

Darwin, by his ingenious theories based on remarkable series of facts, eliminated from a dense mass of material and grouped together with wonderful and one may say characteristic power, to thrust down the weakening barriers and widen the once narrow path into the broad road along which modern scientists travel, with more enlightenment and greater facilities for elucidating the mysteries of nature than their predecessors.

So Balfour, following at first the landmarks left by older scientists, at length succeeded in completing the survey they had commenced, and gave many facts to the scientific world inestimable for understanding the relationships of organs, and also elucidated many obscure points in the great evolution theory.

Prof. Balfour early showed those traits which were afterwards so characteristic. While still a boy at Eton he took much interest in scientific studies, and was one of the leading members of a scientific club, whose object was to give the lovers of nature an opportunity for meeting and conversing about their woodland rambles and seaside loiterings. We find him, however, while here devoting his attention chiefly to geology, and further we see him as a vehement opponent of Mr. Darwin's theories. Before concluding his studies at Eton, in the latter point he changed his opinion, for after having read Mr. Darwin's work on 'The Origin of Species' he became as strong an upholder of evolution as before he had been its opponent, and throughout his later life he maintained the position he then took, adding further evidence indeed by his works and writings to the grand plan of evolutionary creation.

On leaving Eton he took a scholarship at Cambridge, and soon became a zealous student under Dr. Michael Foster, who, noting the careful nature of the young student's work, and the wonderful aptitude he possessed for seeing the points of which the elucidation was of most importance, gave him every advantage for prosecuting his studies, and a friendship sprang up between them only dissolved by death. Along with his preceptor Balfour engaged in studies on the early stages of development of the chick, the results of which were published before his graduation, and form a text-book at present in use in University College.

Recognizing the enormous importance of a thorough study of the embryology and organogeny of the elasmobranch fishes, Balfour, after graduation, spent some time at Dr. Anton Dohren's Zoological Station at Naples in working out this subject, and it is to these studies more than anything that Balfour owed his rapid advance and well-merited position in the scientific world. He published the results of his work originally in a series of papers in the *Quarterly Microscopical Journal*, of which, later, he and Prof. Ray Lankester were the Zoological editors, and he afterwards combined these separate papers into a volume—'A Monograph of the Elasmobranchii.'

Many are the important points discovered by Prof. Balfour, but these cannot be touched upon in a popular article like the present, being rather of a technical nature; but chief among them were the discovery of the origin of the embryonic spinal column or notochord from the innermost of the three germinal layers of the embryo, showing thereby the relation of that structure in these fish with the notochord of amphioxus as described by Kowalewsky, and, in addition, he added much to our knowledge of the development of the urogenital and nervous systems. The value of these discoveries can however be properly estimated only by one more intimately acquainted with embryological facts and theories than the majority of the readers of the 'Varsity.

Being elected to a fellowship, Balfour continued his work at Cambridge, and so great was his love for his Alma Mater, that he refused positions both at Edinburgh and Oxford, and accordingly his University could do nothing less for so distinguished a son, than to create a professorship for him, upon the duties of which he had entered only a short time before his death. His professional duties caused no cessation or diminution of his original researches, being occupied by continued investigations on the urogenital system and on the anatomy and development of a strange and interesting Arthropod Peripatus, probably a near ally of the original form from which the Insecta and Myriapoda had their origin.

His last publication was the much-needed 'Elements of Comparative Embryology' in which his notes and criticisms form the principal and most interesting portion. His chapter on larval forms is especially remarkable for its deep insight into larval relationships and its lucid exposition. This work will be to non-scientists the best proof of the enormous amount of working power Balfour possessed, the list of papers and works read by him in compiling the various chapters being something enormous, and at the same time it must be remembered that his other work was being carried on in a most energetic manner.

The history of his death, sudden and lamentable, is well-known. A member of an Alpine club, like many of the prominent English scientists, Huxley and Tyndall for example, in endeavoring to ascend a

dangerous and almost inaccessible peak, he and his guide were hurled to the ravine below, and his remains now lie in company with those of so many young Englishmen of promise in the peaceful valley of Chamonix.

Of Balfour's personal character we have little to say here. His energy, perseverance and careful methods of research were the secrets of his wonderful success. Respected by those who knew him, esteemed by his fellow-workers, he was loved and revered by his students. Ever considerate of their wishes, and with a deep discernment of the ability of any one for a particular line of research, he succeeded in imbuing them with a deep love for their studies, and in endearing himself to them. Though almost constantly engaged in mental labor, he did not neglect physical exercise, and was a proficient in the noble game of lawn tennis. A story is told of a venerable German professor, who, having made a pilgrimage to England on purpose to see this new and brilliant luminary of science, stood lost in wonder and amazement when the object of his journey was pointed out to him as a young man, clad in flannel costume, madly rushing about after a small india-rubber ball.

A fund is now being raised by those who are acquainted with Balfour's merits as a scientist, the object of which is to endow a studentship in comparative morphology, and to aid any researches in this line with the necessary funds for its successful completion. We are glad to see that American zoologists have organized a committee, with Prof. Alex. Agassiz as chairman and Dr. Newall Martin as secretary, which is endeavoring to aid the fund with a substantial expression of the high esteem in which Prof. Balfour was held on this side of the Atlantic, and we feel sure that many science men of Toronto University will feel it a privilege to contribute to a fund so laudable in its aims, and in memorium of so distinguished a zoologist.

AUDAX.

## UNIVERSITY NEWS.

### UNIVERSITY COLLEGE, Y. M. C. A.

The attendance at the regular meeting this week was large, many who are not regular attendants being attracted by the reputation of the gentleman who addressed the meeting—the Rev. D. J. Macdonnell, B.D. The reverend gentleman took as his theme 'Positiveness of the Divine Life,' basing it on the words of St. Paul, 'Be not overcome of evil, but overcome evil with good.' The true theory of life, he said, is the positive one; consecration to the good rather than the observance of rules to abstain from this, that, and the other form of sin. Not but what these rules of life are necessary to assist a man in forming and developing Christian character; but then the life which is built wholly or even mainly on such negations will be a cold, lifeless one, unless there be alongside of it the positive life of devotion, for which we have a model in Christ, who accounted it His meat and His drink to do His Father's will. There are many ways of exhibiting this devotion. For example, in dealing with our evil thoughts there is a two-fold method: That of a resolute determination to grapple with them with a view to displacing them, and that of so filling our minds with good thoughts that there is no room for the evil ones. The true note of life which all should strike is devotion to Christ. Every person who is worth anything has something to which he is devoted, or if not he will make for himself an ideal on which he will lavish his attentions. Devotion to one country, to the elevation of society, or to any such philanthropic object, is a grand thing. To have some one worthy ideal before the mind which is the goal of one's ambition is a right and noble thing. Now, the highest ideal which any man can place before him is to live a life of consecrated devotion to Him who devoted Himself so unreservedly for us. Such a life the Apostle calls a living sacrifice, which indicates that it is no negative thing, but a truly aggressive life in the service of Christ. The Apostle James brings out this idea of a positive Christianity when he says, 'To him that knoweth to do good and doeth it not, to him it is sin.' Many say, 'We are willing to be called Christians and to live in a becoming way, but then don't ask us to work; we can't always be on the go.' But that is just what we are to be doing. The silent sins of pride, covetousness and indifference gnaw deeper into the vitals of our Christianity than even such flagrant commissions as drunkenness, etc. The man who sees a line of life open to him in which he may be of service to his fellow-men and follows it not, to him it is sin. This indifference, or, rather, selfish indulgence, is the greatest hindrance to Christian work. It is the grossest burlesque of religion for a man to perform certain duties perfunctorily and call that religion. Religion is not a separate business; it is rather a spirit in which all our business is to be done. 'Whatsoever ye do in word or deed, do all to the glory of God.' It is a hard thing for any man—it is specially hard for a student at college—to live on a higher platform than those around him. Yet if we know such a course to be right, we are bound to follow it.