps, beyond the wisdom or comprehension of man: but, that *heat* is the *moving* cause of whatever takes place in the growth and consequent organization of vegetable matter, the facts which have been adduced, as well as those which follow, afford at least plausible proof. The roots of plants requiring more than one season to arrive at maturity, are buried in the earth, equally exposed to the influence of air and water, in winter as in summer; but without a sufficient supply of the vivifying element of heat, they do not vegetate and produce fruit.

It may, perhaps, be said by some, that it is a part of the nature of plants, or, in other words, a principle with which they are indued, to grow and flourish in spring and summer, and die or become stationary in their growth, in autumn and winter. And it may, also, with equal propriety, be said, that it is in the nature of things, for warm weather to return in the spring and cold weather in autumn: But let warm or cold weather occur when it may, the one will always accelerate, the other always retard the growth of vegetation. And the same causes operating through the summer or growing season, produces either a rapid or a slow growth of the various vegetable productions of the earth. These remarks will apply to the seeds of plants as well as the roots and branches; the seeds, when placed in suitable situations, being subject to the same laws, and operated upon by the same causes; heat, in both cases, being essential to the production of life, as without it the other *elements* could produce nothing possessing animation.

The ancient philosophers, who were close observers of nature, appear to have entertained opinions, with regard to the vital principle, very similar to those of Dr. Thomson, although it is improbable, indeed it is impossible, that he should have derived any part of his knowledge from their writings. Dr. Thomson's education and habits of life seem to preclude the possibility of his acquiring any knowledge in this way. He is totally unacquainted with the flowery paths of literature, or the science of the schools; and appears to have an aversion to most kinds of reading; relying, as it would seem, upon the comprehensive resources of his own mind, in all matters relating to his System of Medicine.

Tourtelle, in his Principles of Health, appears to coincide in opinion respecting the vital principle, with the ancient philosophers and with the recent theory of Dr. Thomson. "Upon this globe, (says Tourtelle) it is only in the surface enlightened and warmed by the sun, that we find the sense of life diffused. Without the heat of this beneficial planet, matter is dead, and in a state of inertia and inactivity."

"It is true then, (the same author observes) that there circulates in all the material world, a vital fire, which produces, preserves, and renews every thing that exists; it penetrates every body, and developes with more or less energy its action, according as it is more or less modified. It is an element, which is at all times destructive and creative, but inextinguishable, which adheres the more feebly to bodies in proportion to the imperfection of their organization, and which never abandons a substance, except when it ceases to furnish the aliment necessary to its activity, or to penetrate a new one, to which it gives a more or less intense life."

But whatever may be the result of our inquiries after the vital principle, one thing is certain, that heat is a most important agent in the production of vital phenomena, and that it not only has an influence over the simple *growth* of vegetables and animals, but also upon their *size*.

Natural History, as well as common observation, prove the fact, that the largest species of plants are produced in hot climates, and that plants of the same species grow much larger in southern than in northern latitudes. I have heard it stated by good authority, that the small kinds of Indian corn cultivated in the north, will in time, by removing and rearing it in the south, acquire a much larger size: And, it is fact well known amongst agriculturists, that the large kinds of the same grain, by gradually removing and cultivating further north, will gradually decrease in size, adapting itself to the climate in which it grows: and in this way, it is probable, all the different varieties of maize have been produced from one common stock. This valuable agricultural production was, no doubt, originally found in a warm climate; and can probably now be cultivated in much higher latitudes than it was originally produced in. And thus by gradually removing the seeds to

the north, cotton and rice, may, perhaps, yet become as common crops in Ohio, Pennsylvania, &c. as Indian corn is in Canada. It may be laid down as a general rule, that, as we recede from the *torrid* through the temperate to the *frigid* zone, the size of vegetables, and the quantity produced on a given piece of ground, gradually diminishes; until in the highest latitudes, there are no vegetables at all to be found.

It was, no doubt, from the small size of the vegetable productions of northern and temperate, compared with their large size in southern and hot climates, that the Rev. Dr. CAREY introduces the following lines into an address to the first English Daisy, which, unexpectedly, sprang up in his garden in India, "out of some English earth in which other seeds had been conveyed to him from England:" He says, having reference to this daisy growing in India,

> "Where *Flora's giant* offspring tower
> In georgeous liveries all the year;
> Thou *only thou* art *little here*."

Natural History also informs us that the largest animals generally are found in the hot climates of the torrid zone. There are evidences, it is true, of a very large animal having once existed in the temperate climate of the United States; and we also have very large vegetable productions growing in temperate climates; but, as a general rule, the largest vegetables and the largest animals are the production of the hottest climates. The Elephant, the Rhinoceros, the Hippopotamus, the Lion, the Tiger, &c. are natives of the torrid zone, and are the largest animals with which we are, at present, acquainted; whilst as we recede to the frigid zone, we find animals generally decrease in size. It has also been observed by Naturalists, that animals which are natives of southern climes, if removed and reared in higher latitudes, gradually decrease in size and strength. Even man, who stands at the head of creation, is found of smaller stature in cold than in hot climates; which every reader of Geography may have noticed in the remarks on the inhabitants of Greenland, Iceland, Lapland, the Esquimaux Indians, &c. &c.

It appears from this cursory review of some of the productions of nature, that a warm or hot climate is most congenial, not only

to the production of the largest species of vegetables and animals, but that vegetables and animals of the same species grow much larger in hot than in cold climates.

It may, perhaps, be said that the Great Author of Nature designed that hot climates should produce larger animals and vegetables than cold ones—that He created, formed, and planted them in situations best adapted to their peculiar exigencies and modes of subsistence: This I will readily admit; but let us inquire the *reason* why it is so. There is, perhaps, nothing takes place in the material world, but which may be traced to, or accounted for, from the action of natural causes. If, for instance, the seeds of a plant which requires eight months to arrive at maturity, be planted in a soil where the summer or growing season is of but six months duration, it is evident that the plant would have but three-fourths of its growth. And why? The answer of many would be in this familiar language; "the summer is too short." This would be, at once, acknowledging the principle which I am endeavouring to illustrate. The necessary supply of heat is continued but three-fourths the length of time requisite for the plant to arrive at perfection; yet the othere three elements, air, earth, and water, are still supplied in sufficient profusion to produce a perfect growth of the plant, if the necessary supply of heat were only continued for a sufficient length of time. Hence, the irresistible inference, from all that has been said, that without a sufficient degree of heat applied a sufficient length of time, to the other elements, the phenomena of life is not produced; or if, by its salutary application, life is produced, still without its proper continuance death is the certain, inevitable consequence.

Nearly the same mode of reasoning which I have applied to vegetables, will apply with equal force and truth to animals.—Man can endure the abstraction of heat, only to a certain degree, and for a certain length of time; beyond this he can never go; his life is destroyed with as much certainty as many vegetable productions are by an untimely frost!

From all the facts and arguments which I have thus far adduced, it seems a very forcible conclusion, that life and activity, the moving power or principle of animation, or any other term we choose

to employ, both of vegetable and animal life, if not absolutely derived from heat, is very essentially influenced by it. And the arguments which I have drawn from the analogy of vegetable and animal life, I am, I think, fully sustained in, by written authorities of no ordinary weight. TOURTELLE, has a chapter, in his Principles of Health, devoted to the "Analysis of the Functions common to animals and vegetables." In this chapter, after taking a view of the most important functions performed in the human economy, he observes, "Such is, in miniature, the picture of the principal functions of man. Let us now see their affinity with those of vegetables;" which digression, said he, "will lead me but little from my subject. The analogy" he continues "which exists between vegetables and animals, was known to the ancient philosophers; many of whom were persuaded of the animation of plants, and they included them in the rank of animals." RICHERAND, in his work on Physiology, says, that "Vegetable life, compared in its means and results, to the life of animals, would throw the greatest light on many phenomena, which it is still difficult for us to conceive and explain." It is, perhaps, some such comparison as he alludes to, that I have attempted to make; how much light I have thrown upon the subject I leave for others to judge.

I have now, gentlemen, illustrated, according to my feeble abilities, the New Theory of Dr. THOMSON, as taught by himself; into which I have also introduced several important facts, for the purpose, not only of illustrating *his* theory, according to his own notion of things, but also for the purpose of elucidating a theory a little different from his; though not varying in any degree in its results as to the cause of disease or method of cure. Dr. THOMSON asserts that "*heat* is *life*"—that it is the great moving principle—the main-spring of action, in nature; and that health and life altogether depend upon this active agent. It is a trite maxim, that it is in human nature to err. The greatest men the world ever produced had their foibles. All theorists are liable to reason falsely from the facts before them, or to reason in the absence of facts, or rather without the knowledge of facts which, notwithstanding their ignorance, do really exist. They often, however, reason very plausibly and consistently from the facts within their knowledge; but the

discovery of one solitary fact has often been known to lead to the overthrow of some of the most stupendous fabrics of human philosophy. Dr. THOMSON, however, unlike most other medical theorists, first discovered a safe and simple method of removing disease, and then invented or framed a theory to suit it; and hence his patients have not suffered, as those of other medical reformers have, from bending the practice to suit a false theory. False theories, so many of them as have been introduced into medical science, could never, of themselves, do an injury to the sick; the injury has uniformly arisen from the attempts of physicians to adapt their practice to some favorite theory.

The eminent Dr. BLANE says, "It is too true, that medical practice has been perverted by fallacious reasoning, and the misapplication of the powerful resources discovered by superior intelligence," and, as another writer observes, "the least erroneous view leads to some consequence. We must remember the lives of our fellow creatures are at stake, For how many cruel and premature deaths, how many impaired and debilitated constitutions have paid for the folly of theories! Follies, which have almost always been fascinating. The study of a system is more easy than the investigation of nature; and in practice it seems to smooth every difficulty."

Dr. THOMSON, although some of the deductions which he has drawn from the bases of his theory may not be entirely correct, has escaped all the difficulties and dangers incident to theories. As I have previously observed, he first perfected his plan of medical treatment, which was mostly the effect of accident or necessity, and then endeavoured to form a theory to harmonize with his practice; whereby his patients entirely escaped the dangers which have always attended former theories.

The grand, fundamental basis upon which Dr. THOMSON's system rests is, that the human system is formed from, and is consequently sustained by, the four elements. Whether the number, *four*, is sufficiently comprehensive, or whether *earth* enters at all into the composition of vegetables or animals, might perhaps be considered foreign to the subject under discussion, as the certainty or falsity of those propositions could have no influence on the prac-

tice of medicine. And in this instance may be seen the advantages of first discovering a correct mode of practice, and then forming a theory to suit it; because, if the practice is correct, it is no matter whether the theory is true or false. It has never yet been proved that *earth*, although it supports vegetables *erect*, enters through the roots into their composition; and *light*, it is well known, is essentially necessary to their growth and perfection. Be this as it may, however, the deductions drawn, by Dr. THOMSON, from the fundamental premises upon which his theory is built, are certainly correct, so far as the practice of medicine is concerned.

Disease and death evidently arise from a diminution of that power or principle (if there be such an one) which, in the living system, keeps up an easy, agreeable, and harmonious action of all the vessels, and performance of all the functions necessary to the support of life and health. This power cannot, in the nature of things be in excess, but must, in all its variations, be deficient. Nature never produced or provided a power more than equal to the accomplishment of her objects; but must in all cases of variation from a healthy standard, fall short, and hence the origin of the practice of medicine, to assist nature in doing what she herself would do were she capable. Disease is, therefore, the effect of the first and succeeding stages of difficiency of this power of nature, and death of its last stages. Therefore, it becomes a matter of the utmost importance in deciding, *a priori*, as the book-men say, what this power is derived *from*, and not what it *is*, in order to comprehend the most effectual and certain method of cure. We might, however, be permitted to inquire what this power is, if it were probable that we should ever find it out; but this I conceive is very uncertain, and for this good reason, that it is a matter of doubt, (although I have made use of the term for convenience,) whether any such thing as a vital power, or vital principle, separate and distinct, has an existence, only in the imagination.

That there is such a thing as vitality, or life, there is no doubt; but this is the *effect* of a certain *cause;* and that cause has not its origin in a *unity* of *principle*, but is the *effect* of the *combination* of different principles or substances. The mixture of acid and alkali produces an effervesence; and this is the effect of those

substances acting upon each other. The effervesence may be kept up for any definite length of time, by the constant addition of acid, alkali, and water; and so with the phenomena of life: they can be kept up in no other way than by the constant application of the natural stimulants, air, food, and water. Neither of those substances, in itself, contains any thing that constitutes, or that will produce, life; but their acting upon each other, produces certain effects, and these effects we call life.

"Physiologists, says RICHERAND, are divided into those admitting a *principle* of life, and those attributing the vital phenomena to *organization* solely—the latter class contending that life presupposes organization, the former that organization presupposes the presence of life."

"Those who contend, continues the same author, that life is the result of organization, ought to explain in what manner the organization itself took place; they should show the means employed to produce the disposition of parts, which they conceive requisite to give rise to vital phenomena." This explanation I will endeavor to make.

"From the most remote antiquity, says MAGENDIE, philosophers were persuaded that a great part of the phenomena peculiar to living bodies, did not follow the same course, nor obey the same laws, as the phenomena proper to inert matter.

"To these phenomena of living bodies, a particular cause has been assigned, which has received different denominations;" such as PHYSIS or *nature; moving* or *generating principle; impetum faciens; archaeus;* the *soul; vital principle; vital force*, &c. &c. But it is evident that none of these terms in any way explains the *cause* of that *living state* which we call *life.*

The original cause of life ageeably to bible authority, was the exercise of the creative energies of the Great First-cause of all things. "The LORD GOD formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became a living soul." And unto man, as well as to all other organized beings, was given the power of reproducing his species from a seed or germ containing the properties, qualities or first principles of living matter. The fact, that the vitality of an egg is preserved

for a long time, by its own inherent qualities, appears to be pretty conclusive evidence that the germ or seed contains the properties of living matter; because without this it must yield to the operation of those laws of natural chemistry which are forever acting upon organized matter. "The vital power says RICHERAND, is in perpetual strife with the powers that govern inanimate bodies. The laws of individual" or organized "nature are, according to the saying of antiquity, forever struggling against those of universal nature."

The seed being deposited in a situation most suitable for the application of those substances which support life, it germinates, and, eventually, developes itself, in form and structure of organs, perfectly similar to the parents from whom it had its origin. It requires no stretch of the imagination, nor flight of fancy, to conceive, that the semen of animals, after being deposited in its proper receptacle, and receiving the same stimulus which nourishes and sustains the mother—the blood charged with nutricious chyle—will produce or take upon itself the same form and structure of the parents. These observations are equally applicable to vegetables and animals. And that the semen or seed does possess such properties as I have attributed to it, is proved by the production of mules, in the animal creation; and in the vegetable, by those mixtures which take place, in different kinds of Indian corn planted contiguously, as well as of some other vegetables; with the phenomena of which every person acquainted with agriculture is familiar.

The theory of vitality which I am endeavouring to illustrate, no doubt will be objected to by many physiologists and philosophers, because it involves the necessity of supposing the phenomena of life to depend upon a chemical action produced by an union of the different substances of which the body is composed. But can not living organized matter be governed by chemical laws peculiar to itself, as well as inert matter? We must either conclude that the vital phenomenon depends upon a *divine* principle emanating immediately from the Deity, or admit it to be the result of chemical action, both in compounding and decompounding the various matter of which living animal bodies are composed. If

life is not the *effect* of matter acting upon matter, it must be an immediate, continual, and direct emanation from God; which is contrary to our notions of all perishable, sublunary things. As far as we have become fully acquainted with the laws which govern the animal economy, we find them to be the laws of *nature*; and if so far as ascertained we are under the influence of the laws of nature, why may we not admit the same conclusion of the rest.

It is no objection to the foregoing proposition, that chemistry has never developed such fluids and other substances as are met with in animal bodies, nor made them capable of being acted upon in a similar manner. The laws of chemistry with which we are best and most intimately acquainted, apply solely to inanimate matter. Indeed, it must be obvious, with very little reflection, that the principles of chemistry which govern inanimate matter, cannot, in the nature of things, be applied to animate matter. Although they may be made use of in various ways to explain some of the operations of the living system, they never can fully develope the process upon which vitality depends.

Animals as well as vegetables, whilst they retain the properties of vitality, oppose an effectual resistance to putrefaction; but when once divested of this property, the laws of chemistry at once disclose themselves, by which the organization, structure, and form of both animal and vegetable substances are destroyed.

It certainly requires but little strength of imagination to conceive, that most of the glands of the animal system perform the office of secreting fluids which act upon the living fibre as *sceptics* and *stimulants;* and that all the organs which act as excretories are carrying off putrefactive, useless, or morbid matter from the body.

It is not denied that the phenomena which take place in living animals, are peculiar to life. Thus the continual action of the organs of involuntary motion, such as the heart, and the peristaltic motion, &c.; and the power which animals possess of voluntary motion, or motions performed under the influence of the will, must be referred to the agency of laws peculiar to animal life.

The saliva, gastric juices, and bile, exert a peculiar influence on the digestion, performing this function probably altogether by a

chemical process, and thereby preparing our food to yield to the lacteals those nutricious particles which are indispensably necessary to replenish the constant waste of matter which takes place through the natural outlets from the system.

We may also as easily conceive the brain to be a gland, secreting a fluid which acts chemically upon the fibres of the muscles, thereby imparting to them the power of motion; or that this fluid acts upon the nutricious particles deposited by the blood, and that the effect of this action operates upon the muscular fibre, thereby producing, or enabling them to perform motion; and that those particles after having been acted upon in this way become useless, and pass off through the common emunctories. The accumulation of the nervous fluid, together with the proper supply of nutricious matter, probably enables the will to influence the action of the muscles, on a principle somewhat similar, perhaps, to that concerned in the expulsion of fæces and urine. When the fæces and urine are discharged, the muscles concerned in the expulsion, cease to act, because the stimulus which excited to action is exhausted or withdrawn, and these muscles will no more act until a certain accumulation of fæces and urine takes place. When the nervous fluid becomes exhausted, or nutriment is withheld or withdrawn, the will can no longer influence motion because the moving power is exhausted.

I do not conceive it to be any objection to this theory of life's being the effect of a combination of different principles derived from the combination of various substances, that the phenomena of life are mainly produced through the agency of the nerves; because the nervous system receives its impressions from another source than from itself, and is, therefore, nothing more than a system of conductors to convey impressions to the brain, and communicate mobility to the muscles.

But after all, we might save ourselves this trouble of theorising upon the four *elements* of Dr. Thomson, or upon the unity of the *effect* which is termed life, by recurring to a most common and obvious fact. We all know that man, as well as all other animals, constantly receives and assimilates a certain quantity of food, water, and air. "The privation of" those substances "during even

a very limited period, brings with it necessarily a cessation of life." Here is a complete development of the proposition for which I am contending that life is the *effect* of a cause or causes, and that it is not a principle in itself, separate and distinct from man; but must, in all cases, necessarily be connected with some organized being; because that cannot be called a *living principle*, which to-day is alive, and to-morrow is dead; as principles cannot cease to exist. Any thing properly called a principle in the abstract sense of the term, remains forever the same through all the vicissitudes and endless variations of time. It is a principle in numbers that *two* and *two* make four; and this was a principle from the beginning, and will continue, though man should cease to exist and numbers to be computed, through all time.

The subject, upon which I have so long been dwelling, and which has furnished a fruitful theme for philosophers and physiologists to dwell upon, "has occupied the attention of the wisest and best of mankind in all ages; and though, after the fruitless efforts with which such characters have hitherto pursued it, I have not the vanity to conceive that I have thrown upon it any thing like *perfect* daylight," yet I was willing to suggest these hints, and then proceed to the further consideration of the fundamental principles, upon which is based the curative system of Dr. Thomson.

The great object at which I am aiming in this cursory glance at some of the operations of nature, is the establishment of the proposition, that life is the result of a compound of different materials; and that disease is the result of a deficiency of one of those materials. It will be my object to prove that the loss or diminution of *heat* is the primary cause of disease, and, that agreeably to Dr. Thomson's theory, which I conceive to be correct, the only rational way to restore health is to replenish the diminished heat or energy of the system.

It will be recollected that I have shown the vast importance of heat in the operations of nature—that the ancient philosophers considered it as occupying a conspicuous place in the catalogue of natural agents, and philosophers and chemists of the present day consider it the most active known chemical agent; and, I repeat with confidence, it will, through all the succeeding ages of

time, continue to maintain its character as the most active, important, efficient, and conspicuous agent in the operations of nature.

Dr. Thomson tells us, that "a diminution of the *vital flame*, in every instance, constitutes disease, and is an approximation to death:" and that its extinguishment, in all cases, is death. These propositions, although they may not be entirely new, are, nevertheless, original with Dr. Thomson, who learned these truths, not in the splendid mansions of science, nor in the flowery paths of literature; but in "traversing the undeformed walks of nature, reading and learning in the unsullied pages of the book of creation," as almost all the greatest physicians, philosophers, and artists, which the world has produced, ever have done.

"But, says an objector, if a diminution of heat be the sole cause of disease, why do those who reside in *hot* climates not enjoy as good health, and attain to as great an age as those who reside in cold climates: and why do the inhabitants of temperate climates not enjoy better health in the warm than in the cold season?—why does not simply keeping a sick person externally *warm* prevent his dying? and if a certain suitable proportion of *all* the elements or component parts of man, is necessary to the preservation of health, what evidence or reason have we to suppose that the *loss* of *heat*, to the exclusion of the other elements, is the original and whole cause of disease? Whereas the reverse of most of these queries appears often to be the fact."

In answer to the first clause of the query, it may be said, that heat, simply in itself, has no tendency to destroy health any more than it has to produce life; nor does it, in itself, prevent those within its influence from attaining to old age. The circumstances under which heat proves destructive to health, are not altogether dissimilar to those requisite for producing life; as, in addition to heat, it is necessary to have moisture in combination with dead animal or vegetable matter, which, it is known, are the supporters of life; but it is only in a state of putrefaction, that they prove destructive to health.

It appears, from accounts, that those who inhabit the great deserts of Africa, under the scorching rays of a vertical sun, enjoy as good, if not better health, and attain to a greater age than per-

sons living in the most temperate and healthy parts of the United States. If simply a hot climate had any effect in producing disease, the unfortunate Capt. Riley's men, under so many extraordinary privations and sufferings for want of food, drink, and clothing, must undoubtedly all have perished—none could have escaped to tell the melancholy tale. The true explanation of these extraordinary circumstances adds another proof to the theory or proposition, that life is the result of a union of the elements.

On the African deserts there is no rain, or water to be found. Here are earth, air, and fire, or heat; but the fourth element, water, is wanting; and consequently no vegetables are produced. Here Dr. Thomson's active agent or element, fire, abounds in profusion, as well as two of his passive ones, earth and air; but without a due proportion of the whole number of the constituents of organized matter, the phenomena of life and of organization do not take place. But in hot countries, where rains and moisture abound, vegetables are produced in great profusion. Stagnant waters are also more or less abundant in hot and fertile countries, in which are produced innumerable multitudes of small animals, reptiles, and aquatic vegetables of various kinds, some of which are constituted for a short period of existence, whilst many others are casually and continually dying. These, together with a vast amount of dead vegetable matter scattered over the whole surface of the country, being exposed to the action of heat and moisture, is in a constant and active state of putrefaction; the exhalations from which vitiate the air, thereby rendering it unfit for the purposes of respiration, or support of animal life.

Every person is familiar with the fact, that the deprivation of air for "a very limited period, brings with it necessarily a cessation of life;" and the importance of its purity is only equalled by the necessity of its free and constant admission to the lungs.

Putrefaction, which takes place most rapidly in climates where heat and putrefactive matter most plentifully abound, contaminating the air, and producing disease and death, is the true reason why hot climates, and the hot season in cold climates, are, comparatively, unhealthy, and not the heat of those climates and seasons simply in itself, alone.

In regard to the second clause of the query, "why does not simply keeping a sick person externally warm prevent his dying?" I answer, briefly, that although I consider heat to be a most important agent in the promotion, regulation, and preservation of health, it is necessary that this heat should mainly be generated or developed *in* the system, in a *natural* manner, consistent with the exigencies, order, and harmony of the animal economy. The *external* application of heat to the system, although, in many cases, very useful, and in some indispensable, is still not sufficient, without the aid of internal stimulants, to restore, and keep up those internal vital actions which are necessary for the continuance of health and life.

The third and last part of the query is a much more copious subject of discussion, and will be examined at greater length than were either of the preceding parts. "If a certain suitable proportion of *all* the elements or component parts of man, is necessary to the preservation of health, what reason or evidence have we to suppose the *loss* of *heat*, to the exclusion of the other elements, is the original and whole cause of disease?"

The answering of this query, important as it is imposing, ought to be clear and conclusive, because upon its correct solution depends the establishment of Dr. Thomson's theory, and the overthrow of all preceding theories of medicine. Dr. Thomson looks for the cause of disease *in* the human system; in the derangement of those functions, or a failure of those powers, which preserve health and support life. Former theorists sought for the cause of disease *out* of the human system, amongst those various and discordant circumstances with which we are surrounded, but which, in their application to the body, produce one invariable effect—a depression of the vital functions; and as these circumstances were often at variance with each other, physicians never could, nor never can, adapt a systematic mode of practice to them. It would seem as if they thought, that from circumstances or causes so various, the same effect could not ensue. The former sought for the general proximate cause of disease; the latter, for the particular remote cause. The one applied his medicines to remove the proximate cause; the other for—he scarcely knew what.

I will now return to the consideration of the proposition, that a diminution of heat, rather than of any other component part of the human system, is the cause of disease. The first and most natural proof of this is founded upon a natural principle in, or quality of heat, that it pervades all bodies, in contact, alike. This is one of its peculiar characteristics; being unconfiable within any limits, or by any substance. Caloric, or the matter of heat, is so extremely subtle that it passes quickly through all substances; and through those which are solid with greater rapidity than through those which are more porous. From this it must be obvious that no body or substance whatever, animate or inanimate, can long retain a temperature above the atmosphere, or any other substance in contact with it, unless it is under the influence of means for generating a constant supply of heat. A rod of iron, for instance, heated red hot and plunged into cold water, soon imparts its heat to the water, and both become of equal temperature; or if it be laid in the open air it is soon reduced to the temperature of the atmosphere. Just so with animals, the temperature of whose bodies is above the surrounding air; they are constantly losing heat, but at the same time as constantly generating more to supply the waste. A knowledge of this fact, enables us to comprehend how a person exposed to a current of *cold* air, or to the action of any other cold substance, loses his vital heat, and becomes the subject of disease.

The second reason which I shall offer in proof of my proposition is, that every evacuation from the body—alvine, urinary, perspiratory, or the exhalations from the lungs, carries off a portion of free caloric or heat; and every involuntary motion, keeping up the circulation of the fluids, and promoting the secretions—every voluntary motion, whether producing fatigue or not—all have a tendency to set free the latent caloric in the human system, by which means it radiates and passes off, producing a diminution of the sum total of vital heat. A person by making violent exertions in running or by excessive labour, becomes very *warm*, which is followed by a proportionate degree of languor, caused in part, no doubt, by a diminution of vital heat. It may be asked how the heat is lost by exercise, when there appears to be so much more of it present

during the exercise? The answer is at hand, and easily comprehended. The increased quantity of *sensible* heat which we experience during, or in consequence of exercise, must have lain in a latent state, and being set free by the friction of the blood and muscles, in consequence of the exercise—passes off with great rapidity, and the system suffers in proportion to the waste.

Now as the lungs and stomach are calculated for the reception and consumption of certain quantities of air and food, to replenish the ordinary and *natural* waste of heat, it must be evident, on a little reflection, that whenever a waste of this element takes place beyond what those stimulants can naturally or reasonably supply, or what the constitution will bear, disease must be the consequence.

The third reason which I shall offer in proof of the proposition, that a diminution of *heat* or *fire* is more probably the cause of disease than a diminution of either of the other elements, earth, water, and air, is that those elements are confinable bodies; that is, they may be restrained within definite limits. This, although but negative evidence, must be entitled to the full weight of positive testimony; as I am only endeavouring in this instance to show why disease is more likely to be caused universally by a loss of heat than of either of the other elements. Hence, when we consider that earth, water, and air, are *confinable* bodies or agents, it must be obvious that the means of supplying those parts of the body are more abundant and more feasible than are the means of supplying vital heat. And, from the same circumstances, it is equally evident that the waste of those elements is much less liable to be affected by ordinary or adventitious circumstances.

Heat, as before observed, being *unconfinable*, is constantly passing off from the human system, if not by the law of gravity which acts upon water, reducing it to a common level, it is by some other similar law which has equally as strong a tendency to reduce the heat of bodies to one common temperature. This is the case at least in all countries and situations where the natural heat of the body is above the temperature of the atmosphere. But the grand difficulty of accommodating Dr. Thomson's theory to climates and

situations where the temperature of the atmosphere is above the natural heat of the body, remains yet to be accomplished.

And here I will premise, that it appears to be necessary to the existence of animal life, and to the purity and preservation of various substances, that they should experience the effects of a certain degree of motion or agitation. It seems, for instance, to be a very general opinion that confined air is unsuitable for respiration; and stagnant water very soon becomes unfit to be applied to any of the ordinary purposes of supporting animal life. Even man, by neglecting proper exercise, brings on disease and premature death. Indeed, activity or motion seems necessary to the purity, preservation or health, of a considerable portion of the works of creation. The solar system, and even the whole universe, is in constant motion: The sun itself, the centre of gravitation of the solar system, is, by astronomers, denied a place of rest. Mutation seems to be an incontrovertible law of nature; and every thing which we behold, in some way or other, feels its effects. The *whole* earth rolls around the centre of gravity, whilst many other inferior movements are going on in its bowels or on its surface. And man, whilst moving around his centre of gravitation, the earth, has innumerable actions going on within him, which are necessary to his existence. And heat, which is the most stimulating power of animal life, by ceasing to circulate in a proper manner through the human system, produces disease and death!

In cold climates and in the cold season, the matter of heat is in no danger of becoming *stagnant* in the human system, because the atmosphere being of a lower temperature than the body, affords ample facilities for its free circulation: the only danger is in its passing off too rapidly. But in very hot climates, and in some manufacturing establishments, where the heat of the atmosphere rises higher than the natural heat of the body, there is danger of the free passage of the heat from the body being interrupted; as it would be impossible for heat, under the influence of that law which, in its operation, reduces all substances in contact, to one common temperature, to pass from a colder to a hotter body.—This could not possibly be the case without some special provision by the Great Author of nature: and this provision, in the case

under consideration, is wisely made. Without this, man must invariably perish whenever he becomes surrounded with an atmosphere of higher temperature than his body.

Dr. FRANKLIN, I believe is entitled to the credit of first pointing out the manner in which this salutary—this indispensably necessary, process is performed. Perspiration appears to be the means provided by the Author of our existence, to accomplish this important object. "In the torrid zone, it has happened, says MAGENDIE, that men have died suddenly when the temperature approached 122 degrees FAHRENHEIT." And in temperate climates, persons labouring in meadows and harvest fields, in very hot weather, have frequently been known to die very suddenly. That a cessation of perspiration is the cause of death in the latter case, is generally acknowledged, and that it is also in the former, I presume no one will deny.

Perspiration not only carries off the caloric of fluidity which it contains, but also the amount of sensible heat necessary to raise it to the temperature of the body; and it is also well known from experiments that the simple evaporation of the perspirable matter from the surface, abstracts a great deal of heat from the body. I will make one fact suffice as an illustration of this proposition. In some hot countries, perhaps amongst the Arabs, water is carried on horses or camels, in leather bags, exposed to the rays of a burning sun; which, instead of warming the water, as might naturally be supposed, has a contrary effect, making it much cooler than it otherwise would be. These bags are sufficiently porous to admit the water slowly to ooze through them; and the heat of the sun causes a constant and rapid evaporation to take place from the surface of the bags, which carries off heat and thereby reduces the temperature of the water.

In hot climates, where the temperature of the atmosphere is above the natural heat of the body, if perspiration ceases, that active circulation of caloric, which, as I have intimated, is necessary to support the vital operations of the human system, becomes immediately checked; and without the administration of warm stimulants internally, or perhaps the application of *cold* substances externally, death must ensue. Either mode perhaps, would an-

swer, in most cases, at the onset; but in the latter stages, I should by all means prefer the application of internal medicines, (or as Dr. Thomson would say, raise the *internal heat.*) It would seem, however, reasoning *a priori*, (though this is not always to be depended upon) that it could make but little difference whether the internal organs of life were stimulated, or the heat of the surface let down by the application of cold substances; as either would have a tendency to give the heat of the body a passage outward, which in such cases is always necessary.

I will now proceed to the consideration of another subject, connected with the present object of discussion, and in proof of my general proposition.

It is a matter well known, I might say sorrowfully known, to many in this country, that air which will not support combustion, is not suitable for respiration; or, that air which will not support *life*, will not support *combustion.* In wells which contain carbonic acid gas, more familiarly known by the term *damps*, living coals or a blaze of fire, is as quickly and completely extinguished as if plunged into water. Many persons have perished within a few years, in wells abounding with this gas, which might in every instance have been prevented by the simple precaution of letting down a lighted candle previous to descending the well. A man, however, *may* live where a candle *will* not burn; and a candle *may* not burn where a man *will* live. Therefore, to test it to a certainty when a candle goes out in the well, let down a cat, dog, or some other small animal, and if it appears *not* to suffer *any* inconvenience, a man may descend in safety; although even then it ought to be done with caution, especially towards evening; but whilst a candle continues to burn, no danger is to be apprehended.

It may be laid down as a general rule, that any kind of gas or air which is suitable for respiration, will also support combustion; that whatever is unfit for one is not suitable for the other; and that whatever increases the vivacity of life adds brilliancy to combustion. These facts, if they do not prove that life, as Dr. Thomson says, is caused by heat, show a most striking analogy between life and combustion. They show too, that the very same circumstances which weaken or destroy the ordinary flame of fuel or fire, also

weaken or destroy the "*fire* of *life*;" as it is acknowledged on all hands, that respiration is a "principal source of *animal heat*."— And from these facts it may be inferred, that the breathing of a vitiated or impure atmosphere, which appears to be the cause of epidemic diseases, lessens gradually the sum total of vital heat; and thus produces disease.

Finally, I will offer in proof of the proposition that a diminution of heat, (or to make use of equivalent technical terms, diminished excitement,) is the cause of disease, a comparison of the nature of the medicine which *we* use in effecting a cure, with the general proposition itself.

Dr. THOMSON says that life is heat; consequently when disease invades the human system, *hot* stimulating medicines are almost invariably resorted to. Take a simple case for instance. A man exposes himself to cold, and, in the familiar phrase, *catches cold*.— Perhaps as soon as he becomes sensible of this fact, or the first evening thereafter, he takes plentifully of pennyroyal, peppermint, or some other warming drink, hot as he can bear it, sitting warm by the fire with his feet in hot water to give the warm tea a better effect. By these simple means of adding heat (for this is all that can possibly be done by this process) to the human system, perspiration takes place, and he goes to bed, covers up warm, and in the morning is perfectly well. I mention this simple process because it has been, and with many still continues to be, much practised with the happiest effect. But suppose a worse case, and we administer the hottest medicines we have, and give the patient a STEAMING, aye, that *terrible* operation of steaming, "hot as nature can bear," and this effects a cure, what is it all then? why it is nothing more than restoring the diminished heat, energy, or excitement, of the system. But when these simple means fail, or the disease is suffered to progress until the vital organs have lost their tone, something more than merely adding heat to the decaying spark becomes necessary.

The stomach being the centre of sympathy, therefore, when any part of the system becomes diseased, the stomach immediately sympathises with it, and takes diseased action upon itself also; becoming thereby, in a greater or lesser degree, incapable of per-

orming its proper functions. Hence it becomes loaded with unwholesome or morbid matter, which it is necessary to dislodge by an emetic, before other medicines can have their full effect upon the system. We must not fail, however, whilst perparing the patient for, and during the operation of, the emetic, to make use of the necessary means of restoring the lost heat of the system, thereby strengthening the powers of life, and sustaining them under the operation of cleansing.

The stomach now being in a suitable situation to receive and assimilate such medicines as exert a salutary influence upon the system, tonics, as well as stimulants, become necessary, to restore a healthy tone to every part or organ of the system; and when this is done, health resumes its wonted, peaceful empire over the frail tabernacle of man; *dis*ease and *dis*order give place to *ease* and *order*—pain, distress, and anxiety, give way to pleasure, happiness, and serenity—the bed of sickness is exchanged for the accustomed avocations of life, which are again pursued with energy and cheerfulness, without the patient's experiencing any of those distressing feelings so uniformly following cures effected by mineral preparations.

I have now gone through with the illustration of the principal propositions assumed in this lecture; and in concluding my remarks, permit me, for the purpose of impressing them more forcibly upon the mind, to recapitulate briefly, the most prominent objects brought into view in this discourse.

In the first place, I have endeavoured briefly to detail Dr. Thomson's theory of vitality, that "*heat* is *life*." I have next devoted some time to pointing out the dangerous consequences of theories; but, that Dr. Thomson, by first devising a correct mode of practice, and then forming his theory to correspond with it, escaped all the difficulties, and his patients all the dangers, attending false theories. I have also endeavoured to show, that there is no such thing, separate and distinct from man, as a vital or living principal; and consequently, that Dr. Thomson's proposition that "heat is life" is no more correct than to say that air or water is life; both being essential to existence. But that the deductions from my theory as to the cause of disease, and the method of cure, do

not vary in the least from Dr. THOMSON—That disease is a failu of the vital or living powers of the system, caused by a diminuti of vital heat. I have also endeavoured to show, that *life* is t *effect* of *matter acting upon matter;* or, in other words, that it is effect of the different materials of which the body is compose acting upon each other. And lastly, I have shown, that Dr. Tho SON's remedies, the value of which have so often been tested, ac in harmony with his theory, as they also do with nature or the laws of life.

I will now bring this discourse to a close; and perhaps it may be gratuitous to say, that I am but a poineer in the discussion of the merits of the Thomsonian theory of disease and of medicine; and therefore it will not be surprising if errors should be found interwoven with my arguments or illustrations; but if this is even the case, I shall have this consolation, however unimportant, that almost all theorists have erred before me; and, therefore, I shall not stand *alone* impeached for error or absurdity.

And, in conclusion, permit me to finish my remarks, by desiring that if any of my sentiments have furnished instruction, they may be treasured up, and that the mantle of charity be spread over their defects; wishing you entire success in the acquisition of useful knowledge, and that the Thomsonian system, with its blessings, might spread "from sea to sea; and from the rivers to the ends of the earth."