AN

INTRODUCTORY LECTURE

DELIVERED ON THE OPENING OF THE SESSION

OF THE

Medical School,

CHARING-CROSS HOSPITAL,

LONDON,

OCTOBER 1, 1852,

BY

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&c. &c.

LONDON:

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1852.

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TO THE RIGHT HONOURABLE

THE EARL OF BURLINGTON, LL.D., F.R.S.,

&c. &c. &c.

CHANCELLOR,

THE VICE-CHANCELLOR,

AND

FELLOWS OF THE UNIVERSITY OF LONDON,

THIS ADDRESS,

HUMBLY INTENDED TO ADVANCE THE INTERESTS OF A SOUND GENERAL EDUCATION,
AND OF CORRECT PRACTICAL PRINCIPLES IN THE MEDICAL PROFESSION,
AND THUS TO EFFECT IN ONE DEPARTMENT
THAT WHICH IS SO EFFICIENTLY PROMOTED IN ALL SCIENCES
BY THE FOUNDATION OVER WHICH THEY PRESIDE,

IS MOST RESPECTFULLY DEDICATED,

BY THEIR OBEDIENT SERVANT,

THE AUTHOR.

AN

INTRODUCTORY LECTURE.

GENTLEMEN—

IT would scarcely be fitting if so rare an event as the opening of a Session should take place without some formality.

As STUDENTS, many of you have, during the past months, laid aside the book and the scalpel, and with your angling rod have wiled away your hours on the bank of some favourite stream; or, it may be, have wandered over ground trodden by you in your boyhood's days, and endeared to you by many cherished associations. You have revelled in all the joyous peacefulness of your earlier homes, and regaled on the pure air, and the yet more tangible good which Nature has plentifully provided in her country nooks. During this period, I can conscientiously acquit you of any intention to study—aye, of even the remotest inclination towards it; and believe that the very remembrance of the Charing-Cross Hospital anatomical room would be ejected with ineffable *dégoût*. *Now*, however, the scene is changed, and you are called upon to doff the easy jauntiness of the young country squire, and to assume, at least for the time, the demure and care-worn aspect of the laborious student.

As TEACHERS, it affords us great gratification to meet you once again, and to see your ranks thronged with new faces, and to offer to you a hearty welcome to the School and to the benches, which you will find well marked with the enduring memorials of your illustrative predecessors; but we cannot forget the ease in which we have lately luxuriated, and, in spite of ourselves, we cherish a lurking desire to continue it, and look a little shy at the labours which a long six-months' Session is about to impose upon us. Since, however, we must, willingly or unwillingly, be again united to the turmoil of professorial engagements, it is only fitting that the wedding-day should offer the occasion presented by all wedding-days, of trying for a few moments to beguile ourselves into a very happy future.

I need not to remind those Students who have passed a Session here that we are ever under the kind yet vigilant inspection of one whom we are delighted to honour; of one whose post of observation is above our heads, and whose varied excellencies well entitle him to that distinction; of one to whom we owe this theatre in which we are met to-day, and the foundation of the School with which it is our happiness and honour to be connected; of one whose unceasing exertions have raised without encumbrance the noble building of which this forms a part, and who is still adding to its extent and influence. (NOTE.) Through the means which he originated very many have passed from those benches to positions of distinction and usefulness in the world; hundreds of thousands have been the recipients of medical and surgical skill, which you well know is of the highest order; and these, from all the counties lying within a comprehensive circle, cherish the name of the Charing-Cross Hospital with the deepest gratitude. We are still favoured with the presence of the same guiding mind; and it is fitting that you and I should open the Session with a hearty recognition of the virtues of our excellent director, Dr. Golding.

A formal introduction of the Session being thus highly proper, some of us, had we been consulted, would have preferred one in which savoury morsels and flowing draughts play a prominent part, rather than a dry discourse; but the universal custom in this matter seems to imply that, of the two evils, the Introductory Lecture will best bear the morning's reflection. This is the well-beaten path trodden by my predecessors, and is therefore easy of access; but it is far less easy to offer new objects to your attention, or to present familiar things under a novel aspect. The position, therefore, which I hold to-day, although one of honour, is not one of ease; and when I bear in mind the hearty bursts of applause which the discourse of last year drew down, I cannot but fear lest my few remarks should fall upon your ear as something very flat and unprofitable. There is, however, relief in the reflection, that some of those who hear me to-day were not present on that occasion, and cannot therefore make odious comparisons; and to such I may now direct my especial attention.

The circumstances under which an Introductory Lecture is given remain much the same from year to year; the same class of auditors needing advice and encouragement in respect of their studies and personal conduct, and the same studies to which their attention must be unvaryingly directed. Science, however, is not sleeping, but is rapidly adding to her triumphs in her efforts to

ameliorate the condition of men; and in our profession we are favoured with many new lights, to enable us to penetrate yet more deeply her mysteries. As these improvements are multiplied year by year, this occasion may be a fitting one on which to shew their great value, and a reference to them may agreeably diversify the ever-recurring topics of an Introductory Lecture.

But before proceeding further, permit me to remind those Students especially who now enter this School of the great importance of at least maintaining, and in some instances, I may add, of increasing, their acquaintance with the elements of a sound general education. We cannot doubt, I think, that, during the past century, the regularly-educated physician or surgeon had far greater scholastic acquirements than are commonly found in practitioners at the present day. The great authorities in Medicine and Surgery were then to be studied only in the Greek and Latin languages, in which they had been originally written. Such were Hippocrates and Aretæus amongst the ancients, with Haller and Sydenham amongst the moderns. The Latin language was in frequent use, and especially in Germany, for conveying to the reader or hearer whatever was of real value in every department of our science. A colloquial acquaintance with it to some limited extent was required by the usage at the Universities, and the inductory thesis on the occasion of graduation must, according to law, have been written in the same language.

The then existing necessity would induce a tolerable acquaintance with that language amongst all scientific men. That necessity has somewhat passed away. The progress of science, with increased accuracy of observation, permits us no longer to regard Hippocrates and Sydenham as our text-books; and, moreover, these, with nearly every other work of merit, may now be read in our own language. The Royal College of Physicians alone claims the right to question you, at your examination, in the Latin language; but this has degenerated into a mere formality. In all our examinations for Degrees we may present our written statements and theses in the English language; and thus Students whose classical attainments are of a low order may attain even to distinction in our profession. Still, with all the convenience attending the present system, it cannot be regarded otherwise than as an evil—an evil which public opinion, aiding our public examining bodies, is diligently seeking to remedy, and to replace by a plan of procedure which is an improvement upon that of our fathers of the last century. Thus, the Royal College of Physicians still retains

the Greek and Latin Examinations; and since it is about to abolish the grade of extra-licenciates, and to improve the examinations generally, we may reasonably hope that a competent knowledge of the *Greek* language will in future be required from all its Candidates. The UNIVERSITY OF LONDON has already exerted great influence over the general education of Medical and Legal Students, by requiring from them a fair acquaintance with the Ancient Classics, and has enlarged and rendered their classical knowledge more practical by examinations in French and German, which languages, in addition to our own, are rapidly supplanting the ancient Latin. The requirements from Graduates in Laws is all that can be desired, since, with an unimportant exception, the Graduate must previously have matriculated, and have also graduated in Arts, in both of which examinations the Greek, Latin, French, or German languages occupy a prominent position. It is not quite so satisfactory with regard to the examination of Medical Graduates: they are required to matriculate, but are excused the preliminary graduation in Arts. We hope that this requirement is intended to be transitory, and that, ere long, the omission to which I have referred will be supplied, and that a degree in Medicine will soon imply the possession of a degree in Arts also. That this desire exists on the part of those who are seeking for the degree is also evident, from the number of those Bachelors of Medicine who have obtained the Arts degree; no less than five of the candidates for the degree of M.B. at the last examination being already Bachelors of Arts. We trust that this worthy example will not be lost upon those whom we have the honour to advise. The ROYAL COLLEGE OF SURGEONS and the APOTHECARIES' COMPANY have nobly followed in the path of the Institutions to which I have referred. The former now requires from candidates for its fellowship *by examination* evidence of an acquaintance with the Greek, Latin, and French languages; and we must rejoice, with some degree of wonder, at the number of Students who have subjected themselves to the voluntary examination in Greek, and other subjects, to which they have lately been invited by that eminently useful body the Apothecaries' Company.

On this ground, which is confessedly a low one, let me entreat you, with all earnestness, so to arrange your medical studies as to afford sufficient leisure for the retention and increase of your classical attainments. You will find very much practical wisdom in the writings of Haller and Harvey, and of Hippocrates, far more than enough to encourage you to read them in their original

tongue. Technical expressions now abound most luxuriantly in each of the branches of your study, and these have been almost uniformly derived from the Ancient Classics. They have not been, as yet, introduced into common use, and therefore must be acquired by every Student. Their acquisition is always a matter of difficulty; but that difficulty is greatly lessened if the Student be in any degree familiar with Latin and Greek. Of two men who earnestly set about the acquisition of any of the modern sciences, the one who is a tolerable classic is likely to outstrip the other who knows little or nothing of these languages. We owe to the Germans most of the anatomical and physiological discoveries of the present day; and a competent knowledge of the German and French languages is really necessary to any one who would attain to high places in science.

You are in the midst of classical wealth in this great metropolis, and may obtain every requisite help in the prosecution of these studies, without any great outlay in time or money.

I may now take higher ground, and invite your attention to this subject, by the plea that a sound classical education opens to you stores of general learning, which are sealed books to others, and enables you to hold direct intercourse with those whose fame will ever remain, and who are yet the models of our poets, our orators, and our historians. Whilst this course of procedure would add to your store of knowledge, it is also fitted to improve your taste, refine your imagination, give propriety, and even elegance, to your diction, and incite you to acts of emulation. The expressions of 'Scholar' and 'Gentleman' are unhappily not convertible terms, since, in our utilitarian day at least, a man may be a gentleman without being a scholar, and in all times to be a scholar was not necessarily to be a gentleman; yet just as a scholar is elevated in our esteem by being a gentleman, so is a gentleman by being a scholar. Moreover, scholastic acquirements, when conjoined with propriety of conduct, are a very sure introduction into a cultivated and intellectual circle in general society—a circle which is not often entered by those wanting scholarship, unless they have attained to eminent distinction in some of the higher walks in science or general literature.

I hope that I do not need to hint any apology for introducing this subject to your attention; and if the subject be an important one, its importance in your case is greatly enhanced by the consideration, that now only can you have the opportunity to cultivate an acquaintance with it. The bustle and the jostlings of

every-day life, and the incessant efforts which most of us must put forth for the acquisition of our daily bread, are very inimical to the cultivation of classical knowledge. You may not as yet feel the full force of this difficulty, but you may take the word of all those who are now fairly launched upon the broken sea of daily life, that if you do not gain this advantage now, you will not acquire it at a future day. Do not forget the many years of labour which you have already devoted to the acquisition of that degree of knowledge which you already possess. How deplorable it would be should you submit to the indignity of retracing your steps from the threshold of the temple which you have through many long years striven to enter! One retrograde step now leads to progressive retrogradation: it knows no halting-place but the barren heath of ignorance. In almost every instance it is irrecoverable.

Thus much in reference to classics. Permit me to say a word in favour of another branch of your general education, viz. mathematics and the applied sciences. I would not have you cultivate classics to the exclusion of mathematics, both pure and mixed, for I deem the latter of even greater value in our profession. But I would not be misunderstood. I do not consider that the advantage of a knowledge of pure mathematics is to teach you to square the circle, nor that of physics to exhibit to you the perpetual motion. The acquisition of a limited number of problems and theorems may be of great service to you in the continued prosecution of your mathematical studies, and in your application of mathematical laws and principles in the study of physical sciences; and I would not by any means dissuade you from the attainment of it, but, as medical practitioners, it is not the acquisition of all the known formulæ which could render you any very essential service. It is the habit of close, patient, and methodical study, and of careful inductive reasoning to which such studies pre-emininently tend, that I would earnestly commend to your attention. This habit is necessary to one aiming at distinction in any other profession. The whole civilized world is now deeply lamenting the death of one who, in another profession, was an eminent example of success resulting from careful inductive reasoning. Wellington was not gifted with a brilliant genius, the effulgence of which enabled him to blind and lead captive an opposing adversary. In that respect he was confessedly far inferior to the giant-mind against which he fought, and which he eventually conquered and subdued. All the biographers of the great Duke agree in stating that he owed his success to the calm and patient working-out of effects which he

had very clearly traced in his own mind from causes then operating, or the occurrence of which at a future day his inductive powers and well-informed mind enabled him confidently to predict. The warrior who is successful by his military tactics must be a man who can steadily and shrewdly trace effects to their causes, and develope causes into their ultimate effects; a man who, whether he be highly civilized or a barbarian, would excel in mathematical studies. The General who cannot see traced distinctly on the mind all the principal events which will result from the operation of any given cause, must be one who acts without a plan, whose conduct is perpetually vacillating; in other words, a quack.

The Judge and the Advocate should possess the highest powers of argumentation, and the closest habit of reasoning; since their daily duty is to detect and invent subtleties, and to impose and expose fallacies. But imperative as may be this degree and kind of mental cultivation to the soldier and the lawyer, it is not greater than that which is perpetually demanded from the Surgeon and Physician. To distinguish effects from causes, and to determine the precise dependence which the members of any series of effects and causes have upon each other, is our great duty, both in the investigation of disease, and in the application of the remedy. What is the acknowledged characteristic which elevates the highly-cultivated above the semi-ignorant practitioner? Not so much the greater extent and accuracy of the information he may possess, as the habit of searching out hidden causes, in opposition to the practice of merely prescribing for symptoms. If the highest places in our profession be at the command of those who can readily learn a multitude of facts, almost *en masse*, every medical school could yearly offer many as competitors who are lost in the multitude in their subsequent career. Was it the great extent of information (invaluable as that may be) which chiefly distinguished Haller, Sydenham, and Harvey, Bichat, Hunter, and Cuvier; or, amongst cotemporaries, does Professor Owen owe his unrivalled position to that circumstance only? Certainly not. It is the power of generalization, by which principles can be evolved from facts, and a daily habit of discerning between causes and effects, that have marked these men as the leaders in their several departments. The man who treats symptoms as such is an empiric: the man who labours to discover and to remove the cause is a philosopher. The one, noticing thirst and heat of skin, proceeds to administer diaphoretics; whilst the other patiently challenges every part of the

system, to discern latent inflammation, or local causes of irritation, and, having found them, seeks to remove them, knowing well that the effect may be expected to subside when the cause has been removed. The one, on observing a congested state of the lungs or brain, and œdema of the legs, hastily prescribes diuretics; the other strives to ascertain if there be granular degeneration of the structure of the kidney. This habit is necessary at every step in our professional career; and in not even the simplest case can we efficiently discharge our duty to our patients and ourselves without it. It is the very basis on which the practice of our art rests. The cultivation of it has raised our profession to the dignity of a noble art: the absence of it would degrade us to the position of charlatans.

Gain, by every means, an accurate knowledge of facts; enlarge their number to the utmost possible extent; but, beyond this, strive to attain to a habit of discerning the dependence of facts upon each other, and the whole upon great general principles. This habit of mind is to be acquired only by careful and early training, and most effectually by an enlightened study of mathematical principles.

There is, however, an extensive class of men, both in and out of the profession, who hold in very light esteem an acquaintance with the subjects of which I have now spoken, and who cannot understand in what way a competent knowledge of the Greek language can help you to cut off a limb, or an acquaintance with trigonometry aid you in curing a fever. The fable of the fox and grapes would be applicable to many of these; for it seems to be in harmony with our present nature to affect, or really to despise, that which, not being essential to us, we do not possess, and the more so, if, whilst others boast of its value, we have not the aptitude or opportunity to attain it. Yet even this class of persons scarcely ventures now-a-days to question the utility of an elementary acquaintance with some of the physical sciences, which have an immediate connection with pure mathematics, being, in fact, simply the application of mathematical laws to an elucidation of the operations of nature. It is therefore very evident that the mathematician has a great advantage over others in the study of many subjects to which your attention will be constantly directed in this theatre. An example or two will prove the truth of this assertion.

The *mechanics of the human body* is a subject of great interest, and has probably furnished many hints in the improvement of those agencies for which the present day is so remarkable. The animal frame must exhibit a greater variety of mechanical contri-

vances than can be met with in any other department of nature. Many of these are readily observed, and, being within the reach of the mechanical student, afford him the most perfect models for his imitation. The varied actions of the muscles are in perfect harmony with the laws which govern the action of levers universally, for those laws have been deduced from the operation of nature, of which we have here the most perfect illustration. The motions of the limbs, of the jaw, and of the trunk, are all explicable by the aid of the laws of mechanical agencies, and these laws have been evolved from pure mathematics.

The science of *Acoustics* is applied, in the study and practice of the profession, in investigating the anatomical and physiological characters of the ear in man, and in the numerous gradations in the animal series, and also in the physical examination of the internal organs, and especially of the lungs and heart. We know but little, even at the present day, respecting the former, but have made very marked progress in our acquaintance with the latter. This method of diagnosis has now outlived the querulous remarks of those excellent persons to whom I have just referred; and very many of those who for years decried its value now fill their pockets with a big stethoscope, and use it on all occasions. In offering these observations, I would not be thought desirous to hold up to ridicule those who have not had the advantages which the gigantic strides of the present day offer to medical students. On the contrary, I feel that it should remind us, whether young or old, that we are advancing in years, and are daily grasping more convulsively the principles which we imbibed in our youth, and are eyeing with increasing distrust the new lights which the onward movement of things presents to us. Rather let us regard such distrust in others with kindliness, remembering that, whatever may be our present attainments, if we live long enough, we too shall be left far in the rear.

Some acquaintance with the laws of acoustics has been necessary to all those who have laboured to give due significance to the healthy and morbid sounds emitted by the lungs and heart. The sounds themselves, whether in their relation to special diseases or not, may be discovered by any practised ear without the aid of this science; but it is one thing to become cognizant of the existence of a fact, and another to appreciate its true import. We owe our present degree of this appreciation to the assistance of this science, and we must still look to her aid in the attempt to resolve certain doubts which envelope the subject. That apparently

simple, and yet truly difficult, problem of the source of the sounds of the heart is to this day unresolved, and will probably remain so until the laws which govern acoustics are better understood, or until their application to the living animal frame has been more thoroughly investigated. Thus, by the aid of the knowledge and labours of others, you may learn to distinguish, and, so far as may be, appreciate, the value of these most important aids in the detection of disease; but so far your knowledge will be that of empirics, not that of the philosopher, whose aim is to leave science somewhat the more truthful for his labours.

Again: we have now entered upon a bright day of investigation, resulting from a profound acquaintance with the laws of *Optics* as exhibited in the microscope; a day which bids fair to be far more brilliant in scientific discovery, and especially in relation to medicine and its collateral pursuits, than any which has as yet shone upon the world: not that either the science itself is quite new, or that the instrument is only of yesterday's invention. Lieberkünn, not less than three centuries ago, invented microscopes, and made them in numbers, as may now be seen in the British Museum; and even these were sufficiently good to enable him to make anatomical discoveries which will ever render his name illustrious in science. But it is since the labours of Dr. Goring, thirty years ago, and the discovery of the optical qualities of the diamond in 1824 by Sir D. Brewster, that the highest mechanical skill has succeeded in giving to us an instrument so nearly approaching to perfection as to enable us to explore almost every department of animal life, and so simple in its use that a mere boy may overcome all its difficulties in a few days or weeks. The benefits resulting from the introduction of the microscope in the study of anatomy, physiology, and practical medicine, are so palpable, in many cases—as, for instance, in the examination of urinary deposits—that the most determined opponent could only attempt to explain away the facts presented to him; and it is very probable, from this self-evident advantage, that the opposition which has been raised to its introduction will be shorter lived than that which haunted the daily steps of the stethescope. We cannot long doubt the existence of that which is made palpable to our senses, nor the advantage of that mode of procedure whereby alone such objects can be observed. Yet the science of *histology* is new, very new, and therefore confessedly imperfect, even in the hands of its ablest professors; and beyond this it is probably encumbered with a multitude of errors. These defects are, how-

ever, inseparable from the earlier history of any new science; and, as they diminish in number daily, we can have no manner of hesitation in discerning the ultimate triumph of so splendid a discovery. This is your opportunity to master all its truths, and to shew that you are desirous to keep pace in some degree with the advances of the day. An elementary knowledge of the laws of optics is far more necessary to you in your study of histology, than an acquaintance with those of acoustics in your investigations into the diseases of the internal organs; and without this you cannot hope to rise beyond the mere acquisition (valuable as that is) of details.

If we would seek to understand the nature of the circulation of the various fluids in the body, we must also know somewhat of another science—that of *Dynamics*. It is remarkable that the amount of force exerted by the heart upon the ejected blood has not to this day been satisfactorily discovered. It is only a very few years ago that a distinguished professor of anatomy in London felt it to be needful to institute a new series of experiments in elucidation of this subject. Borelli estimated this force at the enormous value of 180,000 pounds avoirdupois, Hales at 50 pounds, and Keill at 5½ ounces; differences so remarkable, as to lead us to infer, either that in their day the principles of dynamics were not understood, or that there was some inherent difficulty in their application to the living frame.

Permit me to allude to one other physical science—one which is now falling within the especial province of the Physician—one with which the world now requires you to be somewhat acquainted—that of *Pneumatics*.

The present sanitory movement must eventually fall much into the hands of medical men, a body whose duties eminently qualify them for that position. Yet, in the number of the "Athenæum" for June 26th, you may read an article tending to shew that medical men have a direct interest in the continuance of epidemics, and of every other occasion of disease, and therefore that they ought not to be employed in any attempt to remove them. This I hold to be a calumny, and unworthy of so liberal a paper. I doubt much if our interest is necessarily served by the continuance of intramural interments, of cesspools, of filthy water, and of impure air; and if it were so served, it is notorious that medical men have ever been the foremost to expose such evils, and to urge their removal. We are accustomed to foster our love of approbation by boldly stating that there is no body of men who labour so

much for the public weal, and there is none to whom so few acknowledgements are awarded; and I take leave to assert that our detractors will find it difficult to prove its falsity.

Of the causes of disease just mentioned, I will refer to one more particularly, that of impure air. The efficiency of this cause is indisputable; and, amongst other sanitory measures, it is proposed, through various mechanical agencies, to remove this impurity, and to afford to every dwelling a constant supply of pure air. This is not simply a question for chemists, but for the attention of the practical physician, who, with a benevolent heart and an enlightened mind, may devise a remedy. We have an excellent example presented us by your respected and talented teacher and physician, Dr. Chowne, who, at a very great personal inconvenience, has unweariedly prosecuted a long series of experiments, with the happy result of having invented an instrument which bids fair to rank among the most philanthropic inventions of this eminently philanthropic day, and is calculated to remove impure air, and to supply pure air continuously, silently, surely, and economically. It is no little credit to this school that one of its professors should have evinced so great an amount of theoretical and practical acquaintance with the science of pneumatics; and I feel assured that the example will not be presented to you in vain.

I have now ventured to commend to your attention certain classical and mathematical studies; but since they are not prescribed by our legislative bodies, you may not be earnestly disposed to accept them, although you may be ready to admit their utility. We need to feel that a necessity is laid upon us to pursue some course of study which our judgments may cordially approve; and if that be simply an emission of our own will, it may be sufficiently potent. You must have felt this on many occasions. Permit me to suggest a necessity. Do not rest satisfied with the bare attainment of that status in the profession which the laws of our country impose upon you, but willingly and with energy aspire to a higher position.

Accept the voluntary examination now offered to you by the Apothecaries' Company, in which you may evince an acquaintance with the Greek language and other subjects.

You purpose, without exception, to become members of the Royal College of Surgeons. Let me suggest to you that there is now a higher position in the College—that of the Fellowship. To be a Fellow as well as a Member has become an indispensable weapon of defence since the publication of the late Charter, through

which a large proportion of the existing members will obtain that distinction on the payment of fees only. This concession cannot be claimed by you; and as you would not occupy a position in the Corporation inferior to that of very many of your compeers, seek to enter it by the narrower gate of admission by examination. Now that you are fresh from your classical and mathematical studies you may find a convenient opportunity to pass the highly creditable preliminary ordeal.

Having prosecuted your studies with intelligence and diligence, you will discover that the same amount of information which you will have gained in order to the obtainment of your necessary legal qualifications, will satisfy the requirements of an University education in medicine and surgery, and enable you to obtain a degree in Medicine. The portals of the University of London are open to you from this School; and whether you purpose to practice as Physicians, Surgeons, or General Practitioners, I would urge you to take advantage of your present period of study to enter the list of its Graduates.

These are honourable aims, and such as should induce you to use your time well, and to prosecute your studies with method and completeness; so may you rise to the position of those whose ambition it is to be singled out from the mass of Medical Practitioners.

I now proceed to invite your attention to a very few general remarks in relation to the medical studies presented to you in this School; and in doing so I shall limit myself very much to that department which has been placed in my hands, and to the aids which modern science has afforded us in the study of it; knowing well that the merits of the other subjects will be discussed with greater vividness than I can command, and that you will receive from my talented colleagues, in turn, much wholesome advice in relation to their special pursuits.

The department, then, to which I would refer especially, is that of Anatomy, an extensive and fundamental one, and one to which you are called by your Regulations to devote a longer period of attendance than to any other. Its importance is, therefore, well recognised by our legislative bodies, as well as by the Profession at large, and, I may add, by the educated public also. To what circumstances, then, does it owe this acknowledged importance?

First, and most palpably, to its connexion with surgical operations.

Even those who now enter this School do not need to be in-

formed that no considerable portion of the body is composed of one structure only, but that, besides the bones and muscles which constitute the mass and give form to a limb, we find blood-vessels, the unexpected opening of which may destroy life by the pouring out of the vital fluid. It is therefore imperative that the Surgeon should know where such vital structures are placed, so that he may avoid them in his operation, or, if he must cut them, that he may do so completely, and then close up their open ends by ligatures. There are also nerves, organs through the influence of which we move and feel, which must be avoided, or wholly divided, and, being divided, if the Surgeon were to place a ligature around them in the belief that they were blood-vessels, the patient's life would probably be sacrificed.

The value of anatomical knowledge in operative Surgery is also well observed in those operations in which we explore or open the deep-seated cavities or organs of the body, as in puncturing the bladder in any of the recognised modes for the extraction of stone, or in opening the cavity of the abdomen in search of a strangulated hernia. But without detaining you on this head, I would briefly advert to two series of operations which have been performed in this Hospital during the past year; the one for cleft palate, by your accomplished Surgeon, Mr. Avery; the other for the excision of the upper and lower jaws, by my esteemed colleague, Mr. Hancock. The first mentioned operation was devised by Mr. Fergusson, and is based purely upon a profound acquaintance with anatomy. The obstacle to the cure of cleft palate is the difficulty with which the separated edges can be kept in close approximation. Professor Fergusson attributed this difficulty to the retraction of certain small bundles of muscular fibres (the palatine muscles) inserted into the soft palate, and he proposed their division; a proposition which appears sufficiently simple now that it is made, and which is well calculated to illustrate the value of accurate anatomical knowledge in the improvement of surgical operations.

The operation demands some manual dexterity, as well as a true knowledge of the relations of the parts; and many of us could bear testimony, if it were not presumptuous to do so, to the skill displayed by Mr. Avery on those occasions, to the success which followed, and to the kind anxiety evinced that all the spectators should thoroughly comprehend its nature. The theatre, crowded with Practitioners (many of them eminent for their operative skill), as well as Students, proved the extreme importance of the operations for the excision of the jaws, and the well-earned reputation of the operator. You can never forget the fearful nature of those

operations, nor the chill which crept over you as you witnessed the havoc made with the human countenance. You do not, perhaps, as yet fully know the great difficulty which attends the performance of those operations, and the many vital structures which it was necessary to divide; but you can have no difficulty in believing that the greatest manual dexterity would only suffice to destroy the victim, if unguided by a correct knowledge of that other science of which Mr. Hancock was formerly a Professor.

Secondly, Whilst, therefore, an acquaintance with Anatomy is as essential to a surgical operator as are his very hands and instruments, it is not less so to the Surgeon or Physician who would seek the cure without the extirpation of the disease. Many of you, I doubt not, take advantage of the unrivalled opportunities which are offered to you in the neighbouring Institution, the Westminster Royal Ophthalmic Hospital; and in your examination of the thousands of cases you must have been much impressed with the close approximation of the tissues of the eye, each differing widely from every other in anatomical and physiological characteristics, and each having its own distinctive marks of disease, and its own special dangers.

You have learnt how necessary it is to distinguish inflammation of the conjunctiva, which may be trifling, from the like affection of the next more deeply-seated structure, the sclerotica, which may be serious; of inflammation of the cornea from that of the iris, which are adjoining structures; of ulcer of the cornea from effusion of lymph into the anterior chamber; and, lastly, of amaurosis from cataract. These diseases, with others attacking the various tissues of the eye, shew perhaps, more readily than any other, the essential value of anatomy, both in distinguishing and in treating disease.

This is an illustration from the practice of Surgery; let us now take one from the practice of Medicine; *e. g.* inflammation of the substance of the brain and that of its membranes, the one more certainly fatal, the other more clearly active; inflammation of the pericardium, or bag of the heart, and of the heart itself; of the lungs and their serous investment, the pleura; of the peritoneum lining the cavity of the abdomen, and of the tissue of the intestine lying directly underneath it. Before the anatomical structure of these various parts was well understood, it was common to confound the disease of the organ with that of its envelope; and thus the terms, inflammation of the brain, heart, lungs, and bowels, comprehended all the diseases just mentioned. For some years past

these diseases have been duly distinguished; and we now know that the symptoms, origin, course, treatment, duration, and prognosis of diseases of the organ and of its envelope are greatly diverse.

Then, again, in the cases of hidden disease of the abdominal viscera, how difficult ofttimes it is to assign to the proper organ the symptoms which have arisen. In the immediate neighbourhood of the pit of the stomach, for instance, we find the stomach, the liver, the gall-bladder, the intestine, and the pancreas, besides a host of nerves and blood-vessels, and the general covering of the whole, the peritoneum. In many chronic cases of disease it is only by the most minute attention to the symptoms as they arise and succeed each other, and an intelligent, ocular, and manual examination of the parts, that even an approximation to the truth can be attained. Without a knowledge of the organs, and of their precise limits and relations, we should be plunged into a very chaos.

Thirdly, The value of anatomical knowledge is self-evident in relation to the anatomy of *Morbid Structures* (Pathological or Morbid Anatomy); for how may we determine if they are morbid at all, if we know them not in their healthy state? or how may we determine the *precise* changes which have occurred in their structure, if we are ignorant of their most minute component parts? That we have made so little progress in our acquaintance with disease of the nerves may be probably owing to the absence of any very intimate knowledge of the structure of those important organs, and especially of the nervous substance of which they are necessarily composed. Even in this day—a day eminently distinguished for investigation into anatomical causes and effects of disease—we are compelled to class together a great variety of complaints of which we know very little, and label them "nervous affections." It may probably be owing to this defect that we have learnt, as yet, so little of the intimate condition of the brain in cases of insanity; and science seems to indicate that this defect must be removed ere we may attain to a correct knowledge of the etiology and treatment of that fearful disease. So, again, with reference to diseases of the kidney. In the thick darkness which still envelopes this subject, the Physician feels that his sole guide is the anatomical investigation into the intimate structure of that organ which has been made within a very years by an accomplished contemporary, Professor Bowman. It is quite clear that these investigations have already shed very much light upon this too obscure, yet important and interesting subject.

Having now illustrated the advantages resulting from anatomical knowledge, I shall conclude my address, by referring to the mode in which the study of Anatomy may be best prosecuted at the present moment. We are greatly assisted in the prosecution of these studies, in both healthy and diseased structure, by two youthful sciences (to one of which I have already referred)—Organic Chemistry and Histology; and we owe to their conjoined aid very many of those discoveries which have shed so much lustre upon the present age. Not that they are supplanting the patient and industrious habit of dissection, which must ever mark distinguished anatomists; but they are giving to the patient investigator the means of correcting the errors of his predecessors, and of carrying his examinations to the utmost limits.

It may appear almost incredible to many students, that organs so gross and palpable as muscles ordinarily are, should have escaped the careful discriminating inspection of anatomists who have laboured in this field down to the present day, whether aided or unaided by the sciences just mentioned; yet, within a few years, Guthrie and Wilson have discovered the muscles which now bear their name; several of the muscles of the internal and external ear have been described; the muscularity of the coats of arteries, of the intestines, of the iris, of the bronchi, and of the uterus and vagina, has been set at rest; and even within the last few months your lecturer on Surgery, aided by Mr. Hogg, a greatly-esteemed former pupil of this School, has contributed one of the most valuable discoveries of his time, in his description of a muscular coat investing the whole of the urethra down to its lips, and the corpora spongiosa and cavernosa, and which I shall describe in this course of lectures as Hancock's layer. This last discovery, at least, could never have been effected, had it not been for the aid afforded by the microscope in skilful hands.

To the same instrument we owe the recent splendid discoveries of the true structure of the liver by Mr. Kiernan, and of the kidney, already referred to, by Mr. Bowman; of the anatomical composition of bone, of mucous and serous membranes in general; and, above all, of the great general fact of the cellular origin of all vegetable and animal structures whatsoever. By its aid (in connexion with organic chemistry) we have learned much of the nature of the blood, the fruitful source of healthy and diseased structure, and also of all the various secretions and excretions of the body, and, not the least, of the many pathological changes which occur under the influence of disease in both the solids and the fluids of the human system.

Our diagnosis of an inflamed part is not now restricted to the gross marks of altered size, colour, and consistence; for independently of all these, and of every other feature evident to the naked eye, we can demonstrate its product. In our description of a malignant structure, it no longer suffices to point out the resisting texture and white fibrous bands of carcinoma, or the brain-like bleeding substance of fungus hæmatodes, or the blackened spots of melanoid cancer; for these descriptions are not sufficiently precise, and therefore are apt to be fallacious: but let a speck of it be placed in the field of the microscope, and, with almost infallible certainty, its true character will appear.

A distinguished surgeon has recently offered some pertinent remarks on this subject, in a paper printed in Guy's Hospital Reports, Vol. VII. Part I., which I commend to your careful perusal. The writer is distinguished above most men, in having, late in life and in the midst of professional engagements, undertaken the difficult task of obtaining a practical acquaintance with both these sciences, and such an acquaintance as has enabled him to communicate most acceptable information to others. He gives his opinion of the value of the microscope, and of organic chemistry, in the following words—

"I am only anxious to shew that, although late in life, I am nevertheless convinced, that no longer can either the study of anatomy or pathology be prosecuted by mere dissection as a means of displaying the normal structure and tissues of the human body, nor can the morbid changes to which these tissues are obnoxious from disease be understood by only examining the specimens which are accumulated *en masse* in the collections of our hospitals. It is quite indisputable that the smallest portion of a diseased structure placed upon the field of the microscope will tell more in one minute, to an experienced eye, than could be acquired in a week's examination of the gross masses of disease as preserved in any museum.

"It is true, that, in an anatomical point of view—as far as refers, that is, to the relative position of disease to any important organ—much benefit may be derived from the preservation of such specimens; but as to the nature of the disease itself, the condition of the tissues implicated in the abnormal change, or the nature of the resulting effusions, I believe no correct estimate can be formed without the aid of the microscope and chemistry."

Can I too urgently commend these aids in the acquirement of anatomical knowledge to your attention? It will afford me great

gratification to add my humble efforts to the labours of my colleagues, in assisting you to follow so admirable an example as that thus offered to you in the person of Bransby Cooper. You will experience the benefit of this mode of study, not only whilst you are students, but also when you have entered upon the practice of your profession; for you will then regret to find that very many difficulties beset your path in the treatment of disease, and you will gladly court the help of any thing, or of any one, even promising to remove your doubts. These difficulties beset the path both of the accomplished and the ill-educated practitioner, and both need all the assistance which the two sciences referred to can offer. Instances of the benefit which has resulted in the diagnosis and treatment of disease are multiplying daily, and the following, which have occurred within the last few months, may suffice for illustration.

A surgeon was sorely puzzled, a few months ago, to determine if the cavity of an abscess situate in the perinæum communicated with the rectum. This was a problem which greatly concerned the treatment of the case, and the probe could not solve it. He carefully examined from time to time the nature of the discharge, and occasionally observed certain minute solid points intermingled with the ordinary purulent secretion. These he very properly preserved, and forwarded one of them, scarcely larger than a pin's point, to Professor Queckett, the eminent Histologist at the Royal College of Surgeons. Mr. Queckett readily determined that it was a vegetable structure, and that it contained oil. Whilst pondering this matter in his mind, he noticed a friend eating seed-cake, and, seeing a carraway-seed, took it, and examined it with the microscope, and found that it was the very substance which had been forwarded to him. Thus the discovery of the minutest point of a carraway-seed in the discharge from the abscess proved that the cavity communicated with the rectum, and the problem was at once solved. The patient was accustomed to eat seed-cake. This was a happy reward for the intelligent watchfulness of the surgeon, and his example is worthy of your imitation.

A lady, suffering greatly from indigestion, passed daily, per rectum, a large quantity of laminated solid substance in flakes of large size, much to her own distress, and to the amazement of her medical attendant. Several medicine bottlesful were collected, and one was forwarded for examination to Professor Queckett, who

discovered that it consisted of portions of the coats of arteries and of fasciæ, the undigested parts of mutton-chops, of which the lady had been directed to take freely. The careful exclusion of such indigestible portions of food permitted the patient to take that which was of benefit to her, and to avoid a continued cause of indigestion.

Lord C., a youth aged 12, consulted Sir P. Crampton, of Dublin, for an affection of the throat, which, without presenting any cause for alarm, was a source of discomfort. Sir Philip referred him to a distinguished surgeon in this city, (who frequently honours this theatre with his presence,) for the purpose of extirpation of the disease by the knife. This latter gentleman, having far more than an ordinary degree of talent for observation, and fully appreciating the value of microscopic examination, detached a morsel with his finger nail from the back part of the throat and took it to Professor Quekett. On examination, it was proved to be a malignant disease. The surgeon relied more upon this revelation than on the evident health of the patient, and refused to operate. In a few months the patient died of the malignant disease, as was proved by the *post-mortem* examination. In this instance the microscope averted much needless suffering and danger, and rendered a case perfectly clear which would otherwise have been very obscure.

The subject of the fatty degeneration of tissues, and especially of muscular fibre, now attracts universal attention, on account of the light which it is calculated to shed on the nature and treatment of disease.

Mr. Adams, of the Orthopedic Hospital, is occupied in a very elaborate and interesting series of anatomical investigations, to determine the relation which this condition of the tissues bears to clubfoot, and, with the aid of the learned Professor of Histology referred to, has made the unexpected discovery, that it precedes the occurrence of the deformity, and is therefore a cause, rather than a result, of clubfoot, and of the inaction of the muscles which attends it.

Drs. Ormerod and Quain had already proved that this waste of tissue of the heart is a frequent cause of sudden death, and that its existence may be ascertained by certain detailed symptoms. Dr. Barnes had also intimated that the fatty degeneration of the placenta is a common cause of abortion; and my accomplished colleague, Mr. Canton, has also demonstrated the existence of this disease in the opaque circle observed in the circumference of the corneæ of old persons, the arcus senilis. I call your particular atten-

tion to Mr. Canton's discovery, since we have reason to hope that it will supply a great desideratum, viz. an external and readily recognisable sign of a stealthy and important internal disease.

In conclusion, permit me to state that a knowledge of human anatomy alone, correct and complete as it may be, will not suffice for the requirements of the present day. Your attention must be directed to Comparative Anatomy—the anatomy of the mighty series of existences which an almighty and benevolent Being has created for our exclusive benefit—at least so far as to enable you to unravel the intricacies of the human fabric. It appears wonderful, on reflection, that all this extended animal series of existences is built after one general plan, and that the composition of its most complete structure, man, can be determined only by the aid of a knowledge of the structure of greatly inferior creatures.

Let us be thankful that a more enlightened and extended acquaintance with the works of nature, and the prevalence of a higher state of feeling, have dispersed that disposition to materialism, which was but too evident in those given to scientific pursuits at the beginning of the present century. Let us not be less devout than Hippocrates and other heathen sages, who, in their writings, made continued reference to the gods; but let us rather investigate the wonderful mechanism of the animal frame in the spirit of the writers of the Bridgewater Treatises, and, in all our investigations, look through nature up to nature's God.

NOTE. (*Vide* p. 4.)

I LEARN, from the valuable Introductory Lecture delivered by Dr. Shearman, our Nestor and Consulting Physician, at the first opening of the School, that this Institution, founded first as a Dispensary in the year 1818, and subsequently as an Hospital in 1828, was then the eighth London Hospital; and that it was the only one which had been erected for nearly a century, although the population had more than doubled itself during that lengthened period. Since the date of its foundation a majority of the present metropolitan Hospitals have been built, amongst which may be named—

University College Hospital,
The Royal Free Hospital,
King's College Hospital,
The Metropolitan Free Hospital,
The German Hospital,
St. Mary's Hospital,

besides those devoted to the treatment of special diseases, as—

The Consumption Hospital, Brompton,
The Consumption Hospital, City of London,
St. Mark's Hospital,
The Westminster Ophthalmic Hospital,
The City Ophthalmic Hospital,
The Free Hospital for Women and Children,
The Hospital for Cancer,
The Hospital for Sick Children.

By the same Author,

THE WARNEFORD PRIZE ESSAY, 1839.

"The Interest on 1000*l.* for the best Essay on the Aortic System Anatomically and Physiologically considered, with a view to exemplify or set forth, by instance or example, the wisdom, power, and goodness of God, as revealed and declared in Holy Writ."

SIMPKIN, MARSHALL, & Co.

John Curtis Esq. M.D. 5
from W. Spence

ADDRESS

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Rec. Feb. 1. 1848

DELIVERED AT

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ADDRESS.

GENTLEMEN,—I am sorry to have to begin my address by adverting to a subject of deep regret in which we all partake—the resignation of our highly-esteemed Secretary Mr. Westwood, who finds that the greatly increased time which the affairs of the Society require since the passing of the new By-Laws precludes his any longer giving us his services. How valuable these services have been, you are all aware. The duties of a Secretary of this Society are by no means of a light description, necessarily occupying a considerable portion of his time; and when we consider that these onerous duties have been zealously fulfilled by Mr. Westwood for fourteen years past, and that he has besides contributed a large proportion of the interesting papers which fill our Transactions during that period, and has constantly at our meetings given us the advantage of his extensive entomological knowledge on the subjects brought before us, it is obvious how heavy a debt of gratitude is due to him from the Society, and how inadequately it will be paid by the vote of thanks to him to be proposed at the close of the meeting. We can only hope, that though no longer one of its officers, he will continue his valuable assistance to the Society in every way in his power, and especially by favouring us with his important communications as formerly.

I congratulate the Society that the Council has unanimously recommended to you to be elected as Mr. Westwood's successor, Mr. Doubleday of the British Museum, who has agreed to accept the office, and whose intimate knowledge of the science, his ardent love of it, and his active business-habits all concur in assuring us that in him we shall find a zealous and efficient Secretary, from whose exertions, conjoined with those of our other excellent Secretary, Mr. Evans (whose re-election is unanimously recommended), its interests will be certain to prosper.

In directing your attention to the present state and prospects of the Society, I regret to say that our finances are not in a very flourishing condition, a small balance being due to our highly-valued Treasurer Mr. Yarrell, to whom the Society has been for so many years indebted for the admirable regularity and accuracy with which our accounts have been kept; nor am I able to give a more favourable

report as to the number of our Members, of whom we have lost eleven by deaths or resignations, while only seven new ones have been elected during the past year. These would be disheartening circumstances had we not strong grounds for believing that they are only temporary, and that the more rapid publication of our Transactions and their increased interest will bring us a considerable accession of new Members. Now that by their quarterly publication, begun last year, the contributors of papers are certain of their being given to the world within a few months after being read before the Society, we may confidently hope for a great increase of communications, and that a large proportion of the British and Irish entomologists who have not yet joined the Society, will do so, when for so small a subscription they can be supplied with a quarterly record of the progress of the science, and at the same time most essentially contribute to its advancement by supporting our exertions on its behalf.

On inquiring how it is that so many entomologists have not joined our Society, the answer has mostly been that this is in consequence of our paying comparatively little attention to British entomology, to which a large proportion of those who cultivate the science in these islands confine their studies, and therefore feel no great interest in descriptions of foreign insects. Now as I am inclined to believe that there is a good deal of truth in this explanation, and as it is indisputable that without neglecting foreign species, a Society like ours ought to make it its main business thoroughly to describe and know the insects of its own country, I would beg to direct your especial attention to the best means of removing this objection, and of thus attracting new Members to our ranks. Owing to the unhappy certainty that in England no merely scientific entomological work will pay the cost of publication, we have, notwithstanding the valuable labours of several of our first entomologists, whole orders of British insects which have never been described; nor does the British entomologist who resides in the country and has not access to a library of foreign works, possess the means of investigating and naming the species of those undescribed orders which may fall in his way. Now might not this *hiatus* be filled up by means of our Society? If, for example, adopting and extending the valuable suggestion of our late liberal President, the Rev. F. W. Hope, to whom the Society is under so many obligations, in his address of January 26, 1846, two or three of our members were to unite their labours to give us a description of the British Diptera (either in a series of unconnected monographs or on a regular systematic and consecutive arrangement), and if twelve or sixteen pages of this were given in each quarterly part of our Transactions, there would obviously be a great inducement for country entomologists, studying only British insects, to join our body; for it would be a libel on their love of the science to suppose that they would grudge the extra ten shillings a year devoted by us to its general interests, which would be the mere difference between becoming Members of the Society and receiving our Transactions without charge, and buying them of their bookseller. And though the accession of new Members might not be large at first, it would rapidly

extend as our plan of devoting a more considerable portion of our publication to the description of British insects became known, especially when, as our pecuniary means increased, other committees of Members were formed to describe other orders yet undescribed, or only partially, as Hymenoptera, Hemiptera, &c., and new species of Coleoptera and Lepidoptera, discovered since the publication of Mr. Stephens's valuable 'Illustrations of British Insects.'

Another plan, for the suggestion of which we are indebted to Mr. Saunders, for extending the influence of the Society, is that of making it a central point for the interchange of specimens, in the same way as the Botanical Society is of plants, and no one can doubt that our adoption of such a system would be highly advantageous to us in every way. The only question is, whether we can find Members with sufficient leisure to be able to devote the necessary time for carrying out the project in the systematic way which alone could make it succeed. If such Members can be found, as I trust they may, the experiment should certainly be made.

One other suggestion I will venture to add on this subject. It seems to me that a main object of the Transactions of a scientific society ought to be to bring its Members early acquainted with what is doing in their science in other countries, and towards this end it would be highly useful to have read at every meeting a report of the titles and scope of such new entomological works, and of such papers on insects in the Transactions of foreign societies, as had come to the knowledge of the reporter since the previous meeting. The Geological Society has so far adopted this plan as occasionally to give a summary of important new geological works; and if we follow and extend its example, we should not only confer a great boon on our actual Members, who have themselves often neither time nor opportunity to read foreign entomological works and journals, but should impart to our Transactions a new and attractive feature.

The Publication Committee in the early part of the year resolved, after mature deliberation, as already hinted, that the Transactions should appear quarterly, with a view to ensure a more rapid publication of the papers read before the Society. This can only be considered as an experiment, as without larger funds it could scarcely be carried out; but considering how advantageous to our interests its success would prove, it was well worth trying, and it is to be hoped will fulfil all our expectations.

During the past year our Library has received an addition of several new and valuable works, and by the labours of the Library and Cabinet Committee, which has devoted much time and attention to this matter, forty-one volumes have been bound, including thirteen of Entomological tracts, classed under appropriate heads—the whole at an expense under 5*l.*; and as a new MS. Catalogue has been prepared, and the books as far as practicable systematically arranged, reference to them, which was formerly so difficult, will in future be greatly facilitated. With regard to the Cabinets, Mr. Douglas and Mr. Weir, assisted by Mr. Smith, have kindly undertaken the re-arrangement of the Lepidoptera, and a book has been provided which

will show the progress made in arranging the insects and the library, and in which the Curator will enter the names of all visitors.

Donations of insects have been made to our collection by Messrs. Hart, Wing, Westwood, Moore and Evans; and in addition to these presents, John Hutt, Esq., late Governor of Western Australia, has requested me to present to the Society, from him, the specimen found there of the rare and singular Neuropterous genus *Nemoptera*, which he recently sent for our inspection, and which I have named after the liberal donor. Mr. Hutt's insect (of which Mr. Westwood has favoured us with a description, read at a late meeting), at the time he sent it to us, was unique, but another specimen has been since received at the British Museum. It is particularly interesting as being the first species of its very remarkable genus found in Australia.

I now proceed to take a rapid review of the progress of Entomology at home and abroad during the past year, and shall begin with the papers which have appeared in the Transactions of our English scientific Societies.

In those of the Linnæan Society we find interesting communications from Mr. Newport on the aqueous vapour expelled from bee-hives, and on the generation of Aphides, and two highly valuable memoirs on the natural history, anatomy, and development of the Coleopterous genus *Meloë*, which throw much light on the singular and formerly obscure history of this and allied genera: and this eminent physiologist and entomologist has more recently read to the same Society a note on *Cryptophagus cellaris* of Paykull, and a paper on the air-sacs of insects, not yet printed.

In the Proceedings of the Zoological Society for 1847 are several valuable papers on Crustacea by Mr. Adam White, and one on a species of *Fulgora* from Borneo by Mr. Arthur Adams.

Our own Transactions, of which parts 4 and 5 of vol. iv., and parts 1, 2 and 3 of vol. v. have appeared this year, contain papers contributed by the Rev. F. W. Hope, Mr. Westwood, Mr. Saunders, Mr. Benson, Mr. Evans, Mr. Stephenson, Mr. Douglas, Mr. Templeton, the Rev. T. Savage, Capt. Hutton, Mr. Gray, Mr. Walker, and Dr. Schaum; and other papers have been read before the Society, but are not yet printed, by Mr. Westwood, Capt. Parry, Dr. Schaum, Capt. Hutton and Mr. Evans.

As the Transactions containing most of these papers are in the hands of the Members, and the rest have been read so recently, it is needless to specify their titles, or to refer particularly to the many brief but important notices communicated by various Members contained in the 'Proceedings;' suffice it to observe, that both papers and notices will be admitted by all competent judges to do credit to the Society, and to have contributed valuable materials to the science in its various departments of the description of new groups, genera, and species, and the recording of new facts relative to the structure, economy, and habits of insects, and of their injurious or useful properties. It is unnecessary to impress on you, Gentlemen, that though the latter must doubtless claim the first rank, the cultivation

of all these branches of the science is of nearly equal importance, and that the discoverer and describer of even a single new species, provided he carefully points out its precise place in the system, and the known species to which it is most nearly allied, or he who clears away the obscurities from the synonyms of known ones, is contributing to the important work of completing that systematic arrangement or dictionary of the science, indicating the name of every known species, without which our discovery of any insect remarkable either for its structure or economy, or its influence for good or evil on our social condition, is almost nugatory; for well-founded is the axiom of our great master Linnæus—

"Nomina si perierant, perierat et rerum cognitio."

Many ignorant despisers of systematic natural history reproach us with wasting our time on nomenclature, or in watching and describing the metamorphoses and general economy of insects, and contend that it is only from what they call "practical" men, that is to say, farmers and gardeners, that effective means of destroying noxious species—one of the main objects of Entomology taken in its widest scope—can be looked for. Such objectors should be referred to a paper read by M. Guérin-Méneville to the Royal Academy of Sciences at Paris in January last year, from which it appeared, that while the cultivators of the olive in the south of France, who in two years out of three lost oil to the amount of nearly six millions of francs annually by the attacks on their olives of the grub of a little fly (*Dacus Oleæ*), were utterly unable, with all their "practical" skill, to help themselves in any shape, M. Guérin-Méneville, though no cultivator, applying his entomological knowledge of the genus and species of the insect and of its peculiar economy to the case, advised that the olives should be gathered and crushed much earlier than usual, and before the grubs had had time to eat the greater part of the pulp of the fruit; and by their adoption of this simple plan, the proprietors of olives in the years they are attacked by the *Dacus*, can now obtain an increased annual produce of oil equal in value to 240,000*l.*, which was formerly lost in consequence of their allowing the grubs to go on eating the olives till they dropped from the tree and were utterly worthless; while, at the same time, the greater part of the grubs being now destroyed in crushing the olives, are prevented from becoming flies and giving birth as formerly to a new generation the next year*.

Such are the fruits of sound entomological knowledge; and if we would strikingly contrast it with the so-called "practical" knowledge of the mere farmer, we may refer to the report of our learned and esteemed foreign Honorary Member, M. Milne Edwards, read to the Royal Academy of Sciences at Paris May 11, 1846, on a memoir of M. Blaud, relative to the best means of destroying the insects, and especially the moths, that attack the olives, in which memoir this sagacious agriculturist gravely tells us that the moth which lays in the young olive its egg, from which proceeds a larva that pierces the

* Revue Zoologique, tom. x. 1847, p. 27–29.

pulp of the fruit and then its stone in order to feed on the inclosed kernel, is the *third* generation of a species absolutely *one* and the *same*, which undergoes changes exceeding in wonder all that Steenstrup has recorded of his alternations of generations in Medusæ, &c. M. Blaud seriously told the French Academy of Sciences, that the first generation of this moth early in the year lays its eggs in the *leaves* of the olive, which eggs hatch into leaf-mining larvæ, living on the parenchyma of the leaf, from which proceed moths that must be referred to the genus *Elachista*; that these moths, constituting the second generation, lay their eggs in the *flower-buds* of the olives, where their larvæ defend themselves by a silken web, like the *Yponomeutæ*, and give birth to another moth, which at last, as observed above, lays its eggs in the olive itself! Thus, according to M. Blaud, this marvel of moths has three generations in a year, each generation having an organization and habits wholly dissimilar, and yet forming only one and the same species! I need not point out to you how impossible it is that any rational plan of destroying these insects should be founded on statements so absurd and contrary to fact*.

And even where there is no pretence to practical skill, mere ignorance of natural history leads to as serious errors. M. Bory de St. Vincent stated, at the Académie Royale des Sciences, July 27, 1846, that a military surgeon "bien protégé" was charged during the stay of the Scientific Commission in Algeria to introduce there the cochineal insect, but being neither botanist nor entomologist, and ignorant of the distinction between the Algerian Cactus and the true *Cactus cochenillifer*, and equally ignorant of the habits of the cochineal insects, he tried to rear them on the former, and as they all died, he reported that they can *never* be cultivated in Algeria; though when subsequently placed on their proper food by M. Hardy, they left a profit of upwards of 100*l.* per English acre! For this precious discovery the surgeon actually received a considerable sum, and the cross of the Legion of Honour †!

But we need not go from home for similar instances of ignorance. In a work of which the second edition of a thousand copies has been lately published, entitled 'The Pests of the Farm,' the author, who is an ingenious man, and gives some curious facts as to the habits of a badger and an otter which he tamed,—when he comes under the head "Insects" to speak of the turnip-fly, begins thus:—"The turnip-fly is a term applied indiscriminately to several species of larvæ"!—though in fact no *larva* is ever called the turnip-fly, which is a name appropriated to the different minute skipping beetles of the genus *Haltica* which ordinarily attack turnips; and though the *Tenthredo* (now an *Athalia*) whose larvæ occasionally do much mischief to them may have been called in its winged state the turnip-fly by some naturalists, its larvæ, in which state alone they are known to most agriculturists, are always called by them the "Black Jack" or "Nigger," or some similar name, referring to the caterpillar and its black colour. After filling three or four pages with modes of de-

* Revue Zoologique, tom. ix. 1846, p. 185. † Ib. p. 265.

stroying the "turnip-fly," which all refer to the *Halticæ*, though this name is never mentioned, the author proceeds to quote an account which informs us that rabbits that feed on turnips affected by the turnip-fly contract a vermicular disorder, the worm generated by the fly which is a "*Tanthredo*," (sic) being deposited in the shape of ova in the plant, and in that form taken into the animal's stomach, and then goes on to say that of these worms, which are short, flat, and white, nine are sometimes found in the hepatic lobes of one rabbit*! A brilliant specimen, this, of the entomological knowledge of our own "practical" men!

This has been a long digression from our immediate object, but the facts to which I have begged to call your attention bear so closely on the value of entomological science and the importance of our own labours in cultivating it, that I know you will excuse my connecting them with the notice of our Transactions; and I now proceed to mention the entomological papers that have appeared last year in the two British journals devoted principally to zoology, namely the 'Annals of Natural History' and 'the Zoologist.'

The 'Annals of Natural History' for 1847 contain entomological papers by Mr. Wollaston describing three new Coleoptera; Mr. Doubleday on various foreign Lepidoptera; Mr. Newport on the reproduction of lost parts in the Articulata and on the crustacean genus *Atya* of Leach; Mr. Walton on various species of Curculionidæ; Mr. Walker on minute parasitical Hymenoptera, and a note on the hop-fly; Mr. Hardy describing three new species of British Coleoptera; Mr. Thompson on *Limnoria terebrans* and *Chelura terebrans*, and on several new species of Crustacea new to the fauna of Ireland; Mr. Westwood in reply to Mr. Newport's paper on the reproduction of lost parts in the Articulata, and an account of the economy of the Rose Caddice Saw-fly (*Lyda inanita*), from the Gardener's Chronicle; Mr. Smith on a new Hymenopterous insect of the family of *Sphegidæ*; Mr. Tatum on two new species of *Carabus* from Asia; Mr. Hewitson describing twelve new species of Butterflies; Mr. White on two new species of *Cetoniadæ* and a note on an Australian Grasshopper; and by Mr. Adams on the habits of certain exotic Spiders.

In the 'Zoologist' for the past year we find, besides numerous notices of the capture of rare insects, the following entomological communications:—A series of notes by Mr. Wollaston on the Coleoptera of the south of Ireland and of the south of Dorsetshire, on the insects of Lundy Island and of the Salterns, Lymington, and on the habits of *Dyschirii*; a note by Mr. Bracy Clark on the bots infesting the throats of deer in the New Forest, which he conceives to be the larvæ of *Œstrus pictus* of Curtis; a paper by the Rev. W. Turner on the feeling of insects; two by Mr. H. N. Turner, jun. on the same subject, and on classification; remarks on the habits of a minute Acarus by Mr. W. Thomson, jun.; description of a supposed new species of *Lasiocampa* by Dr. Shirley Palmer; the commencement of a paper on the affinities of *Stylops* by Mr. Newman; two papers

* Pests of the Farm, pp. 86–90.

by Mr. J. F. Stephens on the occasional abundance and rarity of certain British insects, and on a plan for an Entomological Journal; remarks by Mr. Henry Doubleday on the introduction of exotic insects into collections professedly British, and a description by the same entomologist of four new British Lepidoptera; a revision by Dr. Schaum of the British *Hydrocantharidæ*, and a note on the British species of *Pselophidæ*; and lastly, a series of articles by Mr. Frederic Smith on the British species of *Andræna* of Fabricius, of which he describes seventy species.

To this enumeration of valuable entomological papers appearing in our periodicals in the past year must be added those contributed by Mr. Westwood to the 'Gardener's Chronicle' on insects injurious to gardens; and by Mr. Curtis to the 'Journal of the Royal Agricultural Society of England,' in which this distinguished entomologist has given a full and most instructive history of the insects which attack peas and beans, and of those which are injurious to mangel-wurzel and beet, amongst which last, strange to say, are the larvæ of a *Silpha* (*S. opaca*).

Here, too, should be mentioned the valuable reports by the learned German entomologist Erichson on the books and papers relative to Insects, Crustacea, and Arachnida, published in every part of the world during the years 1843 and 1844, which are given in the volumes of Zoological Reports issued last year by the Ray Society, and for the translation of which we have to thank Mr. Tulk and Mr. Haliday, who have thus rendered an important service to the science: and also the continuation of the "Lists" of the Insects and Crustacea in the British Museum, for which we are indebted to the arduous labours of Mr. Gray, the chief officer of the Zoological department, and his able coadjutors Mr. Doubleday and Mr. White. These lists comprise in the past year the *Cetoniadæ* and *Hydrocanthari* of the order Coleoptera (this last compiled with the aid of the extensive acquaintance with this tribe of the learned entomologist Dr. Schaum, Secretary of the Entomological Society of Stettin); Part 2. of the order Lepidoptera, including the families *Erycinidæ*, *Eumœidæ* and *Lycænidæ*; and the whole class Crustacea, which, though long since separated from the class Insecta, we still regard as coming under our domain.

Though small in bulk, these lists are of inestimable value to the entomologist, enabling him in all difficult cases to determine the identity of his species, and thus forming a solid basis of that correct nomenclature without which the whole superstructure of natural history is comparatively valueless. Under this head must also be noticed the List of British Lepidoptera partly published by Mr. Henry Doubleday, which his extensive knowledge of the subject has enabled him to render so full and accurate as to nomenclature and synonyms, and thus so highly useful and indispensable to British entomologists.

No separate and entire new entomological works have appeared in England during the past year, if (taking in Crustacea) we except the translation of Burmeister's great work on the fossil *Trilobites* pub-

lished by the Ray Society under the direction of Professors Bell and Forbes; but the continuations, in monthly parts, of Mr. Doubleday's 'Genera of Diurnal Lepidoptera,' and of Mr. Westwood's 'Cabinet of Oriental Entomology,' both commenced at the close of last year, and of both which, from their splendid illustrative figures and their profound science, we may well be proud, have regularly proceeded in their course of publication; and a few notices of insects appear in Mr. Couch's interesting 'Illustrations of Instinct,' on which, as referring to the migration of insects, of which we have had some remarkable instances last year, I shall beg to make a few observations.

Many of Mr. Couch's speculations on the instincts of animals are very ingenious, but I think he often pushes too far his attempt to explain them by the impulse of natural agents, as temperature, the greater or less abundance of food, &c., and that it would be better to confess that the nature of the wonderful faculties which impel migrating animals to combined movements, and in many cases enable not only them, but domestic animals, as dogs and cats, at once and unerringly to find their former abodes from vast distances, is utterly unknown to us. In fact Mr. Couch himself in one place (p. 145) admits, that the influences which lead to the migrations of insects not commonly migratory, as butterflies, dragon-flies, &c., "are so obscure as to preclude any attempt at explanation;" though he subsequently (p. 152) makes one. These migrations, it seems to me, can only be referred—without being at all explained—to that extraordinary development of a new instinct, to which I have contended, in the letter on Instinct in our 'Introduction to Entomology,' (which, as stated in the Advertisement to our third volume, it fell to my lot to write,) many of the actions of animals which most surprise us must be attributed, such as the instinct which leads hive-bees to set about rearing a new queen, when their former sovereign is by accident destroyed, which is an instinct that may not have occasion to be called into action during a long series of generations in a hive, and yet the moment the extraordinary occasion demands it, is ready to be developed. And it is to a similar extraordinary development of a new and occasional instinct, that it appears to me, as just observed, we must refer the migrations of insects not ordinarily migratory, such as those last year of the Bean-Aphis and of the *Coccinellæ*, which visited us in such hosts at Ramsgate, Margate, &c., arriving, according to some accounts, from the continent. Locusts (of which those seen here last year and the year before in so many places seem to have been merely accidental stragglers from some great swarms proceeding from southern to northern Europe) have a constant migratory instinct; but this is not the case with *Coccinellæ*, *Aphides*, butterflies and dragon-flies, among which numerous generations may exist for years in which no such propensity occurs, and which yet at particular periods is developed, and impels them all at once, with one accord, to leave their ordinary abode and depart in vast swarms to some distant quarter. None of the explanations given of these migrations can be considered satisfactory. It is true that the want of

food might lead a Bean-Aphis to change its quarters, but this want must occur to different individuals at different times, according to the earlier or later exhaustion of the sap in any particular plant or leaf, depending on its age or succulency, and the greater or less number of *Aphides* feeding on it. To what then are we to attribute the *simultaneous* quitting of the bean-field by the whole host that infested it, and all in the same direction even in the calmest weather, but to the extraordinary development of a new instinct not usually called into action, and of the nature of which we know nothing, though the object of these marvellous new propensities seems clearly the spreading into remote regions the minute but important agents in the economy of vegetation, which, from accidental causes, have too greatly multiplied in one locality? On what other principle but the extraordinary development of a new instinct with this object in view, can we account for the vast flight of butterflies (*Vanessa Cardui*) mentioned by Mr. Couch which flew over a district of Switzerland in a column of from ten to fifteen feet broad for two hours without any interruption? Mere want of food would have led the butterflies to disperse in all directions in search of it, not to keep constantly together in a mass which could not possibly find flowers to supply the nectar they must have required: and precisely the same observations are applicable to the great flight of the cabbage butterfly (*Pontia Brassicæ*) which crossed the British Channel from France in the summer of 1846. Mr. Couch's attempt to refer this last migration, which he admits was not caused by boisterous winds, to the congenial calmness and temperature of our climate, seems to me wholly unsatisfactory, for this among other reasons—that the butterflies when in France could not feel nor know that our climate was more agreeable to their habits than that which they were about to quit, and which at the time of their movement could alone act on their sensations.

After this digression on the occasional migratory instinct of insects not usually migratory, of which we had such remarkable instances last year, and on which, as requiring some notice, I have thought it better to offer a few observations in connexion with the work of Mr. Couch, who himself refers to it, than to make it the subject of more extended consideration, the list of last year's works containing only a portion of entomological matter is appropriately concluded by Mr. Patterson's excellent 'Introduction to Zoology for the use of Schools,' which contains an admirable summary of the rudiments of Entomology, with accurate figures, and though of small size is of great value, and is likely to do more for the cultivation of zoology amongst us than any work of recent appearance. Mr. Patterson has also lately issued a second edition of his tract 'On the Study of Natural History as a branch of general Education in Schools and Colleges,' which fully deserves the high commendation bestowed upon it by the Archbishop of Dublin in his excellent lecture on Zoology delivered the 8th of this month to the Royal Irish Zoological Society.

It now only remains, in order to complete our review of the progress of Entomology among us, to state, that in the past year the additions of Insects, Crustacea and Arachnida to the unrivalled and admirably-

arranged collection of the British Museum amount to 6337 specimens, a smaller number than in some previous years; but as in the seven preceding years upwards of 70,000 specimens had been added, it must necessarily follow that in each succeeding year the additions will become less numerous, though the species will mostly be of greater rarity and value.

Having thus adverted to what has been done in Entomology in the past year at home, I now proceed to glance at its progress during the same period abroad; and being unwilling to rely on my own very imperfect acquaintance with the recent entomological literature of the continent, I have requested our learned friend Mr. Haliday, whose knowledge of German entomological works is so intimate, to furnish me with a notice of those published last year in Germany and the north of Europe, and Mr. Westwood to do me the same service as to French works, with which request both those gentlemen have obligingly complied; and I now beg to lay their communications before you, beginning with that of Mr. Haliday, which, in justice to him it should be stated, was hastily drawn up from memory, in a single evening, without any attempt at arrangement.

One of the most important entomological works of 1847 is Stein's 'Vergleichende Anatomie und Physiologie der Insekten,' a work of the same class as those of L. Dufour, Siebold and Loew, executed with great labour and in full detail, the present volume, a quarto, with nine highly-finished copperplates, being devoted to a single system of organs in one sex of the Coleoptera alone. The remainder of the subject is proposed to be treated, in like manner, in a series of monographs.

It may interest some few entomologists to know that a new edition of Wagner's Anatomical Manipulation ('Lehrbuch der Zootomie') is just completed, the Invertebrate portion by Frey and Leuckart.

Oswald Heer of Zurich (the author of the 'Fauna Coleopterorum Helvetiæ,' and of some esteemed botanical works) has recently published a volume on the fossil insect remains in the Tertiary formation of Œningen and Radoboj in Croatia. The part published comprehends the Coleoptera, 122 species, distributed under their families and genera. The predominance of southern forms appears in the high proportion which the families *Lamellicornia* and *Buprestidæ* bear to the rest, viz. fifteen species of each, while only nine of the *Carabici* and two *Brachelytra* have been recognized. At the same time there are no purely tropical forms present. As the elytra are the organs generally best preserved, the author has been led to submit the various types of striation and puncturing, observable on them, to a specially minute study, and has recognized in these, important relations to the characters of natural groups, which may be of moment also in the study of the existing Coleoptera.

In the course of the past year Louis Redtenbacher has brought out three parts of his 'Analytical Arrangement of the Coleoptera of Austria;' a fourth part will complete the order. The plan of the work is in continuation of his 'Genera of German Coleoptera' published in 1845, and embodied with amendments in the present work;

and it may afford, at a moderate price (less than £1), a useful manual even to British entomologists. Bach also has published the first volume of an 'Introduction to the Study of Coleoptera,' and Siebold a 'Catalogue of the Coleoptera of Prussia.'

Various important periodical works on the different orders of Insects have been regularly continued in Germany during the past year:—in Coleoptera, Erichson's 'Käfer Deutschlands,' Sturm's 'Deutschlands Fauna,' Küster's 'Käfer Europa's,' and Burmeister's 'Handbuch,' vol. v., and 'Genera Insectorum';—in Lepidoptera, Herrich Schäffer's 'Systematische Bearbeitung,' and Freyer's 'Neue Beiträge';—Herrich Schäffer's 'Hemiptera,' and Koch's 'Arachniden,' have also been continued. The latter has completed his useful 'Uebersicht des Arachniden Systems,' with four new parts, in which the *Ixodidæ* are treated in more detail, and various species of the different genera illustrated with figures, the execution of which seems superior to that of his larger work.

Two new genera of European Coleoptera have been characterized by Rosenhauer in a little essay, '*Brocosoma* and *Laricobius*.' Loew has added a new part to his Dipterological Essays. Dahlbohm has not yet commenced the second portion of his classical work 'Hymenoptera Europæa,' which is to comprise the Linnæan *Vespæ*; but he has treated some portion of the *Cynipidæ* in a detached sheet. A sixth volume of Zetterstedt's 'Diptera Scandinaviæ' has appeared, and judging from the contents, three more volumes will be required to complete this elaborate work.

The Stettin Entomological Society has continued in full activity, and the number of entomologists, in other countries as well as Germany (six of them members of this Society), who have been admitted as ordinary members during the past year, shows that their proceedings have roused a greater zeal for scientific inquiry and mutual communication. Some of the fruits of the late visit to England of their Secretary, Dr. Schaum, have appeared in their volume of proceedings; as the articles on the determination of questionable Linnæan species of *Coleoptera*, for which the collection of Linnæus, in the possession of the Linnæan Society of London, has afforded the materials. Besides the various interesting communications contained in this volume, (among which may be particularized Suffrian's criticisms on Schönherr's generic arrangement of the *Curculionidæ*, and an elaborate investigation, by the veteran Gravenhorst, of the affinities of the Brachelytrous genus *Quedius*,) the Society have published a second volume of their yearly journal (the *Linnæa*), containing, besides the usual proportion of matter concerning Coleoptera, Lepidoptera and Diptera, from the pens of Suffrian, Zeller and Loew, a desirable contribution to the knowledge of the almost microscopical and obscure Hymenopterous family *Mymaridæ* by Prof. Förster; as a supplement to which may be mentioned Loew's discovery of the hitherto unknown economy and prior states of these insects, communicated in the 'Entomologische Zeitung.'

Entomology continues to flourish in Russia, as evinced by the continued researches of Chaudoir and others. The *Curculionidæ* of the

Caucasian provinces have been registered by Hochhuth. The fauna of these regions, hitherto investigated, solely, or chiefly, in Coleoptera and Lepidoptera, has received an addition as regards other orders from the Enumeration by Kolenati, in his 'Meletemata Entomologica.' The insect-fauna also of the provinces of Livonia and Courland, hitherto little explored, has received some new illustrations from Gimmerthal, Lienig and others, particularly in the 'Correspondenzblatt' and 'Arbeiten der Naturforschender Gesellschaft' of Riga.

An increasing number of detached entomological articles have appeared in various periodicals devoted to zoology, or general science, in continental countries. Among these, Elditt's 'Treatise on the Insects that associate with Ants in their Nests' deserves notice. Among the entomological contributions from Switzerland, perhaps the most interesting are a series of articles by Bremi (known for his unrivalled collection of galls and vegetable excrescences of the like nature); and these have been accompanied by an essay towards a Monograph of the Gall-gnats (*Cecidomyia*). In the caves of Carinthia further discoveries have been made, by Schiödte and Kiesenwetter, of new insect-forms, adapted by their organization, especially in many cases by the entire absence of eyes, to their subterranean home; of which a particular account is expected soon from the former of these naturalists.

Lastly, the twelfth and concluding part of Agassiz's 'Nomenclator Zoologicus,' published last year, forms an alphabetical index to the whole, the names which have received more than one irrelative application being exhibited here in one view with the date of each, thus determining the right of priority. Names faulty in construction and orthography are also distinguished and mostly amended according to the views of the author. The total number of generic names registered may be computed at about 25,000, besides more than a fourth as many names of families and higher groups; every different application and emendation being counted. The names of Botany identical with or too nearly akin to those in use in Zoology are also registered in the notes, the generic names of this sort amounting to not far short of 2500. After these deductions nearly one-half of the total number may remain as names of single use. As the author throughout has chosen to lean to the side of strictness rather than laxity in respect both to similarity of form and philological correctness, some abatement may probably be made on this account. With this inestimable repertory to consult, no zoologist henceforth can be free from censure who produces as new any of the names comprised in it; and the yearly Reports on Zoology in Wiegmann's 'Archives' will fulfil to a great extent the office of a supplement for the subsequent years.

To the preceding valuable report from Mr. Haliday, for which I am persuaded you, like myself, feel highly indebted to him, I may add the titles of a few northern entomological publications which had escaped his recollection, given me by Mr. Westwood: namely, Erichson's 'Jahrbericht für 1845,' and his 'Conspectus of the Coleoptera of Peru;' Corder's 'Prodromus of a Monograph of the Trilobites;' the first number of Schmidt-Göbel's 'Faunula Colcopterorum Burmaniæ, adjectis nonnullis Bengaliæ indigenis;' Burmeister's 'Memoir

on *Athlophorus Klugii*;' and Schönherr's 'Mantissa Secunda Curculionidum.' This Mantissa, completing (at least for the present) his stupendous labours in classing and describing upwards of 300 genera and 6000 species of the Curculionidæ, my old and highly-esteemed friend has kindly sent me along with his portrait, both calling into vivid remembrance our active correspondence forty years ago; and I may here mention, in proof of the high intellectual pleasures which Entomology has in store for her votaries, that I scarcely recollect having ever received greater delight than I did when about the year 1808 I first set eyes on a box of insects which Schönherr, ten or twelve months before, had announced that he had sent me, but which the great difficulties of communication, in consequence of the then war, had made me give up all hopes of ever receiving.

The following is the list obligingly furnished me by Mr. Westwood of the principal works that have appeared during the past year in France, where, in addition to numerous papers in various periodical journals, have been published the continuation of the description of the Insects in the great work on Algeria by Lucas, with figures of every species; the completion of the Entomological part of the Voyage of D'Orbigny in South America by Milne-Edwards, Blanchard, &c.; the 'Histoire Naturelle des Insectes Hymenoptères' by Brullé, vol. iv., which completes the work; and the 'Histoire Naturelle des Insectes Aptères,' vol. iv. by Walckenaer and Gervais, both of which works form part of the 'Suites à Buffon'; Macquart's Supplement to his 'Diptères exotiques;' Mulsant's 'Histoire Naturelle des Coléoptères de France,' including the Sulcicolles and Sceuripalpes; and the continuation of the description of Insects and Crustacea in the Crochard edition of the 'Règne Animal' by Milne-Edwards and Blanchard.

I am not aware that the past year has given birth to any important entomological work in Italy, and I am not certain whether my friend Signor Passerini's tract on *Lithosia Carniola*, which by some mischance I have not yet received, was published in 1846 or 1847; but however this may be, I will just refer to the curious fact which it records, and which I had often the opportunity of verifying when last at Florence in 1842 and 1843,—that of the larvæ of this moth (of which most of the tribe live on lichens) feeding on the green vegetation on the damp parts of houses near the foundations in the streets and lanes of that city—one of upwards of 80,000 inhabitants—and in such numbers, that in some years, and especially in 1842, the moths swarmed so as to be a great nuisance in all the houses, into which they flew through the open windows in the evenings by hundreds.

I conclude this retrospect by adverting to the only separate entomological work that, as far as I know, has issued from the press last year in the United States; and though in fact extracted from the Transactions of the New York State Agricultural Society, vol. vi., it is, both from its extent—filling sixty closely-printed 8vo pages—and the importance of its subject, well deserving attention. The work in question is entitled 'The Hessian Fly, its history, character, transformations and habits' (by Asa Fitch, M.D.), and contains a very

full and accurate account of this insect, to the ravages of which, from 1779 to the present day, almost every part of the Union has been at different times more or less exposed, causing a pecuniary loss of many millions of dollars. The Hessian-fly (the *Cecidomyia destructor* of Say), which Dr. Fitch brings forward a considerable body of evidence to prove was really, as its name implies, introduced into the United States from Germany during the American war along with the straw used in packing the baggage of the Hessian troops, though a *Cecidomyia*, is a species perfectly distinct from the *Cecidomyia Tritici* of Kirby, attacking in the larva state the lower part of the stems of wheat (and occasionally barley and rye), and thus causing them to break and the plant to perish, whereas the larvæ of *C. Tritici* feed on the pollen of the expanding florets of the ears of wheat, and cause them to be abortive. Were we in want of an incontrovertible proof of the importance, in every country, of studying Entomology as a science, it would be amply supplied by this little insect. Though from 1779 onwards doing vast mischief—"more," says Dr. Barton, "than would an army of 20,000 Hessians,"—and thus constantly forcing itself on the attention of farmers and landowners, and though a few general facts of its history were observed, and endless letters written about it in newspapers and magazines, it was not till 1803—twenty-four years after its first appearance—that an attempt at a scientific and intelligible description of it was made by Dr. Mitchell; nor till 1817, fourteen years later, that Mr. Say, the eminent American entomologist, by publishing a full description of it and one of its parasites, with figures, and giving it a single scientific name instead of the edifying aliases of "Hessian-bug," "wheat-fly," "grain-worm," "yellow-worm," "wheat-worm," "the maggot," &c. &c., by which it had previously been distinguished, enabled experimenters and observers to know what they were talking or writing about, and that they were not confounding the fly their enemy with their friends the little Hymenopterous parasites which feed on it and destroy probably nine-tenths of the race—a distinction so vitally important, but so entirely unknown to non-scientific "practical" men, that, as Dr. Fitch has shown, the most plausible remedy, that of burning the stubble, recommended in ignorance of it, would have been worse than the disease (p. 58). In fact there can be little doubt that if Entomology had been early cultivated in the United States, and the true history and economy of the Hessian-fly had been attended to on its first showing itself, its ravages might have been prevented from extending, or greatly lessened, and a vast amount of needless anxiety and loss through a long course of years avoided.

Having thus taken a rapid survey of the progress of Entomology during the past year at home and abroad, let us glance for a moment at its future prospects amongst us, independently of its connexion with this Society. These, I am happy to say, are very cheering, inasmuch as the science of Natural History, in which ours is included, is at length beginning to make its way as a branch of general educa-

tion, and as a subject of instruction to the working-classes, as is proved by the attention now given to it in some of our Normal Schools, the adoption of Mr. Patterson's excellent 'Introduction to Zoology,' before referred to, by the National Irish Schools, and by many in England and Scotland, and the establishment of a Museum of Natural History at Ipswich chiefly through the exertions of George Ransome, Esq., at the head of which is our venerable and revered Honorary President, and of which the express object (as announced in the eloquent speeches of the Bishop of Norwich, the Dean of Westminster, Professor Henslow, Sir J. P. Boileau, Bart., Mr. Yarrell and other scientific men at its opening, the 15th of last month) is to extend a knowledge of Natural History among all ranks, by means of popular lectures on its various objects brought together in the museum, which it is not intended should serve, like most similar institutions, as a mere attraction for wondering and unimproved curiosity, but as the basis of a taste for this science, and the means of understanding and prosecuting it.

To what has been owing the deplorable ignorance of Natural History which prevails in this country among all classes, not excepting the highest? Obviously (to quote what I have observed on this subject on a former occasion*) to the circumstance that it forms no part of our regular system of education, most of our youth leaving school scarcely aware of the existence of such a science, and so utterly unacquainted with its merest rudiments, that to be told that whales and bats give suck to their young would excite in them a smile of contemptuous incredulity. It is clear that to dispel this ignorance we must make Natural History part of our general system of instruction. If, in spite of its neglect, the love of nature which its Great Author has implanted in the human breast has raised up amongst us a few hundred naturalists, by how many thousands shall we not enumerate them when every schoolboy is told by his teacher that there is such a science as Natural History, that its delights are exquisite and inexhaustible, and shall be put into the way of studying it and enjoying them! And if without any such instruction (the want of which was so feelingly deplored by Sir John Barrow in the preface to his 'Travels in Africa,' and by Lord Dudley and Ward in one of his letters to the Bishop of Llandaff) we see our countrymen in India, Colonels Sykes and Hearsey, Major F. Jenkins, Captains Boys, Hutton and Edwardes, Messrs. Robinson, Downes, Benson, Templeton, Bacon and M'Gregor; the Rev. T. Savage in Africa; Mr. Stephenson in New Zealand; Messrs. Fortnum and Wilson in South Australia; and Dr. Cantor in Prince of Wales's Island; pursue Entomology with such ardour and success as to lay this Society under high obligations to them for their valuable communications,—how rich would be the harvest that each department of Natural History would reap from every quarter, if all our youths, by early initiation into its rudiments, had imparted to them the power as well as the inclination of becoming its zealous cultivators!

* Annals of Natural History, Jan. 1847, vol. xix. p. 56.

"Why," exclaimed a noble lord while admiring through the microscope Mr. Goadby's beautiful preparations of marine zoophytes, "why did I not know what a fund of delight these objects, brought up by the trawl, when I had a yacht, would have afforded me, but which were swept from the deck as rubbish!" And how often in like manner would not our naval officers, as they listlessly pace the deck in a calm, and our Indian officers, as they wearily count the hours when confined to the house all day by the heat, lament the ignorance of Natural History in which their defective education has left them, if they were aware by what endless subjects of admiration and resources against ennui they are surrounded, did they know how to avail themselves of them! At sea, for instance, a single haul with a dredging-apparatus would provide active employment for the leisure hours of a week in securing, observing, investigating, and drawing the marvels of the great deep; and the same happy result would follow in India or our Colonial possessions from a short botanical, geological, or zoological excursion in the neighbourhood, by the officers stationed in any country district. How far greater too would be the interest of a sportsman everywhere, if, instead of killing birds merely for eating, he had in view the acquisition and extension of ornithological knowledge, so that at every time of the year he might pursue his sport, and derive greater pleasure from shooting a single rare bird, however small, to add to his collection, or those of his friends, in summer, than a score of partridges or pheasants in autumn and winter! And to look particularly at our own science, what a treasure must the insects collected by the celebrated entomologist and French general, the Baron Dejean, in his Spanish campaigns, have been to him, when on being told, during a hot pursuit, that some of his baggage-mules must be left to their fate, and asked which he would have saved, he replied at once *that* carrying his collection of insects, though some of those to be sacrificed conveyed his costly service of plate!

If Natural History as a branch of education would thus promote the after-life enjoyment of the upper classes of society, it would equally benefit our working-classes if taught to them. Compare Crowther, the Manchester naturalist, and his thirty or forty comrades in humble life, thinking nothing of a fifteen miles' walk after a hard day's work to reap the intense delight of finding a rare plant or insect, and the calmer enjoyment of then assembling in the rooms of their Naturalists' Society to examine and name and talk about their acquisitions,—to them more precious than gold,—with a similar number of artisans, not naturalists, listlessly sauntering in the fields on a holiday or summer's evening, without eyes to see or heart to enjoy the natural wonders on which they tread, and which everywhere surround them, and glad to take refuge from the insipidity of their walk in an alehouse; and there surely cannot remain a doubt how highly desirable it is that all working men, by having some knowledge of Natural History infused into them at school, should be placed in a position to enjoy the same pleasures from a country excursion as their fellow-workmen the Manchester naturalists, and thus

to double the value of their existence. If there were wanting any proof how important it is to open to the lower ranks of society a source of pleasurable mental occupation such as Natural History supplies, it would be sufficient to refer to a remarkable leading-article in the *Times* a few weeks ago, in which the Editor (and his inference has been since fully confirmed in a letter by an Indian officer) expressly attributes the late general and lamentable instances of insubordination among the British troops in India *solely* to the wearisomeness of an existence without an object to fill up the long day which the heat requires to be passed cooped up in the barracks. Now, I ask, would Crowther and his associates, if soldiers in India, have been thus devoured by ennui? Certainly not. The early morning before drill and the cool evening would have found them eagerly making excursions to collect plants and insects and minerals, for investigating which by their botanical, entomological and geological books, and describing, drawing, and talking about them with each other, the day would have proved too short. So keenly are these pursuits relished by soldiers, that Dr. Andrew Smith informs me, when collecting objects of natural history in South Africa, numbers of them were always ready to accompany him in his excursions.

No genuine naturalist would wish any preference to be given to his own favourite branch of Natural History in teaching it to schools. The great point is to imbue the youth with a love of the whole science, and it may be safely left to his own particular bias, or the future circumstances in which he is placed, what particular department of it he will cultivate; and as entomologists we may hail the exhilarating prospect now at last opening on us of instruction being given in Natural History generally,—quite certain, from what we know of the attractions of our own section of it, that a large proportion of the new generation of naturalists to which we look forward, will swell our ranks in future years, and that where we now count ten members we shall then have a hundred.

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ADDRESS

DELIVERED AT

THE ANNIVERSARY MEETING

OF THE

ENTOMOLOGICAL SOCIETY

OF LONDON,

ON THE 22ND JANUARY, 1849,

BY WILLIAM SPENCE, ESQ., F.R.S.,

PRESIDENT.

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1849.

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1849.

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ADDRESS.

GENTLEMEN,—The most important event in the history of our Society during the past year has been the passing of the new By-Law, suggested by Mr. Saunders, establishing, under the denomination of *Subscribers*, a new class of Members, who, without any admission-fee, and paying only the usual annual contribution of one guinea, are entitled to all the privileges of Members, except those of voting at the meetings, and possessing any share in the insects, books, and other property of the Society.

This alteration of our laws, though made only within the last two months, has already procured us several Subscribers not likely to have joined us as Members, and there is every prospect that if actively carried out, it will prove the source of a considerable increase of income and of a consequent extension of our means of promoting the interests of Entomology.

The active carrying-out of this new law, to which I allude, depends on the individual exertions of the Members. If each Member zealously employs his influence with his acquaintance among the five or six hundred British entomologists who have not yet joined our ranks, strongly pointing out to them both the advantages which would result to themselves and the science from the connexion, there can be no doubt that the appeal would be very numerously responded to; and even by those British entomologists not personally known to any of us, if, as has been suggested, a Circular were drawn up in the name of the Society, with the President's signature, and generally transmitted to them. No scruple of delicacy would be violated by such an appeal. Whether as individuals or a Society, we have no selfish motives in asking others to join us. Our only aim is to promote the interests of our science, and to point out to other cultivators of it, that by uniting their pecuniary and scientific efforts with ours, they may at once far more efficiently extend both the knowledge of insects and their own enjoyments from collecting and studying them; and I therefore beg to express my earnest hope that our Members and new Subscribers will lose no time in making such an appeal, which promises, from the successful result that has already attended its very partial adoption, so very essentially to increase our prosperity.

An important consideration in strengthening these appeals will be the quarterly publication of our Transactions, to which our Country Subscribers will be entitled, thus receiving back a large portion of their annual subscription in a work which, from the increased attention to British Entomology intended to be paid in it in future, cannot fail to interest every class of entomologists. As far as the experiment of the quarterly publication has been made, there seems no reason to doubt its success. Our annual income, from the data furnished by our excellent Treasurer Mr. Yarrell, is now nearly adequate to the expense of four parts of their present size, which may be considerably augmented with our probably increased means, after a balance from former years due for printing, &c. has been paid off.

One suggestion to our London Members I would beg to make—that they have it in their power materially to assist the funds of the Society by purchasing all the new parts of our Transactions as they appear, and by completing their sets with the parts formerly published.

During the past year we have lost by death one foreign honorary member and two ordinary members, and by withdrawal one ordinary member; while of the latter class and of Subscribers, we have had (including those proposed before the close of the year, but not yet balloted for) twelve added to our number.

Our foreign honorary member, by whose death the Society as well as the entomological world has sustained so heavy a loss, is the Chevalier Carl Johan Schönherr, who died of apoplexy in March last, aged 75, and who, though he had reached the usual limits of human existence, found his entomological investigations such "a labour of love," that he might yet have rendered good service to the cause had he been spared still longer, after completing his herculean task on the Curculionidæ, to extend his labours to other groups, yet untouched, of his great work the 'Synonymia Insectorum,' begun in 1808, of which his eight volumes, describing 7000 species of the Rhynchophorous beetles, are but a section. Without repeating the details of his career, inserted in the 'Annals of Natural History,' for which we are indebted to Mr. Westwood, and those which will also appear in our Transactions from a communication by Mr. Walton, I may be here allowed to bear the warm testimony of an old friend, having been in active correspondence with him forty years ago, to his ardent love of entomology, his high attainments in the science, and his truly friendly and liberal disposition.

Schönherr is a striking example, which ought not to be passed over, of the important influence which early instruction in natural history often exerts on a man's usefulness and happiness when released from the cares of business or a profession. Like his friend Major Gyllenhal, whom active military duties long severed from his early entomological tastes, but which, when of mature age and retiring into private life, he resumed with all the ardour of youth, and continued till the close of his long career, giving to the world, as their result, a description of the Coleopterous insects of Sweden, unrivalled for its fulness and accuracy,—Schönherr was prevented from doing much for his favourite science, till his retirement from the extensive

manufacturing concerns which he had superintended, and the purchase of an estate at Sparresäter, enabled him wholly to devote himself to it, and to chalk out and partially complete his gigantic undertaking. Now the question is, whether there is any likelihood that Schönherr and Gyllenhal, if not initiated in boyhood into the rudiments of natural history, would have done so much for science and their own enjoyment in their old age, which, instead of finding it vapid and unprofitable, as so many do who retire from active life without mental resources to fall back on, their favourite pursuit rendered

> ". . . . . a perpetual feast of nectar'd sweets,
> Where no crude surfeit reigns,"—

enabling them to enjoy existence to the last, and probably greatly prolonging its duration.

We have another heavy loss to deplore in common with the whole entomological world in the untimely death of the learned Dr. W. F. Erichson of Berlin, one of our ordinary members, in proof of whose vast and comprehensive knowledge of insects it is only necessary to refer to his various highly-valuable works, and especially to those Reports on the progress of Entomology with which the publications of the Ray Society have made the English reader familiar. At the close of 1847 he complimented and congratulated his friend the celebrated Dr. Klug of Berlin, on the completion of the fiftieth anniversary of his taking his degree of Doctor of Medicine, Nov. 27, 1797, by the publication of his 'Dissertatio de fabrica et usu antennarum in insectis,' in which he describes, when observed with a powerful microscope, the minute structure of the antennæ. These he found in all insects, and especially in those most remarkable for their powers of smelling, to be furnished with a great number of very fine pores, clothed with membrane, which he regards as the organs by means of which these insects smell.

The remaining ordinary member we have lost, our lamented and excellent friend Mr. William Raddon of Bideford, is another example of the value of entomology as a pursuit when we are in the decline of life. What first gave him a taste for insects I am ignorant, but I can speak from my personal knowledge of the great resource which he found it in occupying his attention after he had retired from his profession of an engraver, and had fixed his residence, for the sake of his health, at Bristol. Mr. Raddon did not go deeply into systematic entomology, but he was a striking instance of the essential services that may be rendered to the science by those who collect materials for the more scientific labourer; and we well know in this Society, to which he communicated his discoveries, what important ones resulted from his happy idea of collecting the insects separated from turpentine in the scum which rises in the process of boiling it for the purpose of manufacture, as well as from his zealous attempts, regardless of cost, to acquire new species of the fine Coleopterous genus *Goliathus*, by means of the masters of the Bristol vessels trading with the coast of Africa.

This list of eminent entomologists who have paid the debt of na-

ture in the past year would be incomplete without a brief reference to two distinguished names not among our Subscribers—those of Herr Jacob Sturm of Nuremberg, the celebrated entomological designer and engraver, and author of the excellent 'Deutschland's Fauna' and other works, whose entomological zeal, (though then of an advanced age,) simple manners, and genuine goodness of heart, I witnessed with great delight when at Nuremberg in 1829; and Alexander M'Leay, Esq., formerly Secretary of the Linnæan Society, of Sydney, Australia, who died there in July last, aged 79. Since his departure from England many years ago, Mr. M'Leay's arduous duties as Colonial Secretary precluded his giving much attention to entomology; but all who, like myself, enjoyed the advantage of his acquaintance when he resided in Queen's Square, Westminster, will bear testimony to the ardour with which he cultivated the science at every vacant moment, the liberality with which he threw open his superb and extensive cabinets of insects, abounding in the rarest species, to young beginners, and the truly benevolent feeling with which he was ever ready to encourage their pursuit and to impart to them his copious and accurate information.

Our Library has continued to receive additions during the past year from various societies and individuals, and our collection of insects has to thank Mr. G. Bedell for a contribution to it of an extensive series of British Lepidoptera; and especially Mrs. Hamilton of Grafton Street, who has very liberally presented the Society with a cabinet containing numerous valuable species collected in various parts of India.

In taking a rapid view of the progress of Entomology amongst us during the past year, I shall first direct your attention to the communications connected with this science which have been read before our natural-history societies.

To the Linnæan Society Mr. Westwood has contributed papers describing eleven species of *Athyreus*, MacL., a genus of Lamellicorn beetles, and twenty-seven species of the Coleopterous genus *Bolboceras*, Kirby; Mr. Newport a continuation of his third memoir on the anatomy and development of *Meloë*, and a memoir on the anatomy and affinities of *Pteronarcys regalis*, Newm.; and Mr. Blackwall remarks on the poison of Spiders.

The Zoological Society has had read before it, descriptions by Mr. W. C. Hewitson of two new species of Butterflies—of the genera *Agrias* and *Corades*; by Mr. A. White of *Echinocerus cibarius*, a new species and subgenus of Crustacea; and by Mr. Doubleday of *Hyleora Eucalypti*, a new species of Notodontidæ.

The entomological papers read before our Society the last year, of which the greater part have been already published in our Transactions, comprise a description of some new and rare Coleoptera by Capt. Parry, with a plate presented by the author; descriptions of some new exotic species of the Dipterous family Aeroceridæ, and of some new Indian Cetoniadæ by Mr. Westwood; note on a variety of *Segetia Xanthographa*, and remarks on the genus *Gelechia* of Zeller by Mr. Douglas; sketch of the Hemipterous genus *Pœcilocoris* by

Mr. Dallas; description of five speeies of *Erateina*, a new genus of Gcometridæ from South Ameriea, by Mr. Doubleday; observations on some remarkable Hermaphrodite Lepidoptera by Mr. Wing; and observations on the leaf-mining Tineidæ with eye-caps, and on the genera *Depressaria*, *Hæmylis*, and *Exairetia*, with descriptions of new species, by Mr. Stainton.

Here also may be mentioned papers on *Anobium molle*, and on the damage done to whcat by *Cucujus monilicornis* and *Calandra granaria*, by Mr. Bold; on the oeeurrenee of *Limnoria terebrans* at the mouth of the Tyne by Mr. Hancoek; and the eommenecment of a catalogue of the insects of Northumberland and Durham by Mr. Hardy and Mr. Bold, which appear in vol. i. of the 'Transaetions of the Tyneside Naturalists' Field-Club,' published this year. These papers were read to the Soeiety in 1846; but I refer to them, as well as to Mr. Darling's paper on an anomaly in the history of the Honey-bee; Mr. Selby's notes on inseets in 1846; Mr. Hepburn's notes on Nocturnal Lepidoptera; Dr. Johnston's deseriptions of the Acarides of Berwiekshire; and Mr. Hardy's Synopsis of the Berwickshire Staphylinidæ, which appeared in the last part of the 'Transactions of the Berwickshire Naturalists' Club,'—both for the purpose of direeting your attention to these valuable loeal works, and of expressing a hope that the excellent example of these two northern soeietics, of the "Cotswold Naturalists' Club" and others, will be very gcnerally followed in every part of the British empire. Nothing could be better caleulated than a Naturalists' Field-Club in every distriet where a few naturalists reside, to serve at once to promote soeial and healthy excursions, to animate and eneourage by mutual sympathy their love of natural history, and to investigatc thoroughly that of their loeality, and thus discover new and rare species of animals and new faets in their economy, whieh would otherwise eseape observation.

Turning next to our Journals devoted to Natural History:—

The 'Annals of Natural History' for 1848 eontain entomological papers by M. Mulsant, describing a new species of *Coccinella* from New Zealand; Mr. Denny on the economy of *Ixodes* and Ants; Mr. Wollaston on the insects of Madeira; Mr. Adam White on a new genus of *Calandridæ*; Mr. Gosse on the insects of Jamaica; Mr. Doubleday describing new or imperfeetly-described Lepidopterous inseets; Dr. Wright on the veneniferous glands of *Geophilus longicornis*; Mr. Blackwall on the physiology of the *Araneidea*, and on the Bed-bug; Mr. Walker describing numerous speeies of *Aphides*, also remarks on their migrations, and notes on Diptera, *Chalcidites* and other insects; Mr. Walton on the genera *Pissodes*, *Hypera*, &c., *Anthonomus*, *Erirhinus*, *Notaris*, and *Procas*; Mr. Westwood on the transformations of the Common Flea (from the Gardener's Chronicle); Mr. R. Taylor on the origin of the trivial name *Vanessa*; Mr. Walter White on the Bed-bug; and Mr. Hardy on a new speeies of *Smynthurus* (from the Gardener's Chronicle).

The 'Zoologist' for 1848, besides numerous notiees of the eapture of rare insects and observations on the habits and economy of various species, eontains deseriptions of the British speeies of *Halictus*, *Hy-*

læus, Prosopis, and *Cilissa,* of two species of *Trichius* supposed to be British, and of the genus *Dasypoda,* by Mr. F. Smith, and also an appendix to his description of British Bees; a monograph of the British *Argyromiges,* and descriptions of three undescribed species of *Aphelosetia,* by Mr. Stainton; notes on the occurrence of Vernal Diptera in Berwickshire, and on the construction of the egg-web of the female of *Psocus quadripunctatus,* by Mr. Hardy; notes on the *Halticæ* of the Isle of Wight by the Rev. J. F. Dawson, M.A.; remarks on the functions of the antennæ of insects by Mr. Slater; and descriptions of *Aphides* by Mr. Walker.

In the last, as in former years, important papers have been contributed by Mr. Curtis to the 'Journal of the Royal Agricultural Society of England,' and by Mr. Westwood to the 'Gardener's Chronicle'; and we are also indebted to Mr. Westwood for a supplement to the translation of the 'Règne Animal' of Cuvier, containing a summary of entomological progress, with abstracts of the chief works published during the last eight years; and for a memoir on the modifications of the veins of the wings in certain existing and fossil Dragon-flies, contained in a paper by the Rev. P. B. Brodie, M.A., read before the Geological Society. The very valuable 'Lists' of the Entomological Collection in the British Museum have received the addition of one of the *Buprestidæ,* one of the *Diptera,* Part 1, with descriptions of a great number of new species, and one of the *Chalcididæ,* Part 2.

The only separate entomological works which have appeared in England last year are Miss Maria Catlow's judiciously-executed 'Popular Introduction to British Entomology,' with excellent figures of the commoner species, for the use of young beginners; and the 'Episodes of Insect Life,' giving the history of many of the more remarkable tribes and species, with a graphic and imaginative colouring, often equally original and happy, and accompanied both by accurate figures of species and ingenious fanciful vignettes.

The publication of Mr. Doubleday's admirable 'Genera of Diurnal Lepidoptera' is still continued; and in Sir R. Schomburgk's valuable History of Barbados, one portion treats of the insects of the island, and interesting details are given of the species injurious to the sugar-cane, the cocoa-nut tree, &c. Mr. Patterson also has published a very useful abridgement of his Zoology for Schools, intended for young children, entitled 'First Steps to Zoology,' of which, as in the larger work, a portion is devoted to insects.

Lastly, to complete this sketch of the progress of Entomology at home last year, the unrivalled collection of insects (taking this term in its Linnæan extent) in the British Museum, has received an addition of not fewer than 11,500 specimens.

The political commotions of 1848 on the Continent have necessarily caused some interruption in the usual course of its entomological literature. Yet besides the valuable papers in the 'Annales de la Société Entomologique de France,' and the 'Zeitung' of the Stettin Entomological Society, both of which have appeared regularly, and in various journals of natural history, several works of great

importance to the science have been published in the past year; namely, the third volume of the 'Linnæa Entomologica,' for which we have to thank the Stettin Society, to which it does such high credit, containing valuable papers by Dr. Suffrian, Prof. Germar, Herr Zeller, and Prof. Loew; the second volume of Prof. Lacordaire's elaborate and excellent 'Monographie des Phytophages,' a very thick and closely-printed volume of nearly 900 pages, wholly occupied with descriptions of the vast tribe *Clythridæ*; and the first part of Dr. Kolenati's 'Genera et Species Trichopterorum,' in which the learned author has subdivided the now vast Linnæan genus *Phryganea*, still further than Leach, Curtis, Stephens, &c., into families and genera founded on distinct and obvious characters, which must greatly facilitate their investigation; Cornelius's 'Beiträge zur nahern Kenntniss der *Palingenia longicauda*, Oliv.,' giving an elaborate investigation of the structure of the great white Ephemera in its different states; Dr. Schaum's 'Verzeichniss der *Lamellicornia Melitophila*,' being a carefully revised list of the synonymy of the *Cetoniadæ*; the sixth part completing the 'Naturgeschichte der Insecten Deutschlands,' by Dr. Erichson, and also another part of his invaluable 'Jahrbericht'; two Swedish works—C. H. Boheman's 'Insecta Caffraria a J. A. Wahlberg collecta,' and the seventh volume of Zetterstedt's 'Diptera Scandinaviæ'; and in Russia, the Baron de Chaudoir's commencement of a 'Mémoire sur la famille des Carabiques,' of which he estimates the known species at 5000 to 6000. In the United States I am not aware that any separate entomological work has appeared in 1848, but Mr. Haldeman has described numerous new Coleoptera in the Journal of the Academy of Philadelphia.

Having thus taken a rapid glance at the entomological literature of the past year, permit me, as on a former occasion, to say a few words on the future prospects amongst us of Natural History, including of course our science, which forms so important a branch of it.

In addressing you last year, I pointed out the cheering symptoms which were appearing in various quarters of an increased attention being given in this country to the study of Natural History, and I may now still more strongly congratulate you on the signal advance in this direction made by the University of Cambridge, and which will no doubt be followed at Oxford, and, it is to be hoped, by our great and other schools. It is to our schools, of whatever class, that we must mainly look for sowing the seed that will yield us a harvest of future naturalists, to fill the benches of the University-Professors of Natural History.

The naturalists we can now boast of—a very small number, alas! in proportion to our population—mostly date their origin, as I have ascertained in a great number of instances from personal inquiry, from slight instruction imparted by a parent—often a mother—or the imitation of some schoolfellow, who in a similar way had fortunately had excited in him a taste for collecting and examining objects of natural history.

In some rare instances the taste seems to have sprung up intui-

tively, and without any exterior prompting. Mr. Weld, in his excellent 'History of the Royal Society*,' tells us on the authority of Sir Everard Home (to whom Sir Joseph himself communicated the anecdote), that Sir Joseph Banks's love for botany first sprung up when a boy at Eton, as he was returning alone from bathing in the Thames, along a lane whose sides were richly ornamented with flowers. Gazing earnestly at these he exclaimed, "How beautiful!" and after some reflection thus soliloquized: "It is surely more natural that I should be taught to know all these productions of nature, in preference to Greek and Latin; but the latter is my father's command, and it is my duty to obey him. I will however make myself acquainted with all these plants for my own pleasure and gratification." He accordingly forthwith began to collect plants and to teach himself their names, partly by feeing some old women who culled simples for apothecaries, and partly from an old copy of Gerard's *Herbal* which he fortunately found in his mother's dressing-room, and which he took with him to school; and to his collection of plants he soon added one of insects.

But such instances are exceptions to the general rule—that without some exterior initiation in early life into the study of Nature, it will rarely be taken up in more mature age; and hence the importance of some instruction in the rudiments being given in all our schools. Not that there is any need thus to occupy a considerable portion of a boy's time. If three or four lectures were given the pupils of a school half-yearly by a zealous and eloquent lecturer, simply to tell them that there is such a science as Natural History, and that its study can be made to yield boundless delight; and if, after a very general explanation of its leading divisions and subdivisions, popular compendiums of Zoology and Botany were put into their hands with a recommendation to study them, and an intimation of future approbation from a successful examination as to their knowledge of their contents—all would have been done that is called for. Out of twenty boys, ten, perhaps, in whom no natural bias in this direction exists, would profit little from these lectures; but in several, the seed thus sown would be certain to spring up in after-life wherever their pursuits admitted of its germination. And it is remarkable and well worth bearing in mind, how often a copious after-crop results from a very slight sowing in childhood. The seed, like that of plants new to the locality, which often springs up from the earth of deep excavations, may be long kept from vegetating by the superincumbent weight of adverse circumstances, yet it preserves all its vitality, and is ready to start into vigorous existence the moment admission is given to the requisite stimulus. Thus, had not our venerable and beloved Honorary President enjoyed the advantage of a mother who was fond of shells, and gave him when a child some of those of her cabinet to play with, and told him their names, the probability is, as he has himself informed me, he would never have taken up the study of botany in after-life, when the cessation of his

* Vol. ii. p. 105.

University-studies and entering on his curacy, years after the connexion of his early pleasurable associations with natural objects, allowed them to expand into this new channel, which in due time, from the very slight circumstance (as he has related in our 'Introduction') of his being one day struck with the beauty of a yellow cow-lady on his window, led him afterwards to pursue Entomology—with what success we all know; and thus also proving a very important fact which ought never to be lost sight of—that it is of small moment to what branch of natural history a boy first turns his attention, as the taste for one leads almost infallibly to that for others, if his favourite line of study is exhausted (as was Mr. Kirby's case with botany) in the locality to which he is confined. In my own instance (if I may be allowed to advert to it) there is every reason to believe that I should never have collected a plant or insect, nor have written a line on natural history, had it not been my good fortune, while being educated when about ten years of age by a clergyman* who was a friend of Mr. Robert Teesdale, the eminent British botanist (after whom Mr. R. Brown has named the genus *Teesdalia*), to have been led from mere boyish imitation to collect and dry plants as I saw them do, and to copy out the names of the Linnæan classes and orders. This was the sole extent of my then botanical acquirements, which were wholly interrupted by going to another school; and for the seven or eight subsequent years I never looked at a plant. But the germ was there; and old associations having led me to purchase at a book-sale a copy of the Lichfield translation of the 'Systema Vegetabilium' with a preliminary explanation of botanical terms, I was induced first to study these and then other introductions to the science, till botany became an object of my ardent pursuit, and was followed (as in Mr. Kirby's case) by entomology when the plants in the neighbourhood of my residence were exhausted.

After requesting your pardon for occupying your attention with my own example of the importance of acquiring even the slightest taste for natural history at school, I may also here mention, in proof how eagerly young minds devour this food when offered to them, that at a late examination of the pupils of one of the schools at Dungannon (county Tyrone), Ireland, where Mr. Patterson's 'Zoology' had been introduced as a class-book, five boys went through a close examination and cross-questioning for two hours by Mr. Patterson (who had been requested to take on himself the office of examiner) with scarcely a fault, and the two most perfect in their answers then stood the further test of a four hours' examination, to which all their replies were given in writing, so thoroughly, all the questions being answered correctly, that each was considered entitled to the silver medal offered as a prize.

In resigning the chair of President, the occupation of which our By-Laws wisely restrict to two years by the same individual, allow me to return you my grateful thanks for the kindness which I have

* The Rev. Robert Rigby, Vicar of St. Mary's, Beverley.

uniformly received from you, and at the same time to offer as my parting advice a few remarks on two points which seem to me of great importance towards securing the prosperity and usefulness of the Society.

In the first place I should earnestly recommend, that without neglecting any other department of the science, you should make a main object of your attention the cultivation of British Entomology, and the removing the disgraceful position in which we now stand, of possessing no description of our Dipterous insects, and but a very partial one of our insects of some other orders. How painful must be our feelings, if asked by a foreign entomologist visiting our island, for the work describing our insects in which he might ascertain the species of some Dipterous insect he had caught, to be obliged to confess to him that we possess no such work! This disgrace may be easily removed by one or other of the means suggested in my Address of last year, and I trust the Society will lose no time in adopting these or other plans it may think better adapted to the end in view.

The second object to which I should advise a large share of your attention being given, is that of investigating the history and economy of the insects which attack the vegetable productions of our colonies, by keeping up an active correspondence with Corresponding Members in the various countries, competent to supply the information required. The economy of our native insect-pests is pretty well known, but we are still wholly ignorant of that of the insects which annually destroy large portions of the crops of our colonial possessions, and without such knowledge we can have no rational hope of indicating the means of lessening their ravages.

To estimate in their true extent the important bearings of Entomology on our pecuniary interests, we must not confine our attention to the hundreds of thousands of pounds which we annually lose from the attacks of the hop-fly, the turnip-flea, the wire-worm, the weevil, and the host of insect-assailants of our home agricultural and horticultural produce, but we must extend our views to our colonies, and we shall there find that in Australia the potato crops (as we learn from Mr. Thwaites) are in some quarters wholly cut off by the potato-bug; that in the West Indies, in addition to the numerous and long-known insect-enemies of the sugar-cane, a new pest of the *Coccus*-tribe, sent us by Dr. Davy, has lately attacked it in Barbados, and the cocoa-nut trees in the same island have nearly fallen a sacrifice to a minute *Aleyrodes* referred to by Sir Robert Schomburgk; while in India the cotton crops are often seriously injured by insects of various tribes, whose history we have yet to learn; and in Ceylon, the Governor, Lord Torrington, states, in a letter addressed last year to Earl Grey, so serious have the attacks of the "Coffee-bug" (a species of *Coccus* or scale-insect, said to be allied to *C. Adonidum*) proved for the last few years to the coffee-plantations, that the produce of one estate, which had in former years been 2000 cwt. of coffee, fell suddenly to 700 cwt. wholly from the destruction caused by the bug; and a similar heavy loss as to other coffee-plantations

is confirmed by Mr. Gardner, who speaks of the insect as not confining its ravages to these, but spreading to other trees and plants, as limes, guavas, myrtles, roses, &c., so that in the Ceylon Botanic Garden there is scarcely a tree not in some measure affected.

It appears highly probable, from facts collected by Mr. Gardner, and quoted in the 'Gardener's Chronicle' of Oct. 7, 1848, p. 667, that this coffee-bug was introduced into Ceylon with some Mocha coffee-plants brought from Bombay; and it is equally probable, as Dr. Lindley suggests, that had the foul plants been all burnt, or dipped in hot water, so as to kill the bugs, the Ceylon coffee-planters might have been saved from their present painful position. But why were not these precautions taken? Simply because these coffee-planters are wholly ignorant of entomology. When Kalm, the Swedish naturalist, descried specimens of *Bruchus Pisi* disclosed in a parcel of peas he had brought from North America, he was thrown into a state of trepidation lest some of these pestilent insects should have escaped, and he should have been thus the unconscious instrument of introducing so great a calamity into his beloved country. And had the Ceylon coffee-planter, to whom these infected Mocha-plants came, possessed a far less amount of entomological knowledge than Kalm, he would have carefully examined them, aware how easily a new insect-pest may be introduced from a foreign country, and of what vital importance it is that it should be ascertained that such introduced plants are free from disease, or thoroughly cleansed from it, if present.

Here we have a further striking instance how desirable it is, as I have before contended, that some instruction in Natural History, and in Entomology as a branch of it, should be universally given in all our schools, from the highest to the lowest. Not only may a landed proprietor at home suggest to his tenants, or a country clergyman to his flock, the best way of destroying their insect-enemies; but if our middle classes, likely to become in the course of their emigrations to our colonies, now every year more extensive, coffee-planters in Ceylon, or cotton-growers in India, or general agriculturists in Canada, Australia, or the Cape, were taught something at school of the history of these assailants, as well as the working-men who accompany or assist them, there can be no doubt that this branch of their school education would turn to far more pecuniary advantage than much of what is now taught them.

In adverting to this subject in my last year's Address, I pointed out how little merely "practical" but unscientific men are qualified to cope with the insect-hosts that assail them on every side, and I quoted the remarkable instance, which cannot be too often repeated, of the 240,000*l.* a-year which M. Guérin-Méneville, the distinguished French entomologist, has saved the olive-growers of the south of France by teaching them a mode, founded on the economy of the olive-fly (*Dacus Oleæ*), of neutralizing the attacks of this pest, of which, in spite of all their practical skill, they were the annual victims to this large amount. I will conclude these remarks with referring to the prospect we now have of seeing our hop-plantations

freed from their great destroyer the hop-fly (*Aphis Humuli*)—not from the efforts of the hop-growers, who considering it "a blight" brought by some cold wind or atmospheric change, fold their arms in helpless apathy; but in consequence of the investigations into the history and ceonomy of the insect by an eminent British entomologist, Mr. Francis Walker*, who has attended very closely to this tribe. The difficulty in the case of the hop-aphis has always been to know where the eggs from which the flies proceed in spring, are placed by the gravid females in autumn. This could not be on the hop-plant, which dies down yearly to the roots. But the mystery has been solved by Mr. Walker, who has found that it is on the *sloe-tree* or *black-thorn* (*Prunus spinosa*) that the female deposits her eggs in autumn, which are there hatched in spring, and the second generation being produced with wings, flies to the hop-plants and establishes itself on the leaves, which, owing to the well-known rapid increase of these insects, it soon covers and exhausts of the sap. Now if the hop-aphis does not deposit its eggs on any other shrub or plant than the sloe, as Mr. Walker believes, it is evident that, to secure the hops in any district from the hop-aphis, it is only necessary to destroy all the sloe-trees, which, as they are found chiefly in hedges, and there in no great number, would be no difficult matter. And if, from the escape of a part of the sloe-trees, and the flight of some of the hop-aphides from distant quarters, a few of the female aphides were still found on the hop-plants in spring, nothing would be easier, as I ascertained by experiments in hop-grounds in Worcestershire in 1838†, than to clear them from every one of these assailants, at a very trifling expense, by employing women and children, by means of step-ladders, to crush every aphis found, by pressing them and the leaf between the thumb and fore-finger, so as to destroy the flies without injuring the texture of the leaf. When it is considered that the extirpation of the hop-aphis would in some years save 200,000*l.* to the revenue, and three or four times as much to the hop-growers, it is evident that this is a matter worth attention, and that the science which can effect this saving is no trifling one. Let it be one of your main objects, Gentlemen, by sedulously cultivating this department of your pursuit, to prove that it is not so, but, on the contrary, one of those which may exert the most striking influence on the prosperity of mankind.

* Annals of Nat. Hist. 1848, vol. i. p. 373.

† Introd. to Ent., 6th edit., vol. i. p. 149.

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