the progress of scientific medicine and surgery must have rejoiced at the formation of the Association for the Advancement of Medicine by Research. This step augurs well for the future of physiology—the science which is not alone the foundation, but also the framework of surgery, as it is also of medicine and pathology.

At the opening meeting of the Association, Sir George Jessell (the Master of the Rolls) well remarked that there are two things the public require to be instructed in—one, that the future progress of medicine must rest on science; and the other, the necessity for experiments on animals. The great practical difficulty, however—one which, I hope, in time will be overcome—is that the Association will have to deal with a section of the public who refuse to be instructed; refuse to recognise established facts; refuse to weigh evidence; substitute groundless assertion for argument; and wilfully and deliberately accuse the scientific physiologist of a selfishness and cruelty as heartless as it is cowardly. In creating so unjust a prejudice, there is in some instances, doubtless, an unconscious, but in many others, I fear, a wilful attempt to pervert the moral sense of the public. It will be no light task for the Association to instruct such persons, whose wrath is reserved—not for the sportsman, gourmet, or military tyrant, but for the physiologist, who is outlawed if he does not fulfil all the vexatious conditions of an extraordinary Act, the passing of which was simply an insult to our profession, whose aim is ever, not to cause suffering, but to relieve it—not to destroy life, but to save it; and who are ever ready willingly to imperil, and often, with true heroism, do lay down their own lives to save one that is, perhaps, worthless to all but the possessor of it. If in this contention a heartless cruelty is found, on which side is it? Is it with those whose objects I have indicated, or with those who hinder and thwart the realisation of them?

It has been stated with the inaccuracy that, as a rule, characterises the utterances of, in many instances, perhaps, well-meaning, but not the less essentially mischievous section of the community, that takes so keen a pleasure in discrediting experimental physiology, that no practical benefit has accrued to medicine or surgery from it. I would, leaving what has been done in this direction in medicine to other and abler hands, suggest to their consideration a study of Mr. Gamgee's recently published and able work on *The Influence of Vivisection on Human Surgery*. In this, it will be seen that many of the most important developments of surgery are the direct outcome of physiological experiment—as, for example, subcutaneous surgery, arterial ligation, torsion, transfusion, the introduction of the *craseur*, periosteal preservation, artificial respiration; and, among others, such operations as nephrectomy, ovariectomy, excision of pylorus, and amputation at the hip-joint; and last, but not least, the introduction of the hypodermic injection of various medicinal agents.

It seems, however, and with shame we must confess it, that we are living in an epoch in which the labours and achievements of the greatest physiologists and surgeons, both living and dead, were forgotten and ignored; and for those who endeavour, even at a long interval, to follow in their steps, the statute, which is a blot in the history of scientific progress in England, has been enacted, and enacted by those who are every day only too willing to avail themselves of the great advantages resulting from labours which now cannot be continued, save under restrictions which are well-nigh intolerable. Professor Tyndall has well said that, "however noisy the fanaticism of the moment may be, the common sense of Englishmen will not, in the long run, permit it to enact cruelty in the name of tenderness, or to debar us from the light and leading of such investigations." The great fact to be taught, the great fact to be learned, is, that to experimental physiology must we chiefly look for the means of lighting the paths traversed by those who work in the van of medical and surgical progress; who work conscious that, compared to what may be hoped for in the future, the advances already made are only—as Newton said of his greatest achievements—like those of a child playing with the waves as they break upon the sand. But,

.... "Strong in will,
To strive, to seek, to find, and not to yield,"

they still labour to realise the fair aspiration that the book of Life may yet be read, not by the dim and flickering rays of opinion, but by the clear and steady light of ascertained fact. Seeking for means to baffle those diseases, fruitful sources of so much sin and sorrow, that up to this have defied our best directed efforts to destroy. Earnestly striving to rescue medicine and surgery from the mists and shifting quicksands of mere clinical observation, and fix them on the foundation of science, and who, ever yearning, like Goethe, for "Light—more light", patiently seek in the exhaustless world of Nature for the golden grains of truth.

Are these efforts to be thwarted and hindered in the country of Harvey and Jenner? It has been well said by Jellott, that "the place

which our country holds among nations must be fixed by the labours of her children; that their success is her glory; that their defeat or dishonour must fall darkly upon her." On us it devolves to see that nothing is done that may render such defeat possible; nothing done that will allow the laurels of scientific medicine to be cruelly snatched from us and transferred to other countries and other peoples. This may, perhaps, be called a selfish form of patriotism. Perhaps it is; but, if so, I would ask, need we be ashamed of it?

I have mentioned many achievements in surgery the past half century has witnessed. Fifty years hence, this great Association will, I hope, meet here again to celebrate its centenary; and my successor will, I trust, with greater ability and eloquence than I can command, tell of as great or greater triumphs than I have done. To enable him to do so we can all aid, some powerfully, others feebly; but still every unit in this great brotherhood can assist; and it should be our ambition as well as our prayer that, when the hour arrives for us to cease from our work, we may all feel, on looking back on our lives, that we have done something to that end. Something—be it great or small—in the interests of our common humanity, in the interests of our loved country, and of a pure devotion to truth, to render the science to which we have devoted our lives, nobler and fairer than before.

AN ADDRESS

DELIVERED AT THE OPENING OF

THE SECTION OF MEDICINE.

At the Annual Meeting of the British Medical Association,
in Worcester, August 1882.

By T. CLIFFORD ALLBUTT, M.A., M.D., F.R.S.,

Senior Physician to the General Infirmary, Leeds, etc.; President of the Section

MODERN FREEDOM OF THOUGHT, AND ITS INFLUENCE ON THE PROGRESS OF MEDICINE.

GENTLEMEN,—Fifty years of patient and self-forgotten toil have passed over the field of medicine since the foundation of this Society. Now, as then, we stand looking upon a boundless and unvintaged land, yet our fifty years of husbandry have not been unkindly nor our hands unfilled with plenty.

We may say, indeed, in this later time that the gleanings of Ephraim are more than the vintage of Abiezer; for, as Hastings, kindling with the new spirit of his time, was both its child and its leader, so this society which he founded has been both the product and the organ of a wondrous increase in scientific medicine. What is that spirit—that *afflatus aliquis divinus*—which in this century has expanded and transfigured our art? It is not the new power of unity alone—that strange new function which is bred in gatherings of men, a thing higher and other than the mere addition of individual faculties; this union the press and the railway have made possible; but there is that something more which has made these means—some masterful expansion which has widened the life and nerved the arm of modern science; which has given breadth to our thought, stuff to our logic, reality and endurance to our doctrines—whence comes this? This comes, gentlemen, of the gift, without which all other gifts are but as apples of the Dead Sea—the gift of freedom. The withes whereby for a thousand years men were bound in body and soul are broken; the dissolution of that tyranny which stalked, haltered, and baited the man who dared to think for himself is fulfilled in our own time, and no longer is it declared to men, "Thus, and thus only, shalt thou think of God and Nature!"

Man has won three victories: he has vanquished the terrors of the old world, brought forth food, warmth, and light upon the face of it, and thus ceased to be Caliban, the earth slave. Then man became a nation; nations strove for the mastery and political freedom; his second victory was won.

Lastly, with the earth his servant and his civil rights secured, the final and crowning work remained, to win the freedom of his mind. Modern civilisation has much to answer for, but it is a glorious thing to live in the first years of perfect freedom; nay, even to live in perhaps the first generation since Pericles, which has dared wholly to cast off the dominion of external authority and to think for itself. Upon a narrow foundation and under transient conditions in Hellas, this com-

plete freedom of man was attained for a brief period. Brief indeed as was the moment, yet even then was revealed to him, as for an instant, the same day-spring as that which is now risen into fuller light. And we find that the new principle of modern life is the same as that which was then—that men released from authority fell under the true inspiration of nature, and therein found an abiding and inexhaustible revelation. As men more and more deeply studied the life around them, they found themselves led into new realms of experience, and to conceptions far wider than they had dreamed of. At last the old and blinding idea of force and matter, as dual, was seen to be factitious, and most mischievous in this, that it divided the faculty of thought into two worlds—into the several worlds of philosophy and of natural history. The former was to be regarded as the higher and chosen sphere of noble contemplation, though, uncoupled with nature, it brought forth nothing; and the latter had the sterility of neglect. We now see once more that this dualism is a phantom, and that force and matter are but one subject under two names. Natural processes are no longer to be regarded as the work of inert atoms, whipped by tangential agents; nature herself is no longer to be studied as a mere framework, pumped by a vital principle, which is itself the nobler object of pursuit, but which submits not to a like study, eluding inquiry or subject to a special and alien kind of illumination. Were science but a closer examination of a dead framework of things, and were minuter investigations but a curious counting of the lesser pins of it, then, indeed, “*microscopische spielereien*” might be left to the play of the ingenious, and science herself be regarded as but a department of human life. But when we have learned that matter and force are one, that atoms are force-dust, and that we are in the presence of infinity in either sense, inwards or outwards, then we know that the soul may be kindled and the mind fed by depth of penetration as richly as by the loftiest aspirations. As Browning tells us in *Paracelsus*, “to know, rather consists in opening out a way whence the imprisoned splendour may escape, than in effecting entry for a light supposed to be without.” The very terms materialism and idealism thus cease to signify an opposition, and fall meaningless to the ground, and the microscope is seen to be as true a source of inspiration as the *Paradise Lost*. No longer, then, thrust back from scientific progress by the reverence of antiquity and the authority of those of high repute in philosophy, which have held generations of men as by an enchantment, we have now in the last fifty years, seized upon the real stronghold of truth, and have added to the riches of the knowledge both of universe and mind, in a measure unexampled in the former history of man. We have won that freedom for our great workers and thinkers, which gives them power to speak and spread forth their doctrines openly. No longer are they compelled to veil their thoughts in the elaborate disguise, which shackled and darkened the words of teachers even so modern and so great as Descartes.

Time forbids, were it otherwise needful, that I should do more than indicate to you the great ingatherings of the last half century. Diseases have been separated and described anew; physiology and pathology—one science in two aspects—have revealed to us the seat and form of injury, inflammation, abnormal growth and decay; the very nature of morbid processes has come to light side by side with the growth of our knowledge of the normal; chemistry has armed us with improved medicines, and experiment is testing their powers and affinities.

But now, gentlemen, what are the fruits of this new harvest? I stand second to none in my belief that all the revelations of pathology and clinics are vain, unless they help to better man's estate. We are wrung by the keen taunt of the “practical” man who cries out, “Where is your science, where is your learning, when the sick man calls to you for help, and you stand the more impotent at his bedside the more heavily you are armed?” Is the ancient saw still true, that “Medicine is a meditation upon death”? It may be true, indeed, that much of our modern insight teaches us only that we can do nothing. But, gentlemen, are we to please ourselves with the pretence of an unreal knowledge? Are we, on the one hand, to play with traditional therapeutics which we have found to be hollow and out of relation with the facts of physiology, or, on the other, to elaborate a fanciful scheme of novelties, and, unmindful of the natural history of disease, to toy with new alkaloids, and to fret the vitals of the sick by telling pilules and drops as one tells beads, by the long day? Shall we assume a power which we have not, and wear the mask of the priest or the charlatan? Let us rather tear it away boldly, abiding by the broad truth that, whatever be the fate of to-day, ultimately *scientia et potentia humana in idem coincidunt*. We foresee doctrines which shall no longer fluctuate and vary with schools and disciples, but which, growing from the very womb of nature, and nourished by her, shall flourish as life itself. In one of those sentences which are so happy by virtue of their

profundity, Bacon tells us, “*Lucifera experimenta non fructifera quærenda sunt.*” Know first what life and disease are, and you will learn why they are, and how things shall be otherwise. Let me illustrate this from the third subject for discussion in this Section. Doubtless, our recent discoveries in the pathology of Bright's disease, of emphysema, of hepatic and cardiac degenerations, and the like, have at first beaten down our crests, and forbidden us to rely upon the old infallible cures for dropsy; and we naturally fell, in our despair, to the belief that therapeutics are vain and disease incurable. Thence there arose indeed, in many of our most learned medical naturalists, a noble scorn of shallow doctorings and druggists' formulæ, and too sweeping a condemnation of all medicine. But do we not now see whence the light is coming? Are not many of our young physicians tracking, like sleuth-hounds, the causes of these effects, and surely learning why a kidney shrivels, and why a heart or lung decays? Our children, then, having forgotten that diseases were ever regarded as separate entities to be ejected from the body, and learning to discover and to deflect morbid currents at their springs, will not await the appearance of these irreparable mischiefs, but will prevent their beginnings, and esteem him disgraceful as a physician who allows such states to become prematurely established.

It is herein, gentlemen, that our new arms against disease will find their potency; and to this end we must have a truer conception than we mostly have of the genesis of disease. No mere *enumeratio simplex* of symptoms or of pathological detail will suffice for this, nor even a full description of species. We have to work out the genetic affinities of diseases themselves—their origins, parent stems and alliances, as well as their issues. We must seek out and define the laws or powers inherent in matter, by which diseases appear, develop, vary, vanish or prevail; and this not in the limited field of man alone, but far beyond it. The medical Darwin has yet to arise who will map out the evolution of disease, reducing the complex to the simple, and unfolding the modes of its development. We can have no complete therapeutics until the science of comparative nosology is in great measure constructed.—a science as yet scarcely begun—nay, not yet adequately recognised.

In this field, so far as man is concerned, must lie much of the work of the Collective Investigation Committee, and, I venture to think, its chief part and most important work. Let me, for instance, call to your mind the now well known genetic affinities of asthma, gastralgia and eczema, and, as a parallel phenomenon, the power of arsenic in all these affections. This family is again subordinate to the greater order of primary neurotic diseases, which are found in persons marked, not only by common abnormal, but also by common normal or sub-normal characters—characters of aspect, fashion, manner and disposition. Take, again, the long series of affections which belong to the equivalent order of lithiasis, with its families and genera. Patients show a true instinct in clinging to the doctor who “knows their constitutions”—that is, who has witnessed their history and the conditions of their lives, and who, in default of a scientific knowledge of their evolution, nevertheless has watched their own family and personal growths, outgrowths and weaknesses, and the external circumstances under which these have had their being. We note, indeed, how, in spite of the infinite multiplication of marriages, certain broad types of constitution still subsist; and in time we may learn to reduce the infinite variety of maladies to a few chief constitutions, and these in their turn may be allied to each other as the gouty is to the neurotic, and so forth. Now, can it be doubted that these several constitutions have their own issues in grosser pathology, and that thus the drift of families, and even of individuals, to specific organic disease may be learned, predicted and deflected? I have said that the day is perhaps not far off when premature organic disease will be looked upon as the outcome of a long series of foregoing deviations from the normal, and as the consequence of previous blindness or blundering. The great future of therapeutics, then, gentlemen, lies, not in diseases and formulæ, nor in the discovery of great remedies for great maladies, but in the counteraction of earlier and simpler morbid phenomena; remembering that the magnitude of issues has no relation to the magnitude of things. Professor Geikie tells us that the modern geologist has to see that even Europe and Asia were not created, but *grew*; and when the whole phenomena of life, animal and vegetal, are comprehended as one, and this one is understood to have grown from the simplest beginnings, its diseases being but the reverse of this growth, then certain broad and simple laws of deterioration will be discovered, and from these the more complex as we rise in the scale of physiological complexity. With the attainment of the higher forms of life the most complex diatheses will be co-ordinate, and present more and more heterogeneous phenomena, until, with the full diversity of human life, we shall understand the correlative display of its manifold modes of

undoing. Yet farther: our comparison cannot be bounded by the study of our own nearer brethren—of the men of our time and country.

Clinical phenomena are not as the chemical or physical, which can be reproduced at will, and are calculable for any latitude. We have to learn how diseases vary with the conditions of place and time, of season and soil, and even of race and temperament. For it may turn out that the races which enter even into the composition of our own nation bring each their own tincture of decay. I remember that, when I left Sir William Jenner's class in Great Ormond Street to practice in Leeds, I was struck by the singular fitness of his description of the "tubercular" subject to the slightly built oval-faced dark-eyed prehistoric race which has survived so many subsequent incursions and defeats, and still makes so large a part of the population of a district, such as West Yorkshire, which lies under the hills of Strathclyde.

Till these studies are more complete—and as yet they are scarcely begun—we cannot hope for a system of medicine, but must content ourselves with a mere *corpus prescriptionum*; and the skill of the physician must still lie rather in a "kind of felicity" than in a measured and orderly power. Towards this higher phase of our own art let us strive. Our knowledge of the physical conditions of life is increasing daily, and not only so, but within the life of this Association marvellous discoveries have been made in one vast field of inquiry by the labours of Pasteur and Lister, and their brilliant disciples. I refer to the inquiry into those vital influences which disturb the body from without. Until we can eliminate the chief morbid factors which affect us from without we cannot understand our failures from within. In his treatise on *Airs, Waters, and Places*, Hippocrates laid the foundations of the study of the external factors of life: it has been left to our own day and to the great teachers I have named to advance this research from the study of the inorganic factors to that of the organic.

Again, the natural history of acute disease has been mapped out with a degree of completeness which enables us in the continued fevers, in acute pneumonia, in local inflammations, in pulmonary and encephalic hæmorrhages, in chorea, delirium tremens, mental diseases, and so on, to approach somewhat nearer to positive prediction, or at any rate to make some distinction between the course of nature and the effects of our own interference.

Another great and curious department of knowledge has been opened out to us during the life of this Association, one which affords yet a much wider scope for discovery and application. I refer to the embryological interpretations of the phenomena of disease; these being traced either in arrested development, as in many defects and deformities of body and mind, or in retrogressions, such as leucocythæmia. The comparison of embryonic periods in the same and in different animals may be a master-key even to the diatheses themselves, as may be suggested, for instance, in the chief functional disorder of lithiasis, wherein the formation of urates in place of urea is the resumption of a state normal to inferior types. The strumous diathesis again is, it would seem, a permanent arrest of development at a stage short of the highest, and may indeed be, and commonly is, artificially attained by exposure to conditions such as deprivation of light, etc., acting in arrest of the completion of growth, as we know that they do in case of lower forms of life. The later work of our histologists is full of suggestions of this kind drawn from the study of heterogeneous growths. Finally, I may refer briefly to a very different method of research—to the numerical—which, although by no means a new principle, may be called nevertheless a product of our own half century, as beforetimes the means of collecting statistics on scales large enough to eliminate minor variations did not exist.

Many great lines of thought and observation are thus convergent upon the study of medicine, and are enlarging the foundations of the science upon which alone the successful art can be reared. What we have then to-day to proclaim is that, during the last half century we have ceased to build castles in the air, have turned more frankly and loyally to nature, and have sought our inspiration and found our reward in the study of phenomena which our forefathers despised as gross and material.

Those outer and commoner things which they regarded as finite and mortal, and at most but baser instruments to support conceptions issuing from the mind of the philosopher himself—these we find infinite and immortal—not governed by spirit, but themselves inspired—themselves the ministers of perfect law—themselves potent with all life and all thought—themselves not the counters, but the very words of the Creator. To take once more the phrase of the father of modern thought, "*Itaque hominum intellectui non plumæ addendæ sunt, sed pænumb potius et pondera*. We have learned no more to soar aloft into emptiness, but, Antæus-like, to seek fresh life in the renewed embrace of our mother earth. This is not only a new heaven in our

thought, it is a reformation of it; it is no more a commerce of mind and things, but an identity.

As did anatomy two hundred years ago, so in our time has medicine conquered her independence; for this other men have laboured, and we are entering into their labours. And although our ways be still dark and slippery, I trust that those who shall be gathered together in our hundredth *Comitia Tributa* may rejoice in a yet more glorious light, and may think gratefully of us of to-day, for in the words of a modern poet—

"The first still follows one that goes before;
The last still hears a toiling foot behind."

AN ADDRESS

DELIVERED AT THE OPENING OF

THE SECTION OF SURGERY,

*At the Annual Meeting of the British Medical Association,
held in Worcester, 1882.*

By AUGUSTIN PRICHARD, F.R.C.S.,

Consulting Surgeon to the Bristol Royal Infirmary; President of the Section.

A RETROSPECTIVE VIEW.

My principal duty, whilst occupying this chair, will be to listen to the papers which, I am very glad to see, have been promised in good numbers, and to learn from them, and from the discussions which we are to hold upon one or two very important subjects, all the newest and best development of our art.

But I must, first of all, record my thanks to the Council of our Society for selecting me, on this interesting occasion of our jubilee meeting, to the important post which I now hold, of President of the Surgical Section, a selection no doubt suggested by the number of years I have been a member of the surgical branch of our profession, and, I may add, of this Association; for in the year in which it attained its majority, viz., 1853, I had the honour of reading the Address in Surgery.

Now, in those old times the various addresses were called, and were supposed to be, retrospective, giving accounts of the scientific progress in the previous year of the several branches of professional work; but, in consequence of the periodical publication of "half-yearly abstracts" and "retrospects," the custom was changed, and the orators chose their own subjects, upon which they could have the rare comfort of speaking in an authoritative tone and *ex cathedra*.

And on an occasion like the present, the fiftieth birthday of our old Provincial Medical Association (to call it by its original title), to resist the temptation of looking back towards our far past is quite impossible; and, if we can rescue some material of value which is in danger of premature burial, the retrospect will be profitable also. It is not my intention to give an account of surgical changes and progress in the last fifty years; such an attempt would occupy all our time to little advantage, and I am not the surgical orator of the year; but I am bound to say a few words at the beginning of our sectional work, so as practically to introduce myself in my new position to my surgical colleagues; and as at this meeting many besides myself will find themselves turning round and taking a view of our past surgical life, I shall venture to touch on one or two objects in the far distant landscape.

In the period to which I am alluding, when I began my professional work by the usual five years' apprenticeship, there were no anæsthetics, no antiseptics, no clinical thermometer, no ophthalmoscope, none of the marvellous and invaluable revelations of the microscope; even the stethoscope itself was young, for Louis was at work in Paris at his investigations into the diseases of the chest in those early days of auscultation. It was but a very few years after the passing of the Anatomy Act, and, although I never took any personal part in the proceedings, yet exciting stories in abundance were rife with reference to the adequate supply for the dissecting-room. An uncle of mine, a very promising young man, died of disease of the chest, the effects of cold caught by being locked up with a fellow-student half the night in a damp cell, in his wet clothes, having been caught whilst out on an expedition such as I refer to. These events were long ago, it is true; but we can hardly sufficiently admire the zeal, born of necessity, which took these young fellows out, after the work and amusements of the day were over, at the smallest hours of the morning, dressed as labourers, and armed with a lantern and shovel and pickaxe, to some dark church-