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MISS ORMEROD

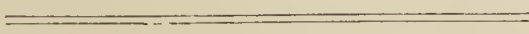
ON

INJURIOUS INSECTS.



A P A P E R

Read at a Meeting of the Richmond Athenæum, on March
27th, 1882, with Addresses by Sir JOSEPH HOOKER, C.B.,
&c., &c.



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MISS ORMEROD ON INJURIOUS INSECTS.

Last Monday the members of the Richmond Athenæum again met in the Masonic Hall, which was completely filled by those who came together to hear a paper by Miss Eleanor Ormerod, F.M.S. (who is a member of the Richmond Athenæum), entitled "Notes on Insect Life in Wayside Wanderings" Mr. Edward King presided, and in introducing Miss Ormerod remarked that the indebtedness of agriculturists to her labours with reference to injurious insects was very great, and her efforts were known and highly appreciated not only in England but in the colonies, and in such far away cities of Europe as Moscow. A great deal of energy and usefulness had been put into her researches, the results of which were introduced in a thoroughly practical way. Only recently Miss Ormerod read a most valuable paper at the Royal Agricultural College at Cirencester, and received the thanks of that scientific body.—Miss Ormerod, who was heartily received, then proceeded to read her paper, which was illustrated by some excellent sketches by her sister, Miss Georgiana Ormerod. Referring first to a few of the more noticeable forms of abnormal growths known as galls, which insects give rise to on our oaks, Miss Ormerod said: Within the compass of an afternoon stroll we may find gall-growths formed by species of at least four different orders of insects, and the oak (of which you have such noble trees at hand) suffers from at least forty kinds of galls formed by small four-winged flies of the *genus cynips* or nearly allied *genera*, which may be described as very like small wasps, but furnished with an ovipositor instead of a sting. With this they puncture the unexpanded leaf-bud (sometimes months before the leaves unfold); or the growing leaves, or the inflorescence, or the bark, or creeping under the surface of the ground, even the root fibres are not secure from attack. One or more eggs are inserted at the attacked spot, and from the irritation caused by the presence of the egg, or by some process accompanying egg-laying, the diseased growths arise which we know as oak-galls, in which the maggots or larvæ hatch, and feed, and in due time go through their transformations to the perfect insect. Of these the well-known "oak-apples" are almost

the first to appear. Early in May these may be seen sprouting like irregularly-formed rosy-tinted balls amongst the expanding leaves.

When fully grown the gall will be found to be of a spongy tissue with many cells, each containing, according to the stage of development, a whitish, legless maggot or a chrysalis, or the perfect *cynips*; and relatively to the date of development we have instances from the writings of Gerard and Matthi-olus, the well-known botanists, of the same attempts being made about 300 years ago to gather practical information from coincident states of animal and plant life, which are now being attempted on a scientific basis, under the description of observation of coincident, phenological, and meteorological phenomena. It was considered in those days that if, when an oak-apple was broken across before it began to wither, its tenants were still white worms, "like a gentel or maggot," that scarcity of food and murrain would ensue; if what were called spiders, sickness and mortality; but if a fly or ant was found, plenty was to be looked for, or possibly war. The inferences are far from being as baseless as might be supposed, for the maggots, and "spiders" (presumably the wingless pupæ) being found unusually late, would probably follow on the wet ungenial weather, which in those days were in their turn followed only too surely by fever and scarcity; and the fully developed fly points to a sunny, healthy season, good for the crops, though the prediction of war seems hardly explicable, excepting as an employment not uncommon in those days of the leisure time of plenty. The galls of the Turkey oak, or *Quercus Cerris*, are of especial interest here, as it was on the trees in Kew Gardens that it was found that the Turkey oaks were not, as had previously been supposed, free from galls in England, and it is only a few years since this was first observed. One kind of these galls appears with the first growth in the spring, and is so exceedingly minute that it is scarcely perceptible on the twigs without a magnifying glass; the other form often occurs in the acorns which may be found beneath the trees in autumn, stunted and divided into several distinct chambers, each of which contains a *cynips* larvæ. This is conjecturally of the *Andricus glandium* (Giraud), but at present, as far as I am aware, it has not been identified on account of the singular circumstance of the suspended development of the larvæ. In the autumn of 1877 a large number of infested acorns fell from one of the Lucombe oaks

(*Quercus Cerris*, var. *Lucombeana*), with some of which I was kindly permitted to supply myself for experiment. In these the larvæ appeared to be healthy, but up to the latest examination a short time ago, they had advanced no further towards development. Cold does not appear to affect them, for they have lain on earth within a few hundred feet of where the grass minimum thermometer read as low as only 1.1 above zero in January, 1881, and also sank to nearly that temperature in the preceding winter, but still whenever the acorn galls have been broken open for examination the tenants have proved to be alive. For a long time they looked plump and prosperous, but now the outer husk of the acorn and the gall cells crumble away at a touch, and the larvæ, now very few from successive examinations, appear much shrunk. Dr. Mayr (one of our greatest Continental authorities on the subject of oak galls) notes that specimens of his own did not develop in due course, and in another case females emerged from three year old galls; but I fear my four and a-half year old larvæ will shew little excepting duration of unchanged condition. There is yet one more oak gall—the common marble gall, which is to be found so plentifully on our oak hedges in autumn, which is of considerable interest, from the great attention directed to it—not to say the sudden alarm caused by it, some eight and twenty years ago. Previously to that time it had been little observed, but then either from its occurring in unusual numbers, or from some cause unknown, an idea arose that it was a new-comer, which was rapidly spreading over the country, and would occasion serious loss to us by diminishing the amount of the acorn crop. It was proposed to utilize the cause of the disturbance by collecting the galls for the manufacture of ink, instead of Aleppo galls, and it was even suggested that we should export them, but trial and analysis have not encouraged this ink manufacture, and observation has showed that these galls chiefly occur on the low-growing oaks or on oak hedges, and consequently the crop of the large acorn-bearing trees is not likely to be diminished. This matter, however, was very far from an unimportant consideration, for the acorn crop of the western counties makes a considerable addition to farm yard dietary. With respect to the causes of the occasional appearance of insects in great numbers, Miss Ormerod remarked that looking at the years since 1877, in the case of the great appearances of some one kind of insect which occa-

sionally spread over most of England, it appeared that this abnormal amount of presence in one year was by no means a reason to expect it in the year following. Meteorological influences had a powerful direct effect. With regard to the insect attacks of the last few years, the *Colias edusa*, a rare butterfly of such bright tint as to resemble a brilliant yellow or orange coloured flower, would be remembered as flitting about this neighbourhood in the summer of 1877. This was the chief insect appearance of that year, and the attack was well established, for the larvæ were to be seen feeding on clover, and a second brood was developed. In the following year (1878) a general absence of the *Colias* was observed. It was not known what circumstances brought the large numbers, neither the cause of their non-continuance, but the mild moist winter of 1877-8 might have had some influence in clearing them, as the small partially insectivorous birds were of more unmixed service to us in such seasons than at other times. A very different state of things existed when the larvæ were protected by the ground being frozen hard around them. The year 1878 was not remarkable for any great insect attack, but 1879 was distinguished by what rarely happened in this island—a visitation from a vast swarm of *lepidoptera*, composed at most of the successive points noted in its advance of the *Plusia gamma*, or silver moth, and the *Vanessa cardui*, or painted lady butterfly, which swept over the continent of Europe from the north of Africa, and were observed on our southern coasts on the 10th of June. Miss Ormerod continued: From the notes placed in my hands then by the well-known entomologist, Mr. Edward Fitch, it appears that the swarm started from the north east of Africa, reached Algiers from about the 15th to the 20th of April, from thence crossed to Valencia and spread over Spain; it was also present in the Balearic Isles from the 25th of April to the 3rd of May, and crossed the Eastern Pyrenees on the 26th and 27th of the same month. It next appeared in the south-east of France, Switzerland, and Northern Italy, and on the morning of the 5th of June thousands of living specimens were found upon the snow at the Hospice of St. Gothard, and it was distributed over Germany and Austria at dates noted as from the 7th to the 16th of June. Another column crossed the Mediterranean to Sicily, and spread northwards over Italy in June. The more westerly end of the migratory swarm reached Strasburg from the 3rd to the 9th of June, and the first appearance on our own coasts was

noticed on the 10th of June, and, as we can remember, the *Plusia gamma* was subsequently noticeable not only in its developed state, but by the injury caused by its caterpillars, even to the extent of stripping whole fields of peas of their leafage. Passing on to 1880, Miss Ormerod remarked that the chief insect attack in that year was from larvæ of the *tipulæ* or crane-flies, also, and more commonly, known as daddy-long-legs grubs. These two-winged flies, like gigantic gnats, were most prevalent amongst moist vegetation and on wet land, such as was caused in many parts of the country by the continuous rains of 1879. The legless larvæ, which by their peculiar shape were well-fitted to travel about through the earth from one plant to another (injuring far more than they entirely destroyed), were a widespread trouble—yet not without benefit, for it was shown by careful experiments how much may be done to support a crop temporarily attacked in this way by such agricultural applications and such preparation of the ground (coming in the scope of regular agricultural treatment) as were calculated to cause and encourage a healthy and hearty rate of growth, such as would counterbalance the injury caused by the feeding of the grub. The year 1881 was only too well distinguished by an attack of the turnip “fly” or flea beetle, which had been nothing less than a grievous scourge to agriculturists over a large area of England and much of the more southerly part of Scotland. In some cases this destructive attack was present to such a degree that scarcely one field of swedes or turnips escaped throughout whole counties. As to the results of this attack, Miss Ormerod said:—The amount of acreage under swedes and turnips in 1881, of the counties from which I had reports of attack (as given in the Government agricultural returns of Great Britain) amounted to 1,343,872 acres. In my estimate I have only calculated half this area as attacked, that is 671,936 acres, and although in many cases re-sowing took place twice, in some cases three times, and some four times, I have only estimated it as occurring once, and I have also calculated the amount of seed used per acre and its price at the lowest which could be considered a fair average. This estimate shows that for seed alone for one resowing of half the acreage of the twenty-two English and eleven Scottish counties considered the cost would be £75,592 16s.; the cost of one resowing, including the seed and some necessary recultivation of the ground, sowing, &c., at the rate

of 15s. per acre, would amount to £503,952 ; at 20s. per acre, which would often be much nearer, and even this would sometimes be too low, it would, of course, be the same in pounds as the number of acres—£671,936. That is, a definite and clearly calculable sum of more than half a million wasted by this pest. This is a total and clearly demonstrable loss ; an extra outlay to raise a crop which should have grown without this second commencement, and there are further details of loss turning on lesser value of the later sown crop, and agricultural points such as scarcity of food for cattle, and consequent derangement of farm details, which would be out of place for me to speak on here, but which have made the attack of turnip fly of 1881 nothing less than a national visitation, and one which we may thank our leading agriculturists for coming forward to show those less informed than themselves that there are means in the ordinary course of good cultivation of in some degree guarding against and supporting the crop “ past ” by previous preparation. I should like to add a very few words more on the powers of destruction of some of our common farm pests as shown in the returns sent me of loss in 1881. The bean aphid destroyed on a field at Maldon, Essex, at the rate of not less than four bushels, or a money loss of about £1 per acre. The beet fly at a locality in Cumberland caused a loss per acre of from two to ten tons. The daddy long legs grub caused loss at Baldock, Herts, of quite £100 on forty acres of wheat. The sitones, or pea weevils, whose work we know so well in our gardens by the semi-circular scoops eaten out of the young leaves, injured, near Stevenage, at the rate of at least £40, on twenty acres of peas. The maggot of a two winged fly, a species of *oscinis* of which the life history as yet is not fully worked out, destroyed at the rate of fifteen bushels per acre on about fifty acres of wheat, near Tewkesbury, by feeding within the young plant. These are only just a few of the notes of the ravages constantly going on year by year, and which call for attention. We have our natural history and our entomological societies throughout the country, and we publish “ Transactions ” and “ Proceedings ” of more or less use, but we record more than we are aware of. The injurious insects have associations also, and we publish their results for them ; may I so far play on the words as to call them their “ Transactions ” their “ Proceedings,” and where do we find them ? We find them recorded on the

payment pages of the account books of the landed proprietors, the farmers, the foresters, and the gardeners throughout the country, and they form a total beyond all general supposition in the amount of the annual expenditure of the nation (applause). —The discussion following the reading of the paper was commenced by Mr. W. J. C. Miller, M.A., who said he thought they would all agree that they had been listening to a perfectly charming address on a subject of great interest from a lady who had made that subject peculiarly her own. The study of insect life met them at every turn, for insects swarmed everywhere, some appearing to be equally at home either in the heavens above, the earth beneath, or the waters under the earth. They had heard of the difficulties they caused among farmers, but doubtless many had met with them in more confined quarters. He had taken some interest in rose growing and the amount of devastation caused by the insects was very great. During last season —his first year in Richmond—he wondered whether Richmond was not the happy breeding ground of all these insects. Certainly in his case alone some millions of them had been destroyed. A fortnight ago they heard something about what was called the ethics of a question relating to animal life, and he could not help wondering what might be the consequences if in view of the slaughter of insects by house-wives, gardeners, and others, some Miss Cobbe of the future should come forward as their champion, and speak of what might be called the ethics of this subject (laughter). Insects preyed upon insects, and birds preyed upon these insects, and then came man who preyed upon them all, and that seemed to illustrate De Morgan's lines—

Great fleas have little fleas
Upon their backs to bite 'em,
And little fleas have lesser fleas,
And so *ad infinitum*.

In conclusion he expressed the hope that ladies might be encouraged not only to read papers before the Athenæum, but also to take part in the discussions. —Mr. G. Phillips Bevan, J.P., expressed the opinion that the greatest interest in this subject should not be in the personal interest they all ought to feel in what they met with in their daily walks, but in the subject of the national waste of food caused by these insects, and Miss Ormerod had done well to her country in bringing it forward. Although Miss Ormerod had brought in an exceedingly black list of the losses we suffered through insects, we might congratulate ourselves that it was no worse. Perhaps the reason was that England contained an

area so varied in everything that nature produced, that we had no very great industry overshadowing everything else as in other countries, where on the chief industry being affected widespread distress was occasioned. Other countries in Europe had been devastated by an insect called the phylloxera, which had almost put an end to the vineyard industry. In France alone a loss of something like fifteen millions a year had been caused, and miles of vineyards had had to be thoroughly rooted up branch and crop, for no cure could be found. This affected us in England, for the French brandies and wines were not only becoming dear and almost inaccessible to ordinary buyers, but they were becoming worse. The growers now had to go to Spain and the Greek islands to buy currants and raisins, and to manufacture their wines artificially. Then there was the Colorado beetle, and in Ceylon the coffee plants were blighted with what was called the leaf disease, but which was believed to be attributable to an insect. He could only say that they were to be congratulated in England that they did not possess any such prominent industries as to make it a matter of life or death to them when one of them failed.—Sir Joseph Hooker first referred to the great benefit they had derived at Kew Gardens from Miss Ormerod's researches, remarking that to her and to her sister they owed some of the best illustrations they had of the ravages of insects upon plants. He could not but allude also to the elegance and clearness of the language employed by Miss Ormerod in her paper as an illustration that scientific matters might be put in a clear and simple form, so that all might understand them. Alluding next to the curious subject of galls, he said that for the last five or six months he had been receiving the most urgent representations from the principal surgeons of England, who desired him to devote more attention to the study of galls at Kew. Sir James Paget, in a recent lecture, had shown that a great analogy existed between the growth of these galls and of morbid tumours on the human body. Surgeons found it extremely difficult to examine the growth of these tumours in the soft tissues of the human body, but with plants, with their harder tissues, they could follow them better, and according to Sir James Paget, an examination of these galls would throw some light upon the treatment of the disease. They would probably agree with him that there could be no better place than Kew for pursuing such observations. Indeed Kew had become the referee in all questions

regarding the destruction by insect life all over the world. He hardly knew how to put before them the enormous importance of the subject. The injury done in England was a mere bagatelle compared with what it was in other parts of the world. The coffee disease was a fungoid growth. An insect that had been extremely hurtful was a little burrowing moth, which burrowed inside the leaf of the coffee plant. In the island of Dominique the coffee industry was the finest in the world, but through that insect the industry became absolutely extinct. Now, however, they were again enabled, through such observations as Miss Ormerod made, to have coffee there, for they had introduced from the west coast of Africa a coffee which was so hard and tough that the insect was unable to make headway against it. In conclusion he again thanked Miss Ormerod and her sister for their services to science. —Mr. Whyte referred to the general idea that insects had no taste, and also spoke of the destruction of furniture and woodwork generally by the white ant.—Miss Lydia Becker said that although she had not the honour to be a member of the Athenæum, she had ventured to interpret liberally the invitation which a member of the council had given to ladies to take part in the discussion. She certainly wished that ladies would come forward more frequently on these occasions, for she was sure the gentlemen had no idea of the debating power and elegance of expression of which they were capable, but which their natural modesty and timidity prevented them from exercising. She thought she might speak for the gentlemen in that matter, and say that they would be most happy to welcome and listen to any ladies who would take part in their discussions (applause). She had great pleasure in being present and making the personal acquaintance of Miss Ormerod, whose name was already familiar to her. They had heard a good deal from her excellent paper of the injury done by these insects, but no remedies had been suggested excepting in one case, in which the remedy was better agriculture. In coming down that afternoon she bought a copy of the *Echo*, and saw that a correspondent who wrote to that paper thought that sparrows destroyed these injurious insects. They would be glad to know from Miss Ormerod whether sparrows really were among the farmers' friends. She was afraid that with caterpillars on gooseberry bushes there was nothing for it but to have patience and pick or brush them off, as she used to do at one time, when she was very fond of

growing gooseberries, and making gooseberry jam. When she heard of the painted lady butterfly coming all the way from Africa it astounded her. The idea of such a fragile creature flying across into Sicily, over the Alps, and then across to this country, was certainly very strange. She did not know whether it was the same butterflies that did that or successive broods. Care ought to be taken in the destruction of insects. They knew that farmers had destroyed birds ignorantly, and it struck her as possible that there might be some insects which preyed upon the microscopic fungoid germs, and therefore if they destroyed insects they should do so with knowledge, and be careful lest they destroyed the balance of nature. Ladies had great aptitude for such studies. The Duchess of Fitzjames, who wrote an able paper in the *Contemporary Review* a few weeks ago, had received a medal from the Phylloxera Congress at Bordeaux, for her ability in dealing with the phylloxera. Insects had their places, and might often be very much out of place, as for instance, the black beetle, which was recently found making its way up the floor of the House of Commons, but if, as in that case, insects might disturb the debates of the House of Commons, she certainly thought they might consider them at the Athenæum (applause).—Mr. Popley referred to the use of insects in providing food for birds, and to the practice of some insects getting rid of their husbands by eating them. He also remarked that insects were very dainty, for they always selected the ripest peach or pear, or the choicest plant in a conservatory. They were also very cleanly, some being furnished with little brushes at the ends of their tails, with which they kept their coats clean. The house fly was often observed cleaning its feelers by rubbing them together. He hoped they might be able to form a field club during the summer, so that they might go out and study these things, and he hoped the ladies would accompany them (hear, hear).—Mr. Hargreaves said he believed the insect to whose domestic relations the last speaker referred was the common spider.—Mr. H. B. T. Strangways, J.P., said the chairman mentioned in his opening remarks that Miss Ormerod was known not only in Europe but in Australia. Only recently he saw some comments in an Australian paper on some observations of Miss Ormerod, from which the people of Australia expected to gain considerable advantage. Sir Joseph Hooker had remarked that Kew Gardens

was a good place to study insect life. He believed there was no better, and he wished the opportunity for the study might be somewhat extended during next summer by having the gardens open during more hours (applause). The phylloxera was found in Australia as well as in France, and in one of the colonies it did so much damage that they appointed a Frenchman as inspector of vines. One man, however, told the inspector very plainly that he was a humbug, and what was worse he proved it, for the man was not able to distinguish the phylloxera from a common blight, and so he was not able to hold his appointment ten days. Wherever they found injurious insects they were almost certain to find something to prey upon them, and if a nest of black ants could be disturbed in the neighbourhood of the white ants referred to by Mr. Whyte, they would soon eat them up. The suggestion, originally made he believed by Mr. Bevan, but repeated that night by Mr. Popley, for the formation of field clubs, was a good one, for it would enable them to collect the materials for many interesting papers to be read during the winter.—Mr. Lorrain also spoke in favour of the formation of field clubs.—Mr. Lupton spoke of the relation of insect life to animals, and the metamorphosis of insects frequently occurring in animals. For instance, there was a common disease in sheep, a kind of vertigo, caused by a small worm in the brain. The sheep, who was a close biting animal, took up the tape worm from dogs in biting the grass, and then a few weeks after they found the bladder worm in the sheep. What he had heard that evening convinced him more than ever that all the sciences and all kinds of learning were much allied with one another, for the lecture made him think that they must understand something of entomology before they could understand parasitic life. When they all assembled together in an institution of that kind they could learn something from each other.—Dr. E. A. Cook said that Mr. Lupton's remarks led up to a question he wished to ask. They knew that the rapid growth of animals, aided by such food as oil cake, gave them animals of a lower stamina, and it might be remarked that a manure heap swarmed with insects. Did not the rapid growth of plants recommended by Miss Ormerod cause them to be more loosely knit together, and did not that rapid growth encourage the growth of insect life?—Dr. Johnson said he believed that Miss Ormerod was the discoverer of one particular oak gall not previously known in this country. The subject of the oak

gall reminded him of the historical mistake with reference to the Dead Sea apples, which he believed Moore described as being tempting to the eye but disappointing to the lips. It had been shown that these "apples" were not a fruit at all, but simply a kind of gall. He did not think the occasional visitations of insects had been satisfactorily accounted for. Some years ago they had a visitation of lady birds, and he saw some scores, if not hundreds of them, in Regent-street. There was also a visitation of cockchafers in Ireland. How were these to be accounted for?—Mr. Whipple asked whether the opening of the channel tunnel might not lead to an invasion of a character different from that feared by some military men—an invasion by some of the insects which were the pests of the continent. Undoubtedly the interchange of the rolling stock of English and continental railway companies might provide vehicles for bringing over the insects. We had a visitation of daddy long legs a year or two ago, but wasps came with them and preyed upon them. In the United States he believed there were Government entomologists, and he would suggest to Sir Joseph Hooker whether it might not be advisable to recommend our Government to form a department for work of this kind. Seeing the great amount of loss which arose from injurious insects, he thought the money that would be required would be well spent. After pointing out the use of insects in the fertilisation of plants, Mr. Whipple went on to thank Miss Ormerod for her useful services in connection with the Meteorological Society.—The Rev. Astley Cooper said it was sometimes thought that there was an antagonism between theology and science, and therefore, as he was there as a humble representative of theology, he desired to thank Miss Ormerod for the help she had given to that cause. No large-minded theologian feared science, but he would be satisfied that science would only confirm theology.—The Chairman said he thought it would be a great pity if they separated without doing something with reference to the proposed field club. He would therefore suggest that those who were favourable to the proposal should address themselves to Mr. Bevan at the close of the meeting. He congratulated the Athenæum upon the pleasure, and he might say the honour, they had received from the addresses of two so distinguished visitors as Sir Joseph Hooker and Miss Becker (applause). He did not know whether he was presuming, but if Sir Joseph Hooker would honour

them with a paper on some scientific subject, he was sure it would be highly valued by the members of the Athenæum (applause).—Miss Ormerod, in replying to the various speakers, said she did not know whether insects had taste in the way we understood it, but it was certain that they had discrimination. Sparrows were terrible pests. They had been introduced into America and Australia, and now the people there wished they could get rid of them. With reference to the rapid growth of plants, of course they must be careful not to push on the growth so quickly as to create bad tissues. They wanted to know more about the causes of the visitations of insects, but the appearance of the lady bird was one of the most useful that they had, for it was a destroyer of the green fly, which appeared on the hops in Kent. This fly was usually followed by the lady bird. Much that was done in America by the state in this matter was done in England voluntarily. She had hundreds of correspondents who sent her their observations on injurious insect life, and the methods of prevention which they found would act at a paying rate. Several references had been made during the evening to the work of women. She did not know whether they would all agree with her, but she believed that if a woman's work was to do good she must do it under the direction of men (applause).—In proposing a vote of thanks to Miss Ormerod, the Chairman referred to the eulogistic remarks of the Principal of the Royal Agricultural College at Cirencester, who, in proposing a similar resolution after her lecture there, said—

This year, Miss Ormerod informed him, about a million of money had been lost by the turnip fly alone. Surely at all times, and especially at a period of agricultural depression like the present, it was of the utmost importance to arm themselves with weapons to meet and overcome a pest like that, and it was their duty, as connected with that college, considering their important position, to endeavour to make such observations as should assist Miss Ormerod in her labours.

—In reference to this quotation and the valuable work of the reader of the paper that evening, and the scientific members of the Athenæum, he (the chairman) would say, "go thou and do likewise."—The vote having been heartily adopted, the meeting terminated.

