Discoveries in science by the medical philosopher : An oration delivered on the ninety-sixth anniversary of the Medical society of London, Monday, March 8th, 1869 / by Sir G. Duncan Gibb, bart.

Discoveries in Science by the Medical Philosopher.

AN ORATION

DELIVERED ON THE NINETY-SIXTH ANNIVERSARY OF THE MEDICAL SOCIETY OF LONDON,

Monday, March 8th, 1869.

BY

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PARTS OF EUROPE AND NORTH AMERICA.

LONDON:
HENRY K. LEWIS, 136, GOWER STREET, W.C.
1869.

TO THE

PRESIDENT AND FELLOWS

OF

The Medical Society of London,

THIS ORATION

(PUBLISHED AT THEIR REQUEST)

IS RESPECTFULLY

Dedicated.

AN ORATION

UPON SOME DISCOVERIES IN SCIENCE BY THE MEDICAL PHILOSOPHER.

Mr. President and Gentlemen,

In celebrating the ninty-sixth Anniversary of the Medical Society of London, the honor has devolved upon me of delivering the Annual Oration. It was not without some hesitation that I accepted it, when I looked back upon the names of those who have preceded me, and recollected the critical and intelligent body before whom I would have to appear. The generous indulgence always accorded to those who fill the position of Orator for the year, reassured me, and I determined to fulfil my mission, fortified by the recollection of the fact that those who honestly

labour to advance the interests of this venerable Society, would, like their predecessors, be remembered long after they have ceased to be. The truth of this has been forced upon me, by finding that the published Orations of nearly all former Orators exist in the records of this Society and in most of our public libraries. Some of the Orations happen to be the only contributions to Science by their gifted authors, who perhaps but for them might have passed away unknown beyond the sphere of their generation.

In carrying out this agreable duty, it might have been desirable to enter into the past history of this Society, of which all of you here to day are the representatives, and of its hopeful prospects for the future. But as these topics have been dwelt upon by previous Orators, in a more eloquent manner than I could pretend to, I purpose taking for the chief subject of my discourse, that which is particularly applicable at the present eventful period of our lives, namely, some of the Discoveries in Science by the Medical Philosopher. It shall be my endeavour to include as many of the names of those who are Fellows of this Society, as the limits of this Oration will

permit. In using the expression "Discoveries in Science," my desire is not merely to speak of such as relate to the healing art, but to take in those of Natural and Physical Science, that have a bearing upon the first appearance of animal life.

The present century gentlemen, has been a fruitful one; steadily from year to year, has science advanced onwards in all her various aspects; never ceasing discoveries have been made which have not only added greatly to our knowledge, but have afforded the clue to the solution of the mystery of the creation of our globe, its present condition, and the approximative calculation of the first dawn of life. Indeed it is only within the last few years that so much has been done, relatively to the last mentioned subjects. We shall see how far the medical philosopher has lent his aid in furtherance thereof. The medical philosopher is peculiarly constituted for the observance of phenomena having a bearing upon any of the branches of Natural Science; his training eminently fits him to note and to observe the appearances presented by Nature in all her forms; and he who in the beginning of his career

has paid some attention to Natural History and Comparative Anatomy—branches that are decried by many as encroaching upon that time exclusively devoted to strictly medical studies—is in a position, if favourably placed, to discover matters of the highest importance in their bearings in all branches of science. Most of our great physicians were either good naturalists and comparative anatomists, or had a fair knowledge of both. At the present day, unfortunately, many a man only begins to make their acquaintance some time after he has been in the profession, too late indeed ever to take a distinguished part in his generation as a Medical Philosopher. The importance of Natural Science is now recognised in our great Public Schools and Universities, and it is becoming regularly taught as a branch of general education.

The Discoveries in Science by the Medical Philosopher are so numerous and so important, that we may point with pride to their publication in the transactions of all the learned bodies throughout the world. Of the multitude of honest workers who annually bring the results of their labours before the British Association for the advancement of Science, one fifth, and some-

time one fourth, of the total amount of work done is by the Medical Philosopher. Those who lay their contributions before this learned body, form a fractional part only of the number who labour independently of its fostering influence. There is something peculiar in the character of the Medical Philosopher depending upon the training he undergoes to qualify himself to practice his profession which makes him superior in mind and thought to all other classes of mankind. His profession is the first in rank, as his vocation is the noblest; in the conscientious physician we have an illustration of the true Christian, who goes about doing good without parading it before the world.

It may not be generally known to the Fellows that the generous founder of the Medals of this Society, *Dr. John Fothergill*, was the author of several papers upon Natural Science which entitle him to the rank of a discoverer. All of these are given in his collected works published in 1783 by Dr. Lettsom, the founder of the lectures which go by his name. Amongst other subjects he read an essay before the Royal Society in 1743 upon the Origin of Amber, in which he clearly settled the

true nature of that substance, regarding which there had been all sorts of crude theories and odd speculations. He proved that Amber was in its origin a vegetable resin, the product of pine trees. An argument he brought forward against its being a marine production, and against its formation in the earth, was that the objects included within it were such bodies as insects that were often found aloft in trees, as ants, spiders, &c. He challenged all the cabinets of the curious to produce an instance of a marine body having been found naturally inclosed in Amber. That there were several fictitious ones he granted. He endeavoured to make it appear that this resin, with the trees which afforded it, were buried in the earth by the deluge, or by some such violent reversement, and constituted the proper veins of Amber. That the substance of these veins still possessed the genuine character of wood, being fibrous, floating when dry, and burning like other wood. The Amber was not disposed in these veins in one continuous stratum, but lumps of it were irregularly disseminated throughout the woody mass.

He attempted to remove a difficulty which he

said naturally offered itself "what proof have we that this, which is called wood, is not mere fossil wood, the product of creating power, exerted in the place where it is now found? It is answered, that as there are undoubted proofs, that many substances now occur, where they were not originally framed, we are under no greater difficulty in accounting for the change of place in one than in the other. It is known that the *exuviae* of fishes are sometimes found on the tops of the highest mountains. The bones of large animals are met with at prodigious depths, where nature never formed, nor art conveyed them. Whole woods are found underground. The cause that effected these was capable of the other."

Such was the geological reasoning of that early period, when Geology had not yet attained the rank of a science. We now know that forests of pine and other trees lived, and grew, and died on the spot where their trunks are found to this day; its association with coal and lignite; and the occurrence of insects and plants enclosed in it, the former mostly of extinct species, all point to the vegetable origin of amber, which is if necessary still further confirmed by the experiments of Sir

David Brewster on its optical properties. Notwithstanding all this, we must not omit giving the due meed of praise to our associate of the past, Dr. Fothergill, for his scientific perspicuity in this matter.

An intimate and dear friend of Fothergill was *Dr. Lettsom*: he was a more voluminous writer, and the author of many works of value, which, some day might be collected together and published in one or more large volumes. He left six quarto volumes in manuscript on Materia Medica written in 1768-9, which are preserved in the Library of the Medico Chirurgical Society. In 1772 he published a work on the Natural History of the Tea Tree, with observations on the Medical qualities of Tea, and effects of Tea drinking. He also may be said to have introduced into extensive cultivation in England the "Mangel Wurzel," or as it was called at the time (1787) the *root of scarcity*, by his translation of the French Essay of the Abbé de Commerell, which went through several editions. He was the second President of this Society in 1775, and served again in 1809, and again in 1813: the unusual honor of being President on three different

occasions falls to the lot of few, but it occurred to Dr. Clutterbuck in 1819, 1825, and 1840. Fothergill and Lettsom have left their enduring mark upon our Society, in the gold and silver medals of the former, and Lettsomian Lectures of the latter.

Those who suppose that this is the age of Hygiene, and exclusively the period whence sanitary matters have attracted general attention will find many writings upon the subject by former Fellows of this Society. In 1795 *Dr. John Mason Good,* whose name is a household word, and who obtained the Fothergillian gold medal the same year, published a work "On the Diseases of Prisons and Poorhouses," which is full of information of great value, quite applicable to the present day; as also is his second letter on the Nature and Effects of the Treadwheel, written in 1824. Some 32 years ago, in 1835, *Dr. George Pinckard,* President of this Society in 1811, published his work "Suggestions for restoring the Moral Character, and the Industrious Habits of the Poor; also for establishing District Work Farms in place of Workhouses, and for reducing the Poor Rate." The title of this work is very significant, and the substance of it contains matter

of great value, and of suggestions that could be adopted at the present juncture with advantage. The same gentleman was the author of Notes on the West Indies in 3 vols. published in 1806. The subject of the oration delivered before this Society in 1779 by *Dr. George Edwards*, the then President, was on the Means of perfecting the Husbandry of Great Britain. The same person published a work in 1776 on Fossilogy, which really was on Mineralogy, only that the latter term at that time was meant to signify Palaeontology of our day, In his essay he arranged Minerals into classes, orders, genera, and species with their characters, and it is a singular fact that in some respects his divisions are followed to the present time. The metals enumerated were 14. Of compound stones he enumerated Granite, red, white, brown, and yellow; Porphyry, green, red, and brown; and thirdly a Black stone, set with green or white kernels or nodules frequently transparent. His general classification was into Earths, Stones, Inflammables, Metals, Crypto-metalline Fossils, and Salts.

A kindred work to the foregoing by *Dr.*

Nathaniel Hulme, President of this Society in 1800, is entitled Experiments and Observations on Light spontaneously emitted from various bodies; published in 1800, 4to., but brought before the Royal Society and published in the *Philosophical Transactions* for that year. By *spontaneous light* he meant a light totally different from that yielded by artificial phosphorus. The bodies yielding this light were living and dead marine animals, such as *Medusa Phosphorea*, and various Mollusca; Fish, as the whiting, herring, and mackerel; the flesh of some quadrupeds; certain insects, as the Lantern Fly; the Glow-worm; a species of Crab, the *cancer fulgens*; and Rotten-wood. It was surprising, he observed, what a profusion of light was emitted from a single fish, but the soft roe of both the herring and the mackerel, abounds more with light than even the flesh. The spontaneous light was rendered more vivid by motion, and extreme cold temporarily extinguished it. Dr. Hulme has recorded a large number of the most interesting and novel experiments which could be turned to account at the present day. The light he describes is now known to be due to phosphor-

escence, the result of decomposition in the dead, and probably to chemical change in which phosphorus plays a part in the living.

Edward Jenner, a Fellow of this Society, received the Fothergillian gold medal in 1803. His great discovery of vaccination was made by observing the Cow-pox in the lower animals, and it is needless for me to observe that it was the great discovery of his day, when until the close of the last century, small pox was the most formidable and fatal of all the diseases which afflicted mankind. It is now well known that Jenner heard in his youth the Gloucestershire belief that milkers once infected by Cow-pox were thereafter secured against Small-pox. This induced him to investigate the matter in cows and other animals, and lead him finally to recommend vaccination, which in time was adopted throughout the world. It was the greatest scientific discovery of his day, and stamped him as the greatest benefactor of the human race. Jenner was not only well acquainted with the laws of physical science, but tolerably well versed in almost everything in the animal world. The application of the knowledge of

disease in the lower animals to mankind, lead to his discovery of vaccination. No one that I am aware of has paid any attention to the diseases of birds, reptiles, fishes, and mammals, since Jenner's time unless our old associate and respected fellow labourer in this Society *Dr. Edwards Crisp* who, independently of his many other discoveries, has so much advanced our knowledge of pathology in this respect as to entitle him to consideration as a Medical Philosopher of the first rank. He has not confined himself to pathology alone in the lower animals, but has made many discoveries relating to their anatomy and physiology of the highest scientific interest. I would instance among other things, his beautiful discovery of valves in the splenic veins which were unnoticed heretofore by any observer prior to his time. Indeed in the review of Gray on the Spleen in the *Brit. & For. Med. Chir. Rev.* for 1859, by that renowned physiologist *Dr. W. B. Carpenter*, he says "The well known fact that the splenic vein is destitute of valves;" and *Kölliker*, in his article on the spleen in *Todd's Cyclopædia of Anatomy*, makes the same assertion, "The splenic vein, like all

the branches of the vena portae has no valves," p. 788. In Dr. Crisp's "Treatise on the structure and use of the spleen," published in 1854, there is a great deal of perfectly new matter regarding this important organ, with the dissections of several hundred animals, including the length of the alimentary canal, and the relative weight of the viscera to the body; a method never before attempted on a large scale. He describes the valves in the splenic vein of the Duyker-boc, the Great Kangaroo, the Giraffe, Mastiff, and many other animals. He has since found these valves in the splenic vein of many others not mentioned in his work alluded to. They are also very abundant in the abdominal veins of some quadrupeds, including the renal veins, in which he has often seen two pairs.

Dr. Crisp enjoyed rare opportunities of studying the peculiarities of all classes of animals, in a state of health and disease in the Gardens of the Zoological Society, and a mere list of his contributions to Natural Science on these subjects alone would fill several pages. Two or three may be mentioned—on the relative weight of the heart, thickness of its parietes, diameter of the Aorta,

and the size of the blood corpuscles in the various classes of Vertebrate Animals. The heart of the Rock Snake showing that the two ventricles are perfectly distinct. On the Malpighian bodies of the spleen of the Alligator and Crocodile, and on the weight of the spleen, as compared with that of the body, in ten of these reptiles, which he examined. On the presence or absence of a gall-bladder, and the colour of the bile in vertebrate animals, with several hundred specimens of the bile. On the blood corpuscles and cast skin of the Japanese Gigantic Salamander, *(Sieboldia maxima,)* showing this reptile (non-perennibranchiate) has probably as large a blood corpuscle as the Proteus or Siren.

I can only wish that my industrious, indefatigable, and scientific friend would publish all his researches relating to the animal world, in one large volume, which would form a mine of wealth for reference and information. This might be done by subscription, and science would thus obtain the united fruits of the labour of a Medical Philosopher, in a branch of inquiry, which is not again likely to be so completely or so thoroughly investigated by any one in the

future as has been done by Dr. Crisp. Independently of the evidences of good sound work which exist of him, mention should here be made that he received the Jacksonian Prize, for his work on the Structure, Diseases and Injuries of the Blood Vessels; the same prize for his work on Intestinal Obstructions within the Abdomen; and the Astley Cooper prize of £300 for his work on the Structure and Use of the Thyroid Gland.

Before leaving him mention should be made, that he has discovered a bone in the Chimpanzee and several others of the monkey tribe, which approximates the Quadrumana much nearer to the lower orders of the brute creation, and still farther increases the distance between them and man.

If Natural Science is indebted to Dr. Crisp for his extensive, original, and elaborate investigation of the anatomy and diseases of the lower animals of all classes as they occur in the course of nature in a state of confinement or of liberty, she is likewise indebted to *Frederick James Gant* for his researches in another branch of the same inquiry, namely, Over-feeding Cattle. The evil results of this system, he has so clearly

demonstrated in his essay on the subject, published in 1858—ten years ago—wherein is figured the diseased hearts, lungs, and general tissues of the body of the diseased prize cattle that were exhibited at the Smithfield Club Cattle Show the year before, that it is astonishing the public, who after all must be the arbiters in the matter, have continued to purchase such meat. By a process of over-feeding, with but little exercise, healthy animals are made diseased, to give them the appearance of great size, wonderful health and great weight, to carry off prizes and to realize heavy prices at our cattle shows. This is one of the anomalies of the present age, and it will be a long time before such a course can be checked, most probably not in our generation. When the time does arrive for the Hygeist to step in and forbid it, no doubt Mr. Gant's labours in this novel and interesting field of inquiry, will not be forgotten. From the time that I first understood the phenomena of fatty or atheromatous degeneration, and before I published my paper "On the Atheromatous Expression" in 1860, or Mr. Gant's researches were given to the world, I was in the the habit of casually pointing out that these over-

fed and enormous prize animals were diseased, like the fat butcher and beer drinker, whose tissues were in a similar condition, and whose lives from similar pathological changes were not worth a day's purchase. I would couple the names of Crisp and Gant together as a pair of Medical Philosophers, who are entitled not only to the thanks of the scientific world, but to rewards from the State for what they have done concerning the animal world.

And here I may with propriety introduce the name of him who gave to the scientific world his work on "Arcus Senilis," because it has a bearing upon the researches of Gant. Indeed, on reflection, I wonder that the prize animals so carefully examined by the latter, did not possess an "arcus adiposus" at any rate, although I have been struck myself with the watery, shiny, and sometimes greasy looking eye in such animals, and have instinctively placed them in the same category with human prize animals, represented by the many butchers, beer drinkers, and so forth. *Edwin Canton* the quiet and unassuming author of the work in question, the materials of which he had been diligently gathering for many

years, happily acquainted us with what was immediately recognised by the practical physiognomist when his views were propounded. That a fatty arc or complete ring of adipose degeneration around the margin of the cornea, should indicate the existence of certain changes going on within of a vital character, was a discovery of the highest interest as concerning the generality of mankind. To say that *here* was an old man, close upon 80 years, with a distinct "arcus senilis" in the upper part of the cornea of both eyes, originating from changes in the organism necessarily occuring as the result, or concomitant of old age; and that *there* was a stout, fat, ruddy faced, healthy looking man, aged 45, with a similar and very fatty looking "arcus adiposus;" and that the constitution of the younger man was relatively as old in years as the more aged individual, was an announcement of the highest interest. Whether I am quite correct in giving Mr. Canton credit for this last opinion, or whether I enunciated it myself in 1860, I shall not stay to enquire. The appearance of his work and my paper set men thinking on the subject, and as I had gone so far in my own views as to

estimate the value of life in its probable duration by the appearances in the countenance, to which I had given the name of "Atheromatous Expression," existing in several varieties, shades of alarm were induced in the minds of many, who at the time thought their days must be numbered if our united views were correct. I have been stopped in the public thoroughfares and asked the question by persons whether they had the "Atheromatous Expression," so uneasy were they about it. The eye and the countenance were a new domain, and Edwin Canton's name was thenceforward associated with the former. In the future the two combined may some day be worked out more extensively than has been done by either of us, but he who labours at it must be gifted with a thorough knowledge of human nature, he must go amongst all classes of the people, he must move about in omnibuses and river steamers, he must visit workhouses and factories, and then turn his attention to ophthalmic hospitals, before he will have food enough for his great work. There is this fact, however, which I would announce for the first time, learnt by the persistent observation of the arcus senilis

in some persons during many years, that is to say if the possessors of it are 40 or younger: if by their change of life, in modifying both the manner and the matter of their alimentation, the processes of excessive nutrition become curtailed and altered, the arcus senilis will gradually and slowly disappear, and leave not a trace behind it of its former presence. This shows us that the remarkable condition which induces the arcus to appear is one capable of amelioration and improvement, and a man may be permitted to reach a double old age: that is, he has reached extreme old age at 45 from the condition of his body represented by the arcus adiposus and other changes, all of which he gets rid of by rare good fortune, and Providence allows him to reach old age literally, and he dies at 80. Mr. Canton, in addition to the subject associated with his name, by which he will ever be known, has been an indefatigable worker at this Society for many years, and needs no further commendation at my hands.

Among the names of your honorary fellows, is one, whose researches are indelibly impressed on the memories of I may say every one of us

belonging to the present generation. Who has not had displayed before him in the probationary part of his career, the great work on the blood-vessels of *Richard Quain*, published in 1844? Who can forget the magnificent series of nearly one hundred imperial folio plates, illustrating the physiological mechanism of our heart and blood-vessels, and their abnormal—yet not pathological—pecularities? Each plate is not only an object of artistic merit, in which the name of Joseph Maclise must not be forgotten, but it represents an amount of physical work, which those who at one time were accustomed to handle the scalpel, can truly appreciate. This great work of Mr. Quain's ushered forth a series of discoveries of such great interest and scientific merit, and on such a truly liberal scale, as to excel anything of its kind, either in the present or past centuries. The great works of Albinus, Bourgery, Bidloo, and some others, were upon general anatomy and physiology, but Quain's is one pertaining to the Circulation alone, and will ever stand unrivalled and unequalled, because the facts there given and collected together could not be rediscovered a second time. Quain's great

work was the labour of a life-time, and who could help admiring and respecting one, who was the anthor of such a production. In my own case the first course of Lectures I attended on the Surgical Anatomy of the Arteries in 1845, was partly illustrated by these plates; they doubled my incentive to study and to observe for myself, and in upwards of a thousand post mortem examinations made with my own hands, I never once lost the opportunity of observing the relative position and distribution of the large bloodvessels of the body. Three years after my first sight of the work, when I had travelled many thousands of miles by land and sea, and was temporarily located in Ireland, I gave an order for the purchase of a copy of it, which made me thenceforward a bibliopolist, and feeling that it ultimately was the centre round which some thousands of volumes formed a radius, I did what I would venture upon the liberty of here advising you to do—I demised my library to a public Institution, so that what I had admired, studied, and read, during my life, should be stored and preserved after my death. Your indulgence is requested for this

digression, but if it induces you to remember the local Libraries and Institutions of your native towns, and to follow my example, I shall not have trespassed upon your patience in vain.

To conclude about the great work on the Arteries: its author on this occasion is the distinguished President of the Royal College of Surgeons, and will most probably be the honored guest of this Society to-night. He has achieved a position and rank in the profession to which he belongs, which his labours in the cause of science justly entitle him, and if Richard Quain had done no other good work than that so honorably associated with his name, he has achieved distinction enough to entitle him to be placed first on the roll of Medical Philosophers. Whilst I have said a few words of some of our distinguished Fellows who are numbered amongst the past, I think it must be gratifying to all, that we should not leave those of the present to be spoken of only after they have become of the past. I but echo the wishes of every true Philosopher in this Society, in hoping that Mr. Quain's name may long stand on our list of Fellows.

As bearing on the Arteries I would draw attention to a Latin work published in Holland in 1780, with the title "De Causa Reciprocarum Contractionum Cordis et Arteriarum," by *Dr. John Whitehead*, who was our President in 1784; and also to a paper read before this Society in 1855 by *Dr. Thudichum* on the cause of the emptiness of the Arteries after death—both contain views which will be read with interest and profit, upon questions that are of vital moment. In the foregoing category may be included a paper by *Dr. J. M. Winn*, read before this Society in 1839, upon a Remarkable Property of Arteries considered as a cause of Animal Heat; published in the *Philosophical Magazine*.

I now come to speak of two gentlemen who, in their own quiet way have effected great discoveries, which have borne their fruit, in making us acquainted with some of the early conditions in which life appeared on our planet. Perhaps full justice has been done to neither elsewhere, but this may be owing to their sphere of labour being located in one of our distant though important Colonies. *Robert Abraham*, the first of these,

was a Surgeon, a Member of the London College, who at one time was in practice in Carlisle, and emigrated to Canada, where he became the Editor of the *Montreal Gazette*, a daily newspaper. He it was who first described the track-marks in his paper in 1847, of an animal supposed to be a tortoise, found at the village of Beauharnois in the Potsdam sandstone, the equivalent of our Llandeilo flags, the lowermost bed of the Lower Silurian formation. This discovery excited an immense amount of interest at the time throughout the scientific world, and was alluded to by Sir Charles Lyell in his anniversary address for that year, and who gave Mr. Abraham the credit of having appreciated the geological importance of these foot-tracks, and who pointed them out to Sir William Logan in 1850. Their discovery was communicated to the Geological Society of London in 1851, and again in March 1852, by Sir William Logan, with a description by that distinguished man of Science and Medical Philosopher, *Professor Owen*, who at first inclined to the opinion that these foot-marks were produced by a tortoise, but afterwards determined them to be made by a large crustacean allied to *Limulus*

of the present day, found on the coasts of North America, probably the descendents of the more ancient race. The name of *Protichnites* was given to them by Owen, and no doubt they are familiar to some of my hearers who have attended with myself the professor's lectures in previous years. Robert Abraham whom I had the pleasure of knowing well is now no more, but his discovery drew the attention of men of science to these old rocks, which were, up to a few years back considered as the lowest horizon furnishing any trace of animal life. Although we have no information concerning the student life and early history of Robert Abraham, who was an Englishman, it is but fair to infer that the study of the animal world was not neglected by him before he became a member of that profession of which we all feel proud. Possessing myself some knowledge of the Science of Geology, in common with other labourers in that field, I was forcibly struck with Abraham's discovery, and when I first visited the locality where these impressions existed in August 1851—eighteen years ago, before many of them had been disturbed, my mind naturally reverted to the period of time of which these old

rocks marked the boundary, and the feeling was inspired, that it was too vast even to attempt to measure in anything like an intelligible manner.

The careful interpretation of the mechanism of these foot prints by Professor Owen, their elaborate description, and the name given to distinguish them of *Protichnites lineatus* up to *multinotatus*, entitle him to one of the highest places in the roll of Medical Philosophers. If Abraham made the discovery, Owen put the correct interpretation upon it, and the scientific world justly appreciated it.

With *Life* however, as it exists *at present* in all stages, conditions, and forms of animal creation, and as it existed in *the past* from the earliest period at which it pleased the Almighty to give it birth, we have much or at any rate something to do. This I maintain is one of the necessary associations of the medical mind. Everything bearing upon life, when it first appeared on this earth, under what circumstances and how recognised in our day, must necessarily interest not only the Fellows of this Society, but every member of our profession. A medical mind again was the fruitful source of determining

its vastly greater antiquity than did Robert Abraham, and curiously enough in the same part of the world, where exist in vast quantity the accumulation of the oldest known rocks of our globe, called by my distinguished friend and fellow countryman Sir William Logan, the *Laurentian System.* It may be proper to state in this place, to understand the discovery now to be mentioned, that the larger portion of Canada is occupied by a great series of metamorphic sedimentary strata, to which the name of Laurentian System has been given. They underly the Silurian fossilliferous Rocks of the Province, and are the oldest known rocks of our globe, being now recognised in various parts of the world, especially in the north western parts of Scotland. Besides felspathic rocks, limestone and quartzite, great vertical thicknesses are composed of gneiss. Hitherto these rocks have been called *Azoic,* i.e. devoid of any traces of animal life, but discoveries have been made within these last few years, begun by *Dr. James Wilson* of Perth, in Canada, showing that animal life commenced at a period much more remote than in the rocks stamped with Robert Abraham's discovery.

Probably about 1851, Dr. James Wilson of Perth, in Canada, discovered fossils in some loose masses of limestone in the vicinity of that place, which were then regarded merely as minerals when furnished to Sir Wm. Logan at the head of the Geological Survey out there. They were composed of dark green serpentine and crystalline dolomite, and were determined to belong to the lower division of the Laurentian system of rocks. They would have been forgotten and lost to Science had not some other similar forms been discovered by Mr. John M'Mullin at the Grand Calumet on the Ottawa in 1858. Up to 1863, their real nature was conjectural, when Sir Wm. Logan obtained other specimens from Grenville, which were investigated by Dr. J. W. Dawson, Principal of M'Gill College, Montreal, a practised observer of objects of Natural History with the microscope. He determined that the fossils exhibited a well preserved organic structure, consisting of chambers, cells, canals, and tubuli. That this character belonged to the Faraminifera growing in large sessile patches like some of our coral reefs of the present day; and to the fossil he gave the name of *Eozoon Canadense.*

A Medical Philosopher whose discoveries in science are of the highest importance, the well known author of the various works on Physiology so familiar to us all—*Dr. W. B. Carpenter*—confirmed all that had been advanced by Dr. Dawson, with the addition of many new facts regarding these ancient fossils. Here was a discovery of the first importance and of great scientific interest, originally set on foot by Dr. James Wilson of Perth, and although he did not determine the true animal character of the fossils, he was the first to recognise as such, nevertheless he is entitled to considerable merit in having been the first person to draw the attention of Sir Wm. Logan to them. I unhesitatingly give him here his full meed of praise as the *first to discover Laurentian fossils, and to believe them so.* At the Meeting of the British Association for the Advancement of Science at Bath in September, 1864, I heard Sir Charles Lyell characterize this as the *greatest discovery of his time.*

Now gentlemen, to diverge for a moment upon the bearings of this discovery and what it tells us. The origin of life is carried back to a period

of time, vastly, incomprehensibly, indescribably more remote than it was before. The age of the *Protichnites* discovered by Robert Abraham, in the lowest Silurian Rocks is immense, but that of *Eozoon* is incalculably greater, and shows us the appearance of life on our planet under conditions that were never before contemplated. My hearers must have some acquaintance with Geology to comprehend this. In a little work that I have prepared for the press, on a kindred subject, I have changed the name of these old rocks, from Azoic to Eozoic, because I believe that much lower still, much lower than the horizon of Eozoon, indeed to the very foundation or commencement of the formation of the sedimentary metamorphic rocks, will the traces of animal life some day be discovered, and I need not tell you that that period of time corresponds to the solidification of the expanded nebulous mass which then formed our globe, and the torrents of rain formed by the continuously ascending vapour, which poured upon the earth for probably many thousands of years, first formed these deposits and with them the dawn of life appeared.

This same Medical Philosopher, who still lives in the prime of life, discovered near Perth, in association with the *Protichnites* of Robert Abraham, the trail of what is supposed to have been a species of large mollusk; to this Sir Wm. Logan gave the name of *Climactichnites* adding *Wilsoni* after it in compliment to its discoverer.

So much gentlemen, for the origin of Life on our globe, and the part played in its elucidation by two of our Medical Philosophers.

As bearing upon the same subject I must draw your attention to some recent researches of *Professor Huxley* in the *Quar. Jour. Mic. Science* for October, 1868. He says that the deep sea mud of the Atlantic contains innumerable lumps of a transparent gelatinous substance of all sizes, which impart a stickiness to it. These lumps of jelly, so to call them, are portions of a universally distributed deep sea protoplasm to which he has given the name of *Bathybius*. He stated the other night, when occupying the Presidential chair at the Geological Society, (December 23, 1868,) that he had found this substance in the deep sea mud of the Indian

Ocean as well as in that of the Atlantic, and he stated his belief that it may have existed from the time that the earliest and most ancient rocks were first deposited. This would be quite in accord with the views that I myself entertain, and have already referred to, regarding the origin of life, no doubt in the very lowest form of animal creation. If any distinctive characters can be made out in this gelatinous substance called *Bathybius*, for example *coccolyths* and *coccospheres* such as Professor Huxley describes, but which another high authority *Dr. George C. Wallich*, well known for his researches into the North Atlantic sea-bed, thinks are not characteristic of it—then we might hope to find them in the gneissoid, quartzose, and hornblendic rocks at the very base of the Laurentian System, and there would be an end of the matter. It is not at all improbable that organisms will be found in them some day, now that the scientific mind is directed towards them. The subject however, is full of interest, and makes us think of times far back in the earth's history.

Whilst I have hold of Professor Huxley, whom I claim as belonging to the rank of Medical

Philosophers, equally with Owen, Falconer, and others, and who has contributed a large number of valuable memoirs on Palaeontology and other branches of science, I would refer to his recent investigations on the Distribution of the Races of Mankind, as bearing upon their antiquity, interesting to me as an Anthropologist.

Supposing all the various forms of mankind were gathered together in one place, and that we had to pick out all the great groups, he would reduce them to four. The first he called *Australoid*, the best type of which is to be found in Australia at the present day. It consists of a dark complexion of various shades of chocolate, black eyes, wavy and silken hair, and a long skull. The second type is the *Negroid*, men with dark skins varying from dark brown to what we call black, with black eyes, dark hair usually black and also crisp, or what we call woolly. The skull is long though different in many respects from the Australoid. The third group is the *Mongoloid*, with a complexion varying from a yellowish down to an olive tint; with black eyes, and black hair usually straight and lanky. This group differs from the other

two in the character of the skull, but the characters of the complexion, skin, and hair, are more permanent, and of more value than those of the skull. The fourth type is one extremely common amongst ourselves, especially in the eastern and southern counties of England, and also in Germany, and the Sclavonic countries. It is what is known as the Blonde typé, but some time ago he proposed the name *Zanthochroid*. These people have fair delicate skins, through which the blood shows, imparting that colour which we admire so much; yellow hair, and blue eyes, and they are usually of tall stature. In this group as in the other, there is an extreme variation in the type of the skull: that is, there may be every variety, from the long skull of the Scandinavian, to the broad skull of Central Germany.

The geographical distribution is a remarkable one. Of the *Australoid* type, its head quarters are the great continent of Australia; it is not met with in Van Dieman's Land, but is in the hill tribes of the Deccan in Hindostan; also in Abyssinia, and the valley of Egypt. The *Mongoloid* division is found in Central Asia, where the Kalmucs and Tartars represent the purest

form of these people. They are traced into Lapland, and along the whole of the Polar regions to the Eskimo. They are traced south throughout the breadth of the two Americas, to Fuego; and are the most widely distributed of any divisions of mankind. A modification of the same type is found in all the islands of the Pacific which stretch from Van Dieman's Land to New Guinea, and all those which lie outside the Sandwich Islands and New Zealand. The *Negroid* type has a most remarkable distribution. All Africa south of the equator, has been peopled by Negroes; they are found in Madagascar, and the Peninsula of Malacca; a trace in the Philippines; and entirely in New Guinea; also in New Caledonia; and lastly in Tasmania, where the people are totally different from the Australians. The *Zanthochroid* type is now to be found all the way from the British Islands; through Scandivania; through Central Europe; to the frontiers of China. This people are traceable to the present day to Syria.

This must suffice to give a general idea of Professor Huxley's classification, which must interest every one who desires to think himself

a true philosopher, for after all, the Natural History of the Human Race is one of the great and all absorbing questions of the day.

Now gentlemen, as concerning us much with life as it is at present and indirectly relating to life in the past, I must bring under your notice the researches and discoveries of one with whom most of you may, equally with myself, enjoy the pleasure of acquaintance and friendship. I allude to *Dr. Arthur Hill Hassall*, who now resides for a part of the year at Ventnor, in the Isle of Wight. Very few of you probably, can have any correct idea of the labours of this gifted man; he has done good sound scientific work, that will bear fruit long after our time, which should have entitled him to the Fellowship of the Royal Society several times over. For some years before my sojourn in this metropolis, I was familiar with his Microscopic Anatomy of the Human Body, in 2 vols., with 400 illustrations, in itself a monument of laborious industry, original research, and scientific investigation. So likewise was I familiar with his History of the British Freshwater Algae, in 2 vols., with 100 plates; this work must be studied as I have done,

to appreciate the authors labours in a field of enquiry that had been but sparsely cultivated before his time. Like everything that Dr. Hassell has attempted it is complete, and the coloured plates are accurate representations of the various species. In his hands the microscope has been made to speak, and to reveal the hidden secrets of nature, for following these was his series of Reports published in the Lancet, on the Adulteration of Food, Drink, and Drugs, afterwards embodied in a large volume. Most of my elder hearers may have read these when they came out, as I did, and they cannot have forgotten that following the system of the lower orders of creation, we were an illustration of life preying upon life, for a good deal of what we were in the habit of eating and drinking contained animals in countless thousands, especially in the dark muscovado sugars, at one time so evtensively used for cookery and other purposes. Every one of those reports entailed a great amount of labour, and a host of scientific facts was discovered for the first time. In the limits of this Oration, I can do but scanty justice to his many other discoveries in Medicine and General

Science, but his essays on the Development of Torulae in the Urine, the Frequent occurrence of Indigo in Human Urine, and his work on Urinary Disorders, all copiously illustrated in his happiest and most artistic manner, must not be passed over without mention. We are fortunate in having him amongst us, and although probably his health may not permit him to work as laboriously as formerly, we may be sure that he is not idle.

I would in this place refer breifly to the labours of a former Lettsomian Lecturer, who took up the subject of Diabetes, namely *Dr. F. W. Pavy*. By his long continued experiments and researches into the secreting function of the liver and the stomach, especially in their relation to the formation of sugar, he was enabled to advance our knowledge considerably, and is deservedly regarded a high authority on anything appertaining to those organs. He contributed to the Royal Society his Researches on the Sugar Formation in the Liver, and the Immunity of the Stomach from being digested by its own secretion during life. My hearers may remember that he advocated the view that the liver contains no

sugar during life, and that it was a post-mortem change, and this he showed as near as I remember, by an experiment on a living rabbit. He did not deny the fact discovered by Bernard, that the liver contained sugar, but he maintained that it was a post-mortem change, and proved the truth of this beyond a doubt. His views and experiments are all given in his Researches on the Nature and Treatment of Diabetes.

The subject of sugar in the human body was one that I worked at myself from the period of my earliest pupillage, and ever proved fascinating to me. I witnessed the earliest experiments of Bernard in Paris, the novelty of which has long passed away. By persistently investigating for many years the Pathology of Saccharine Assimilation, I was enabled to make the discovery that the urine in Hooping Cough is almost invariably saccharine, from causes that we can now understand. Also, that sometimes the sugar of the milk within the female breast undergoes fermentation and gives rise to the formation of animalcules *before the fluid is withdrawn from the gland,* also beautifully explained. Likewise that the fluid of some dropsies, ascites for example, is

found to contain sugar. This last discovery was made some years prior to that of Frerichs, and was published by me as far back as 1846 in my Inaugural Dissertation on Morbid States of the Urine. By analizing the tears shed by a lady afflicted with diabetes, not only was sugar found in them as was expected, but in the course of my experiments the discovery was made for the first time of the characteristic crystal of diabetic sugar, which has been figured in the *Archives of Medicine*, Beale's works on the Urine, the *Pathological Transactions*, and other publications. These few facts in which I have had a hand are mentioned with the object of showing that anyone who works at any particular series of investigations in some one branch of inquiry, is certain to be rewarded by some new discovery, that may prove important or interesting to the scientific world.

There is a Fellow of this Society who was a cotemporary of my own, when I first took up my permanent abode in London in 1853, and who was a near neighbour. We joined the Medical Society pretty much about the same time, and for years enjoyed frequent social inter-

course. As time rolled on the results of his industry were periodically submitted to the world, and now he has attained a position in the roll of science which his talents entitled him to expect. The gentleman to whom I allude is *Dr. J. L. Thudichum*, well known to all of us, and a former Orator of this Society. Amongst the great amount of useful scientific work he has done, may be mentioned his monograph on Gall Stones, the chemistry of which is full of original research. It must be studied to be appreciated. Cholochrome, cholic and choloidic acids, and earthy salts, are according to him essential ingredients of gall stones; whilst cholesterine which forms so large a proportion of human gall stones, is only a secondary ingredient, being absent altogether in the concretions of the ox, and sometimes in those of man, while occasionally the latter consist almost entirely of this substance. The formation of a gall stone he believes to be analagous to that of phosphatic calculi in the urinary passages. In 1864, he received the Hastings Gold Medal for his prize essay on Urochrome, the colouring matter of Urine. This he showed to be one of the most interesting

compounds in the list of organic and physiological substances. When isolated in a pure state it is yellow, and very soluble in water; under decomposition it yielded a red resin, mainly consisting of uropittine; and by oxidation, urochrome passes into a red colouring matter urerythrine. One of the principal features of uraemia is the retention in the blood of urochrome. These are a few of the chief facts contained in his original and truly experimental essay. Dr. Thudichum is also well known for his researches on Trichinosis. In his experiments on pigs and other animals, he concludes that the young trichinae do not, as had hitherto been assumed after Leuckart, migrate through the peritoneal cavity and cellular tissue, but penetrate into the lymph and blood-vessels, and are distributed over the whole body with the blood. The symptoms of trichinosis, as oedema, irritation of the skin, lymphatic abscesses, pneumonic and pleuritic conditions, he has proved to be caused by the direct irritation of the trichinae. He is also the author of a Report made to the Privy Council on the Parasitic Diseases of Quadrupeds used for food. These gentlemen, form only a small portion of what Dr. Thudichum has

done for science, and if his life and health are spared, we may look forward to many further positive additions to our knowledge at his hands, for like my friend Dr. Crisp he is never idle, and never to be found unoccupied.

On this occasion it would be an act of injustice were I to omit saying a few words respecting the discoveries in Science, by him who occupies the position of President of this Society. Intimately acquainted with him for many years, an observer of his experimental inquiries on numerous occasions, a fellow labourer with him at the meetings of the British Association for the Advancement of Science, and knowing well all he has done for Science, it is unnecessary that I should say anything in favour of one whose name alone is an earnest of scientific research. *Dr. B. W. Richardson* the distinguished President of this ancient Society, holds a position in our profession and in the world of science, which must be gratifying to all of his numerous friends, in this gifted and enlightened age. His year of Presidency has been so successful, and withal so popular to the great body of Fellows, that they would have shown their appreciation of it by

re-electing him for the ensuing year, had the laws of the Society permitted. Were I to attempt an analysis alone of all he has done, it would be a poor compliment to his name and fame, at this period of my discourse; but I may mention two or three subjects of considerable interest. In 1861 he brought forward some Physiological Researches on the Artificial Production of Cataract, which excited a good deal of attention. He showed that the injection of syrup of sugar into the circulation of a frog would produce cataract, and he exhibited a number of living frogs in which he had produced the disease by that means. The same injection produced a similar result in both guinea pigs and rabbits. An injection of common salt also acted like sugar, with the difference that the cataract produced was harder. He confirmed the theory of Sir David Brewster that cataract was caused by disarrangement of the fibres of the crystalline lens. Von Graafe had demonstrated that one in every four cases of diabetes was accompanied with visible cataract; now the cataract in the frog and in the diabetic man was the same, with this difference that in the human subject the cause was constantly going

on, whereas in the frog experimented on, the effect was temporary. He contributed as many as five different Reports to the British Association on the Physiological Action of certain compounds of Ethyl, Methyl, and Amyl, full of interesting experiments in a most important branch of inquiry, out of which sprang his discovery of the production of local anaesthesia by the spray of sulphuric ether, which has proved so great a boon to suffering humanity, and has extended his fame throughout the medical world. A witness and a sharer of many of his experiments before they were made known to the scientific public, I can bear testimony if such were needed, to the enthusiasm and careful accuracy with which they have always been conducted. And certainly not the least important of his positive and most valuable discoveries, was that of the Fibrinous Concretion in the Heart, in 1860. He showed that when the diagnosis of that condition was made out, treatment unfortunately was of little avail, but the prognosis was the more accurate. Yet knowing the liability of this condition in the young in certain diseases, it warned the physician of peculiar

states of the blood which must be overcome to obviate this most dangerous complication. Without suspecting its importance, and looking upon it rather as a post-mortem change, I referred to these concretions in my monograph on Hooping Cough, published in 1854. The blood in that disease is eminently charged with fibrine, and death sometimes quickly happens from its forming a concretion within the heart. In the treatment such a circumstance should never be forgotten, and whilst our remedies are directed to the pertussal symptoms, they should exercise a dissolving influence upon the superabundant fibrine in the circulating medium. One of Dr. Richardson's most recent contributions to Science is Certain Effects produced by Applying Extreme Cold to particular parts of the Nervous System; for example freezing the brain of animals wholly or partially, and noting the results produced. Of these one of the most interesting is the entire suspension of the extreme effect of the most active poisons, such as strichnine. This raised a hope that in such diseases as Tetanus, a new and successful mode of treatment might be gradually evolved.

To the enlightened mind, and earnest enquirer after truth, nothing so much interests and instructs, as the interpretation of some of the facts connected with the earliest animal life, and of the earth which we inhabit. Of the first appearance of life, sufficient has been said in some of my previous remarks, to preclude the necessity of again referring to it. But a few observations will not be out of place concerning some of the physical changes which were at work, coeval with the first appearance or dawn of life. Upon a few of these I am endeavouring to throw a little light, in the second edition of my *brochure* on Fossil Lightning, which professes to give some of the evidences of the effects of Lightning, Rain, and Sunshine in a fossil state. The book will be published in a few weeks, but as some of my views and the facts brought to bear in support of them, are new, I venture to give them here, as possessing some pretensions to Discoveries in Science. It is now some ten years since I proved in a "Chapter on Fossil Lightning," that we had the counterpart of Fulgurites which are silicified tubes formed by lightning in our day on hills of sand, in the carboniferous flagstones of

our streets, and I pointed out the localities where they were to be seen. Since then I have been enabled to trace their presence in the Silurian sandstones, and believe that they may even exist in the sandstones that occur in the Laurentian Rocks of Canada, Scotland, and elsewhere. This would give us a practical proof of the correctness of the theory that the lightning's flash illuminated the surface of our earth, at the earliest dawn of her history. Of heavy showers followed by powerful sunshine, we have abundant fossil evidence in the pitted holes and shrinkage cracks of the New Red Sandstone of the Connecticut valley, and of Stourton in Cheshire, upon which Sir Charles Lyell and other geologists have thrown much light. But I have taken an instance of thin bands of contorted gneiss in limestone, belonging to the Laurentian System, with thicker masses above and below comparatively even, as an illustration of the warring of the elements in those early days, when sedimentary deposits began to form from the continued action of rain and rivers upon the cooling surface of the globe, necessarily associated with an amount of electrical tension of the atmosphere, and consequent mani-

festation of thunder and lightning on a scale of terrific magnitude. These old level and contorted bands of gneiss are the oldest evidences of Fossil Rain and Fossil Lightning, or the effects of both, which the earth has yet revealed to us; and the peculiar instance I have selected to prove the truth of my argument completely demolishes the theory, that the shrinkage of the crust of the earth as it became cooler gave rise to these contortions. If such were the case, why should we have contorted in the midst of level bands of gneiss? There may have been life in these old rocks, though perhaps not exposed to the influence of the sun; but supposing that the terrestrial heat giving rise to impenetrable vapour was not universal, the sun's rays may have penetrated to the surface thus cooler, and imparted light to aid the procreation of animal vitality. The Biblical record, that darkness was on the face of the waters, was at that most early period literally true, and in time it was dispelled to fit things for that coming state which the Almighty in his inscrutable wisdom ordained should come to pass. The time as measured from the beginning, whether we take it from the first

condition of our earth before its gaseous condensation, or from the period of the dawn of life after that had occurred, cannot be estimated; it is too vast to attempt to measure, yet if so vast as to extend into the realms of eternity, it gives us but a faint idea, of the power of Him who has created our small world, a unit in the Universe, and has allowed it to attain its present magnificent development for the growth and happiness of mankind.

Running through the list of Fellows of this Society who I am glad to say still live to add their united support in furtherance of its great objects, the names of many eminent labourers and investigators of Science present themselves to my notice, who are known to fame as Medical Philosophers for their discoveries in Physiology, Pathology, Medicine, Surgery, Chemistry, and kindred branches. I am doing them but bare justice in mentioning the leading subjects only of their researches, taking their names in alphabetical order:—*William Adams*, your Lettsomian Lecturer of the present year has contributed much new information upon all that relates to Orthopoedic and Subcutaneous Surgery. The

Reparative Process in Human Tendons after Subcutaneous Division for the cure of Deformities, a subject heretofore not well understood, has been described by him in a manner that is attractive, and at the same time so lucid that it has modified the treatment of that branch of Surgery. *Dr. Althaus* has made the study of Affections of the Nervous System his own, and has written various works showing their successful treatment by Galvanization. The discussion of Tumours by Electrolysis has been the most recent of his investigations. *Dr. Risdon Bennett*, President of the Society in 1850, obtained the Fothergillian gold medal in 1842, for his essay on Acute Hydrocephalus. *Dr. Frederic Bird* was one of the first, if not the first to remove Ovarian Tumours successfully in this metropolis. *John Birkett* besides being the author of a large number of essays and papers on surgical subjects is well known for his investigation of diseases of the Breast and their Treatment. *John Bishop* has likewise been a prolific writer on Deformities, the Voice, Acoustics, and kindred subjects. *Thomas Bryant* was your Lettsomian Lecturer one year, upon Diseases and Injuries of the

Joints; and has published seven parts of his work on Clinical Surgery full of original observation. *Dr. Camps* is well known for his researches into Nervous diseases, and is one of our highest authorities on that important class of maladies. *Dr. Chowne* was my predecessor in this chair in 1846, and among many other subjects, contributed a memoir to the Royal Society in 1855 on the Movement of Atmospheric Air in Tubes; and another on the Relative Forces of Aqueous Vapour in producing currents of Air in Vertical Tubes in 1860. *Dr. Andrew Clark* has devoted much attention to the Anatomy and Diseases of the Lungs. *Dr. Cockle*, a gifted writer on Aneurism and Diseases of the Heart, full of original research, is one of our first authorities on those subjects. *Weeden Cooke* has shown us the Allies and Counterfeits of Cancer. *Dr. Cotton* received the Fothergillian gold medal for his essay on Consumption, a subject which he has made his own. *Walter Coulson* has pointed out the importance of early resort to Lithotrity in Stone in the Bladder; and his relative *William Coulson* has long been one of our highest authorities on Diseases of the Bladder

and of the Joints. *Dr. Henry Day*, of Stafford, is the author of Clinical Histories and Comments, and other subjects. *Victor de Meric* was a Lettsomian Lecturer on Contagious Diseases, and is our highest authority on that subject. *John E. Erichsen*, besides many Surgical works, is best known as the accomplished author of the standard work on the Science and Art of Surgery, which has lately reached its fifth edition. *Dr. Tilbury Fox* may be justly styled the Prince of Dermatologists. *John Gay* was a Lettsomian Lecturer in 1868 on Varicose Disease and its allied disorders; and was the first to advocate the treatment of Diseased Joints by Incisions. *Dr. Garrod* was a former Lettsomian Lecturer, and has most scientifically investigated the pathology of Gout and Rheumatism, ably set forth in his treatise on those Diseases. His new and successful mode of treating Acute Rheumatism has become almost universally adopted. In his labours to advance the study of Practical Therapeutics, he is an example to every investigator. *Dr. Septimus Gibbon* is well known for his essay on the Complications of Continued Fever. *Dr. Greenhalgh* has done what I believe has not yet

been accomplished by anyone before him, namely the Caesarean operation as many as ten times. *Dr. Habershon* has investigated the Diseases of the Abdomen in a manner that has been excelled by no other observer. *Henry Hancock* a former Lettsomian Lecturer has done a host of good scientific work. He was the first to remove the Os calcis, and originated the Division of the Ciliary Muscle in the cure of Glancoma. *Dr. Hare* has made himself a name for the diagnosis of Abdominal Tumours, especially Hydronephrosis and Movable Kidneys. *William Harvey* will ever be remembered for his researches on Diseases of the Ossicles of the Ear depending upon Gout and Rheumatism and giving rise to Deafness. *Dr. Headland* has furnished us with some new facts concerning Aconitum Napellus. *John Hilton* is the author of many valuable works, among which those on the Development of the Human Cranium, and Painful Diseases, treated by Physiological and Mechanical Rest, deserve particular mention. Hilton's Muscle in the Larynx cannot be forgotten by the Anatomist. *Jabez Hogg* has made himself famous with the Microscope, and especially the Ophthalmoscope. *Thomas Hunt*

has rendered the heretofore incurable Diseases of the Skin curable. *Dr. George Johnson* has given us much valuable information on the Kidney and its Diseases. *Dr. Lankester* our Coroner for Middlesex, is best known for his Lectures on Food and on animals useful to man. He is the author of a large number of essays in the Medical and Scientific Journals, and of popular works on Medicine and Science, and is to be regarded especially as a Medical Philosopher in the true sense of the term. *Henry Lee* is our highest authority on everything pertaining to the veins. *Dr. David Duncan Logan* was one of the first to recognise the parasitic origin of certain Skin Diseases, which had heretofore been considered due to constitutional causes. *Dr. Maudsley* is the gifted author of the Physiology and Pathology of the Mind. *Dr. Mac Gowan* has investigated Nature in distant climes when on active service in India and elsewhere; he has described the singular showers of sand in the north of China. He is the author of a work on Tea Planting in the outer Himalaya, of great merit and research. *Dr. Murchison* is one of our highest authorities on Continued Fevers, and

Diseases of the Liver; and recently edited the Palaeontological Memoirs of the late Dr. Hugh Falconer. *Dr. Ogle* has long been engaged in elaborate researches into the Cerebro-spinal Nervous System. *Dr. Owen Rees*, a former Lettsomian Lecturer, is the pioneer of research into the Constitution of the Blood and Urine in Health and Disease. He is the father of the Pathology of the Kidney; and unquestionably our highest authority on all these subjects. *Dr. Routh* is well known for his scientific work on Infant Feeding and its Influence on Life. He too was a former Lettsomian Lecturer on Fibrous Tumours of the Womb. *Dr. Hyde Salter* is known by his researches on Asthma, as *Henry Smith* is for his labours concerning Excision of the Knee Joint. *Dr. Sibson* is the author of that splendid work on Medical Anatomy, published in folio fasciculi, in which the position of the Internal Organs in Health and Disease is beautifully illustrated. *Dr. Tilt* has done more for the Physiology and Pathology of the Uterine System than any other Fellow of this Society. *Mr. Thomas Wakley* will ever be remembered in Surgical Annals for his wonderful operation on

the Human Foot, which ended in complete success. *Mr. Spencer Watson* is giving us new information concerning the eye. *Dr. Forbes Winslow* is our greatest Philosopher on Mental Diseases, and a former Lettsomian Lecturer and President. And lastly *Dr. Yearsley* alphabetically closes my list, and of his many discoveries in Aural Pathology, he will ever be remembered by posterity for his Artificial Tympanum for treating Deafness attended by Perforation, and by his method of applying Substances to the Ear for the relief of Deafness in cases of Perforation of the Tympanum.

It might seem that in this brief record which pretends to give merely the cream on the surface of what so many fertile minds have accomplished, scant justice is done, but unless I went specially into the multifarious discoveries of all, an impossible circumstance in this place, I could not venture upon more.

Among our Honorary and Corresponding Fellows, both at home and in distant countries, are the names of many worthy of consideration here, but as time and space warn me to forbear, I shall mention only one, *Dr. William Marsden*

of Quebec, the distinguished Founder of the Canadian Medical Association. He has been a prolific writer, and holds a high position in the Dominion of Canada. Of subjects which have engaged his attention, may be mentioned the Application of Statistics to Questions of Medical Science; and an original plan of Quarantine for Asiatic Cholera. This latter has been approved of by the American Medical Association, and the United States and Canadian Goverments.

In bringing this discourse to a close, in which I have endeavoured to herald SOME of the Discoveries in Science by the Medical Philosopher, I must claim your indulgence for its shortcomings and necessary omissions. My endeavour has been to show what some of our past and present Fellows have been doing, as well as some who are not Fellows of this Society. Of the value of their discoveries, and the important part that the Medical Philosopher has played in them, and in all that bears upon Life in its earliest and most recent condition there can be but one opinion; and it is for you to say whether I have done them justice, in a manner befitting the celebration of the Ninety sixth Anniversary of the Medical Society of London.

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