

observations or from earlier records. The result of all this labour is the production of a thoroughly reliable and fully illustrated handbook of the fishes of Lahore, which should prove invaluable to fishery administrators interested in the fish supply of Lahore. Owing to the limited scope of the series, "Fauna of Lahore", of which *Fishes of Lahore* is the fifth contribution, the author had to leave out such species which though marketed in Lahore, are imported from far off stations. Fortunately in reviewing the records of fishes from Lahore, the author has indicated a number of such forms, the addition of which to the 49 species described by the author can give an almost complete picture of the fishes sold at Lahore. Though undertaken purely as an academic piece of research at a University centre, a monograph of this nature has great practical value, as it can form the basis of works like *Common Food Fishes of Shanghai* and *Common Marine Food Fishes of Hong Kong*, which have already been reviewed in this *Journal*. For the collection of fishery statistics, a work of this nature is indispensable.

Both the author and the publisher are to be congratulated on this excellent production which, though not entirely free from blemishes, is beautifully printed and well got up.

S. L. H.

## RELIGION AND SCIENCE

Science, Cause, and God. By J. B. Freeman, The Hogarth Press, Madras. (The Author, Apud Auctorem, Chingleput), 1943. Pp. 341. Price Rs. 7-8-0 or 12sh.

Notwithstanding the fact that the relation between Science and Religion is perhaps the most persistent problem which challenges human intellect and to which evidently no permanent solution could be found satisfactory alike to the scientific and the religious conscience, any attempt to focus or concentrate attention on the different aspects of the problem surveyed historically or genetically and to suggest some suitable way out deserves unreservedly to be welcomed by the world of scientists and religionists. Father Freeman's work, the second revised and enlarged edition of which is now under notice, is a systematic and sustained attempt to analyse as fully and completely as possible the philosophical and scientific implications of the concept of *Cause* undertaken with the palpable motive of demonstrating that *God* is to be understood as the *Cause* of the Universe. Part I, entitled the "Survey of Knowledge", contains *five* chapters devoted respectively to "Mathematics", "The Concrete Sciences", "The New Outlook in Physics", "The Human Sciences", and to "Relativity". Part II, which contains *eighteen* chapters, constitutes the main portion of the book dealing with the analysis of the concept of *Cause*. I would invite the attention of your readers to Chapter 3—particularly to page 174, and to Chapter 12—specially to page 258 for an unequivocal statement of the author's central or cardinal position. "This first cause Uncaused,

this first perfection Unperfected, this pure form we call *God*" emphatically states the author. There are other statements in other contexts which emphasize the same truth.

When statements like these are categorically made difficulties begin to confront those engaged in scientific research understood strictly within the jurisdiction of laboratory discipline devoted to qualitative and quantitative analysis. Unless supremely significant reservations are made and re-interpretations of the concept of *Cause* resorted to a strict orthodox laboratory scientist would be perfectly entitled to contend that an uncaused First Cause is right though riddled with contradictions. For, among the well-known weapons of experimental analysis nothing would seem to secure under the established conditions of verification such an uncaused Cause. The author has found from Whitehead, Jeans, Eddington and others to show that some of the modern scientists have abandoned the *Deterministic Outlook*, and recognised the existence of "intuition of free will". That would not take one very far or far at all. The human free-will on even a superficial analysis would appear readily as hemmed in on all sides with countless restrictions, and as surrounded by a veritable barbed wire fence of determinisms, evolutionary, hereditary, environmental, and even individual. Assuming for the sake of argument that somehow there is human free-will, that would lead to no evidence whatever in support of the existence of an uncaused First Cause. A difficulty like this cannot be lightly or light-heartedly dismissed. Christian Theists like the author have to face it and remove it. So have the Indian Vedantins. But, neither the vedantic nor the Christian theological solution can be forced down the throat of scientists who may contend that laboratory evidence for the existence of an uncaused First Cause is not forthcoming. The author has traced the countless vicissitudes of the concept of *Cause* since the days of Hume, and after a discussion of post-Humian ramifications has brought down the discussion to contemporary philosophy to Bergson, Radhakrishnan and others. Here again the conclusions lead us nowhere and the criticism of the different European and other Western system-builders found in Radhakrishnan's *Reign of Religion in Contemporary Philosophy* on which the author sometimes relies for support is totally unfounded and untenable as the main argument stands vitiated by a deliberate and disingenuous assumption that Absolute Idealism or Monism is the only rational or fashionable philosophy of life and that pluralistic and theistic systems owe their origin to the interference of religious prejudice with strict metaphysical speculation! While the author presses Radhakrishnan's critique of Russell into service, he himself clean throws overboard the self-same Radhakrishnan's Absolute Idealism or Monism. From this elaborate excursion into the works and arguments of these "thinkers" only one rational conclusion can be drawn. The conclusion is that the peculiar type or variety, or species of causality which points to *God* as the Uncaused First Cause of the entire creation

would by its very nature and constitution never admit of laboratory verification which is the one goal of all modern scientific methodology.

Not in any manner or by any means to disparage the undoubtedly excellent work of the author but, merely to illustrate definite difficulties that confront the inquirers, I would invite the author's attention to a remarkable and sensational treatise by Dr. Beutner (London, Chapman and Hall, 1939) entitled *Life's Beginning on the Earth* (reviewed by me in a previous number of *Current Science*), towards the end of which the conclusion is thus indicated: "..... life is not a sort of miraculous separate entity, imposed on our earth by a spirit or an invisible something ... Life is one of the developments of the Universe governed by the general laws of nature" (p. 222). If all sciences that pursue the methodology of the laboratory control refuse to proceed beyond the conclusion just indicated, they cannot be blamed. For, on the plane or level of investigation conducted through the instrumentality of qualitative and quantitative analysis, no other conclusion would at all be possible.

This need not, would not mean any disparagement of all metaphysical effort and endeavour that have characterised the higher thought of mankind throughout the ages. Other methods, other methodologies, other weapons, other hypotheses, and other criteria of verification would have to be admitted to be functioning and operative, and it would be *ultra vires* to question or challenge the validity of these from the standpoint accepted by the laboratory disciplines. Trite as it may seem the need of the hour is that *Religion should grow more religious*, and *Science should grow more scientific*. It is not the other way about. The contention that Religion should grow scientific and that Science should grow religious is totally untenable.

Modern Psychology has admitted a multi-lateral or multi-dimensional development of human personality and complete critical caution and circumspection and strictest scientific scrutiny would co-exist in perfect harmony with religious belief. There is no use of forcing down the throat of a scientist the religious beliefs and solutions. Nor is there any of forcing down the throat of the religious the solutions of science. Sir Richard Gregory, the talented Editor of *Nature*, in his arresting volume entitled *Religion in Science and Civilization*, has argued with striking emphasis, clarity, and breadth of philosophical and scientific vision that both Science and Religion are the products of evolution of *homo sapiens* on this planet and both should be treated and evaluated accordingly. One cannot dictate to the other. For, any attempted dictatorship of the one over the other spells dire disaster.

I desire to make just one more comment in conclusion. The author speaks of first establishing causality and then arriving at the existence of God (p. 281). There is exactly the

rub. He refers to a stage "prior to causality" and styles it the potential speaking likewise of potentialities "able to give" and "able to get". But, then, the potentialities *qua* potentialities must have a being which has to be explained and evaluated in reference to the all-comprehensive concept of causality. Are the potentialities *Uncaused*? For, the author definitely writes "prior to causality". Even the use of "prior" would indicate the existence of TIME not necessarily "per accidens".

Be that as it may, the author should endeavour to stabilise his notions of Indian theories. He would have "Vaiseshika", the "Satkarya-vada", and "Vivarta-vada" correspond to "Scientific", "the Metaphysical", and the "Mystical" points of view (p. 253). These are not mutually exclusive species of the same genus, for, each can be well claimed to be all patterned into *triune*. *Vivarta-vada* definitely connotes *illusionism* but, mysticism does not necessarily mean any *illusionism* at all. Dr. Freeman's book is an effervescent stimulus, and stimulant a crisp challenge to modern scientific and philosophical thought. I expect scientists and philosophers would properly respond to it—not armchair pseudo-scientists and pinchbeck philosophers, but, those of the two categories worth their salt.

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Cretaceous Rocks of South India. By. L. Rama Rao. (Lucknow University Studies XVII), 1942. Pp. 78. 4 Figs.

This publication contains two lectures delivered at Lucknow University Palaeobotanical Laboratory in December 1940, which give an excellent conspectus of the knowledge we possess of a number of isolated patches of marine cretaceous strata in Trichinopoly District, near Vridhachalam, Pondicherry and in the vicinity of Rajahmundry. These rock-formations give us a glimpse into one of these rare and transient episodes in India's geological history when the Deccan along its marginal belts was submerged under the sea. Mr. Rama Rao has dealt with each individual cretaceous outcrop in detail, giving its extent, stratigraphic succession, its rock and fossil contents and the geological horizon indicated by the recent examination of the micro-fauna and flora, more particularly the latter, in which Mr. Rao and his collaborators have made a useful contribution. Niniyur division of the Trichinopoly Cretaceous is, on the evidence of the fossil algal contents of the nodular limestones as well as of the embedded flints and cherts, assigned an age astride of the youngest Cretaceous and basal Eocene.

The four figures show the geographical distribution of these interesting rocks and give a helpful picture of the areal extents these rocks must have spread over at a time when the eastern shores of India, from Assam to Trichinopoly, had suffered their deepest invasion by the waters of the Southern Sea.

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