



SATURDAY, OCTOBER 23, 1926.

CONTENTS.

	PAGE
Science and Religion	577
The Evolution of Voles and Lemmings	579
Modern Photometry. By L. C. M.	581
Philosophy of Emergence of New Qualities. By G. C. Field	582
Our Bookshelf	583
Letters to the Editor :	
Early History of Gaseous Adsorption.—Sir Joseph Larmor, F.R.S.	586
The Structure of the Continents.—Prof. Arthur Holmes	586
Science and Psychological Research.—Dr. R. J. Tillyard, F.R.S.; W. W. L.; Dr. James Weir French	587
Transmission of Stimuli in Plants.—Prof. Nigel G. Ball	583
Electric Television.—A. A. Campbell Swinton, F.R.S.	590
Active Nitrogen.—Dr. E. B. Ludlam and L. H. Easson	590
Copper at Low Temperatures.—George James Alexander	590
The Reaction to Flea Bites.—Prof. A. E. Boycott, F.R.S.	591
Zoological Nomenclature: Hübner's (1806) 'Tentamen.'—Dr. C. W. Stiles	591
The Problem of the Origin of Species as it appeared to Darwin in 1859 and as it appears to us To-day.—Prof. Henry Fairfield Osborn, For. Mem. R.S.	591
The Spectrum of Zinc.—D. M. Smith	592
Observed Relative Intensities of Stark Components in Hydrogen.—Dr. J. Stuart Foster and Miss M. Laura Chalk	592
Absorption Spectrum of the Hydrogen Molecule.—Prof. J. J. Hopfield and G. H. Dieke	592
Sterility in the Vegetable Marrow.—Miss Eleonora Armitage	592
The Analysis of Line Spectra. By Prof. A. Fowler, F.R.S.	593
Scientific and Industrial Research in Australia and New Zealand	597
News and Views	599
Our Astronomical Column	603
Research Items	604
International Congress of Psychology. By Li. W. J.	606
Coal Blending. By Dr. A. Parker	607
Physical Phenomena and Molecular Orientation at Interfaces. By E. K. R.	607
The Wellcome Historical Medical Museum	608
University and Educational Intelligence	609
Contemporary Birthdays	610
Societies and Academies	610
Official Publications Received	611
Diary of Societies and Public Lectures	612

Science and Religion.

AT the recent Church Congress held at Southport, several papers dealt with the relations between science and religion. This is a subject of the deepest interest to students of natural science, for the ultimate objects of religious study and of scientific research are the same. This was finely expressed by no less a person than Sir Ray Lankester, whom no one will accuse of a bias in favour of theology, when he was president of the British Association at the York meeting in 1906. In his presidential address he claimed the sympathy of the Church for the scientific student, saying that the churchman and the student agreed in this: both had turned aside their gaze from the fleeting and temporal and had fixed it on the enduring and eternal; both, in a word, sought for the absolute and everlasting beneath the never-ending flux of things.

There are, it is true, many students of science, and especially of biology, who consider religion to be a name for a mass of outworn and discredited superstitions, and think that the best hope for the progress of mankind lies in getting rid of such beliefs entirely. This, however, is a view which biologists of wider outlook find it impossible to accept. For they recognise, on one hand, that the progressive evolution of man is bound up with the evolution of society, and, on the other, that every society is, and always has been, held together by religious sanctions, even when those sanctions are submerged in the subconscious stratum of our existence. Hence the conclusion is inevitable that religious belief performs an important biological function, and that it will endure so long as society itself endures. But religion can only exercise its proper influence so long as it is believed in sincerely; and hence the importance of reconciling, if possible, such beliefs with the scientific view of the universe.

The functions of religion and science are, in fact, correlative: one strives to hold fast and preserve the flashes of insight into the real nature of things which have been granted to mankind in the past; the other is ever seeking to gain new light on Nature. The reverence of religion for what is old is justified, because great discoveries of truth, or, as our fathers preferred to call them, 'revelations,' come but very rarely, and between them are interposed many generations of ordinary men to whom no new light is vouchsafed.

Every 'revelation,' however, is necessarily framed in a background of the current beliefs of its time about the universe; and as this background changes the 'revelation' comes to be expressed in obsolete language. The reconciliation consists in finding appropriate modern language in which to express it, and in the

Editorial and Publishing Offices:

MACMILLAN & CO., LTD.,

ST. MARTIN'S STREET, LONDON, W.C.2.

NO. 2973, VOL. 118]

search for this expression the modernist school of Anglican theology will have the sympathy of every student who reflects deeply on the ultimate mysteries which he encounters in his study of science.

Amongst the papers read at the congress, none excited more interest than that from the pen of the late Dr. Adami on "The Eternal Spirit in Nature." Many of our readers and contributors to our columns were friends of Dr. Adami, and sadly miss his bright cheery optimism and his infectious scientific enthusiasm. It will surprise many of them to learn that Dr. Adami, whose interests they had imagined to be confined to the technicalities of science, had reflected so deeply on the ultimate nature of things. His paper attempted the stupendous task of trying to prove from a consideration of scientific facts that there was one God Who was the author of the universe, that the nature of God was good, and was ultimately expressed in the character and teaching of the Founder of Christianity, and that the human soul was immortal. Dr. Adami's method was not that of the *a priori* philosopher: like all true scientific men he was a pragmatist, and he felt that these beliefs were justified, because when applied to the phenomena they yielded satisfactory results.

If, indeed, Dr. Adami had been successful in his attempt, then the complete reconciliation of science and religion would have been achieved: we fear, however, that we are unable to go the whole way with him. His argument for the existence of God is the presence of order and law in Nature: this order must have its ground in one grand unifying Will. Was it not Huxley himself who said that "Law, order, and abiding Force are more stupendous miracles than any to be found in our mythologies," and who ridiculed that heterodoxy which regarded the world as "a mud-pie made by two blind children, matter and force." The argument really comes to this: the human intellect, through the action of which alone religion, science, or any other kind of knowledge is possible, recognises amidst phenomena an order and regularity which it feels to be akin to its own deepest nature. Either that recognition is valid or it is illusory. If it is valid, then the ultimate nature of everything must be a Mind in some ways akin to the human mind. If it is illusory, then we are thrown back on a total agnosticism, and conclude that we learn from phenomena nothing of the real nature of things, and that our intellect, as Bergson has maintained, is only a tool-making and food-getting mechanism.

Although it is persistently ignored by shallow thinkers amongst 'practical' scientific men, there is a subjective element in all knowledge which cannot be neglected. We do not begin with 'matter,' which is an abstraction, but with 'something presented to

my mind,' and the 'mind' to which it is presented is as fundamental as the 'something.' The qualities with which we endow matter are all mental, and can be expressed only in terms of perception, which is a mental function. Surely no one imagines that 'redness,' 'hardness,' and 'sweetness,' for example, exist outside of and independently of us. To describe the mind as the mere result of molecular movement is to commit an error beside which the wildest Irish bull must sound like common sense.

Dr. Adami's argument that God must be good is that the evolutionary process has led to the production of human nature, the highest aspect of which is goodness. This, again, is the old argument that the stream cannot rise higher than the fountain. "He that planted the ear, shall He not hear? Shall not the judge of all the earth do right?"

Against this argument, however, there are ranged the terrible facts of the struggle for existence and the slaughter of the unfit. If God be the author of Nature, how is this condition to be accounted for? If with Dr. Adami we reply that there is some end to be gained by this which we cannot understand, then the objector justly rejoins that every conscious-suffering individual is an end in itself, and has rights which it is wrong to sacrifice even for the well-being of another.

If, indeed, not only the human soul, but also the soul of all that suffers, survives bodily dissolution, then the ultimate satisfaction of the individual may be enhanced by suffering in some of the preliminary phases of existence. We fail completely, however, to see how Dr. Adami can prove the immortality of the soul from the facts of natural science; the utmost that can be said is that the vitalistic conception of biology leaves the possibility open. It seems to us that the essence of religious faith is the hope that God may turn out to be good, and the resolve to order our lives on this assumption. We hope, but we do not and cannot know. Dr. Adami's assertion that the highest expression of the nature of God is to be discovered in the Founder of Christianity leads us into the realm of special theology, which it is outside the province of this journal to discuss. This much, however, all will admit; that so far no finer conception of God has been presented to the human intellect than that embodied in the sayings of Christ and of some of His early followers. In the field of natural science, it may not be necessary to postulate God; but in religion, as in science, the workings of an evolutionary process are now recognised. It is through the acceptance of the idea of evolution in the spirit as well as in the body of man that the partition which formerly separated religion and science is being dissolved.