PREFACE

Few recent works of a serious nature have so happily rewarded the hopes of their authors as has Professor Haeckel's *Welt-Rätsel*. He tells us that he issued the work in the apprehension that the nineteenth century, the century of science and progress, was closing in a gloom of reactionary feeling and thought. As one of the last survivors of the great struggle, he would sound once more the clarion-note of his old phalanx, that it might catch the ear of the new-born century, and rekindle the spirit of strenuous and accurate thinking, when he and his last comrades-in-arms had passed into the void. It seemed to him that an ominous confidence and a renewed activity were noticeable in the ranks of the theologians. He would marshal the achievements of science in one last array, and point the irresistible moral of their cumulation.

A few decades earlier a brilliant theological writer, John Henry Newman, had, in his *Grammar of Assent*, devised a theory of evidence which many thought would divert the force of the scientific attack from traditional religion. Outside of dialectical works, in real life, we do not seek apodictical demonstration. We are satisfied, Newman argued, with a cumulus of probabilities, especially with a number of probable indications converging towards one conclusion. That was in the middle scientific period, when Paleyist and Leibnizian demonstrations were beginning to totter, yet might, after all, have "something in them." Professor Haeckel's fine survey of the position at the close of the century amounts to a terrible reculsion, as dialecticians say, of Newman's argument. Science has advanced along a hundred paths—in astronomy, geology, biology, psychology, ethnography, history, ethics, and comparative religion. Looking at the negative side of its constructive work, we see these lines converging fatally and irresistibly on one conclusion—the utter exclusion of theology from "the domain of cosmological theory." "Science has," as *Cairn* said, "conducted God to its frontiers, thanking him for his provisional services." Simple-minded believers may long continue to fancy that emotion—which they admit as a test of the truth of allegations in no other department of life—will serve as a legitimate base of the cosmic speculations they entitle their "religion." Idealist philosophies—so really incompatible with Biblical Christianity—may continue to supply an esoteric groundwork for the faith of so many superior folk, who believe that other people cannot be got to behave themselves without the threat of a Supreme Chastiser. But this real world and this visible life of man no longer afford ground for theological construction. *The Riddle of the Universe* is an admirable summary, by "one of the most eminent and most thoughtful men of science in Europe" (as Mr. Mallock describes Professor Haeckel), of the positions taken up by science and evacuated by theology.

The reception of the work has largely belied the apprehension, and so
more than justified the design, of its author. In Germany the work has run rapidly through seven editions, and has given firmness and precision to thousands of popular notions on the subject it deals with. In France, England, and the United States the several translations have met with a cordial reception and gone through several editions. This is the third large edition which the Rationalist Press Association offers to British readers. Nor is the popular welcome of the work more instructive than the silence or the triviality of its opponents. No sooner had the first edition begun to make an impression among us than a high representative of that diminishing band of scientific men who still make and transfigure popular theologies held out, by an advertisement in—appropriately enough—the "agony column" of the Times, the promise of an antidote. The anxious souls who hang on his words are still looking for his "reply to the asseverations of Professor Haeckel." The ecclesiastical press at large was content either to ignore the book or to carp at one or two incidental statements on minor matters foreign to Professor Haeckel's peculiar authority. The great theme of the work, evolution, and particularly the evolution of mind, they were compelled entirely to avoid. Mr. Mallock has since written a series of essays in which he, as an impartial onlooker, sums up the result of the conflict of science and religion. As the representatives of religion he takes three distinguished Roman Catholic writers; as the representative of science he adduces throughout Professor Haeckel, and chiefly in this Riddle of the Universe. And on each specific point where his authorities come in conflict he awards the palm to the eminent exponent of Monism.

The work is unanswered, because it is unanswerable. Nor can one lightly set aside the work as an onslaught on a dead form of theistic philosophy. One of the supreme questions that divided the opposing forces in the later period of the nineteenth century was that of the evolution of the human mind. The theory of the evolution of man's bodily frame has long been beyond controversy; but it was maintained with some spirit, and this not merely by Catholic scientists, that the development of the mind from lower types of mentality was not yet established. Here were still gaps in our knowledge on which the theologian loves to build. The chief merit of the present work lies in its masterly treatment of the question of the evolution of mind. The data for the solution of this problem are necessarily drawn from the science of which Professor Haeckel is the ablest living representative, and they are marshalled in the Riddle of the Universe with consummate skill and signal clearness. The case for the evolution of mind has been placed on the same experimental base as the theory of the evolution of the body. Distinction has no longer the semblance of reason. From the lowest kingdom of the protists to the phenomena of the human intelligence we pass with tolerable ease. The few lacunae in our evidence are insignificant beside the broad, overpowering tendency of their cumulative force. In this respect Professor Haeckel may well claim that with this volume he "draws the line under his life's work." That task is accomplished, and one of the most important contributions to the science or philosophy of human life, with its myriad problems, has been for ever established.

J. M.

November, 1902.
THE present study of the Monistic Philosophy is intended for thoughtful readers of every condition who are united in an honest search for the truth. An intensification of this effort of man to attain a knowledge of the truth is one of the most salient features of the nineteenth century. That is easily explained, in the first place, by the immense progress of science, especially in its most important branch, the history of humanity. In the second place, we must trace it to the open contradiction that has developed during the century between science and the traditional "Revelation"; and, finally, to the inevitable extension and deepening of the rational demand for an elucidation of the innumerable facts that have been recently brought to light, and for a fuller knowledge of their causes.

Unfortunately, this vast progress of empirical knowledge in our "Century of Science" has not been accompanied by a corresponding advancement of its theoretical interpretation—that higher knowledge of the causal nexus of individual phenomena which we call philosophy. We find, on the contrary, that the abstract and almost wholly metaphysical science which has been taught in our universities for the last hundred years under the name of "philosophy" is far from assimilating our hard-earned treasures of experimental research. On the other hand, we have to admit, with equal regret, that most of the representatives of what is called "exact science" are content with the special care of their own narrow branches of observation and experiment, and deem superfluous the deeper study of the universal connection of the phenomena they observe—that is, philosophy. While these pure empiricists "do not see the wood for the trees," the metaphysicians, on the other hand, are satisfied with the mere picture of the wood, and trouble not about its individual trees. The idea of a "philosophy of nature," to which both those methods of research, the empirical and the speculative, naturally converge, is even yet contemptuously rejected by large numbers of representatives of both tendencies.

This unnatural and fatal opposition between Science and Philosophy, between the results of experience and of thought, is undoubtedly
becoming more and more irksome and painful to thoughtful people. That is easily proved by the increasing spread of the immense popular literature of "natural philosophy" which has sprung up in the course of the last half-century. It is seen, too, in the welcome fact that, in spite of the mutual aversion of the scientific observer and the speculative philosopher, nevertheless eminent thinkers from both camps league themselves in a united effort to attain the solution of that highest object of inquiry which we briefly denominate the "world-riddles." The studies of these "world-riddles" which I offer in the present work cannot reasonably claim to give a perfect solution of them: they merely offer to a wide circle of readers a critical inquiry into the problem, and seek to answer the question as to how nearly we have approached that solution at the present day. What stage in the attainment of truth have we actually arrived at in this closing year of the nineteenth century? What progress have we really made during its course towards that immeasurably distant goal?

The answer which I give to these great questions must, naturally, be merely subjective and only partly correct; for my knowledge of nature and my ability to interpret its objective reality are limited, as are those of every man. The one point that I can claim, and which, indeed, I must ask of my strongest opponents, is that my Monistic Philosophy is sincere from beginning to end—it is the complete expression of the conviction that has come to me, after many years of ardent research into Nature and unceasing reflection, as to the true basis of its phenomena. For fully half a century has my mind's work proceeded, and I now, in my sixty-sixth year, may venture to claim that it is mature; I am fully convinced that this "ripe fruit" of the tree of knowledge will receive no important addition and suffer no substantial modification during the brief spell of life that remains to me.

I presented all the essential and distinctive elements of my Monistic and Genetic Philosophy thirty-three years ago, in my General Morphology of Organisms, a large and laborious work, which has had but a limited circulation. It was the first attempt to apply in detail the newly-established theory of evolution to the whole science of organic forms. In order to secure the acceptance of at least one part of the new thought which it contained, and to kindle a wider interest in the greatest advancement of knowledge that our century has witnessed, I published my Natural History of Creation two years afterwards. As this less complicated work, in spite of its great defects, ran into nine large editions and twelve different translations, it has contributed not a little
to the spread of monistic views. The same may be said of the less known Anthropogeny (1874), in which I set myself the difficult task of rendering the most important facts of the theory of man's descent accessible and intelligible to the general reader; the fourth, enlarged, edition of that work appeared in 1891. In the paper which I read at the fourth International Congress of Zoology at Cambridge, in 1898, on "Our Present Knowledge of the Descent of Man," (a seventh edition of which appeared in 1899), I treated certain significant and particularly valuable advances which this important branch of anthropology has recently made. Other isolated questions of our modern natural philosophy, which are peculiarly interesting, have been dealt with in my Collected Popular Lectures on the Subject of Evolution (1878). Finally, I have briefly presented the broad principles of my Monistic Philosophy and its relation to the dominant faith in my Confession of Faith of a Man of Science: Monism as a Connecting Link between Religion and Science (1892, eighth edition, 1899).

The present work on The Riddle of the Universe is the continuation, confirmation, and integration of the views which I have urged for a generation in the aforesaid volumes. It marks the close of my studies on the monistic conception of the universe. The earlier plan, which I projected many years ago, of constructing a complete "System of Monistic Philosophy" on the basis of evolution, will never be carried into effect now. My strength is no longer equal to the task, and many warnings of approaching age urge me to desist. Indeed, I am wholly a child of the nineteenth century, and with its close I draw the line under my life's work.

The vast extension of human knowledge which has taken place during the present century, owing to a happy division of labour, makes it impossible to day to range over all its branches with equal thoroughness, and to show their essential unity and connection. Even the genius of the highest type, having an equal command of every branch of science and largely endowed with the artistic faculty of comprehensive presentation, would be incapable of setting forth a complete view of the cosmos in the space of a moderate volume. My own command of the various branches of science is uneven and defective, so that I can

1 There are two English translations, The Evolution of Man (1879) and The Pedigree of Man (1880).

2 The English translation, by Dr. Hans Gadow, bears the title of The Last Link.

3 English translation, by J. Gilchrist, with the title of Monism.
attempt no more than to sketch the general plan of such a world-picture, and point out the pervading unity of its parts, however imperfect be the execution. Thus it is that this work on the world-enigma has something of the character of a sketch-book, in which studies of unequal value are associated. As the material of the book was partly written many years ago, and partly produced for the first time during the last few years, the composition is, unfortunately, uneven at times; repetitions, too, have proved unavoidable. I trust those defects will be overlooked.

In taking leave of my readers, I venture the hope that, through my sincere and conscientious work—in spite of its faults, of which I am not unconscious—I have contributed a little towards the solution of the great enigma. Amid the clash of theories, I trust that I have indicated to many a reader who is absorbed in the zealous pursuit of purely rational knowledge that path which, in my firm conviction, alone leads to truth—the path of empirical investigation and of the Monistic Philosophy which is based upon it.

Ernst Haeckel.

Jena, Germany, 1899.