

that was committed was the definition of a frontier by a meridian line, and what makes the error the more regrettable is that this unscientific boundary was a gratuitous importation, which was substituted for the perfectly precise and scientific frontier laid down in the original act constituting the Congo State. This frontier was the watershed line dividing the Congo basin from the surrounding river basins, of all natural geographical frontiers the most satisfactory.

It was defined, with ideal precision, in the "Berlin Act" of February 26, 1885, in the following words:—

"All the regions forming the basin of the Congo and its outlets. This basin is bounded by the watersheds (or mountain ridges) of the adjacent basins, namely, in particular, those of the Niari, the Ogowé, the Schari and the Nile on the north. . . . It therefore comprises all the regions watered by the Congo and its affluents."

Apart therefore from the actual method of frontier definition, we cannot avoid the conclusion that to have allowed the Congo State to acquire claims to any territory outside the actual Congo basin was a surrender of our clear rights. We may remind those of our readers who have not got a map in front of them that both the Lakes Albert and Edward and the Semliki river, which connects the two, lie wholly within the Nile basin.

Our knowledge of the interior of Africa has so progressed since 1894 that there is no locality where a mistake, at all comparable in magnitude, could be made at the present time. We may further be permitted to hope that the spirit in which our great departments of State approach this and similar questions has undergone such a change in the last few years that a total setting aside of all expert opinion, on which alone the agreement of 1894 is explicable, is no longer probable. E. H. H.

#### WILLIAM JAMES.

THE announcement of the death, at the comparatively early age of sixty-eight, of William James, emeritus professor of philosophy in Harvard University, will have been received with regret by an unusually wide circle of readers of philosophic literature, and with deep sorrow by an unusually large circle of friends, who knew from experience how much greater was the charm of his personality than the charm even of his writings. But few even of his friends can have suspected under what physical disabilities were produced the utterances of which the sunny geniality, irrepressible vitality, coruscating vividness, and brave optimism, unstained by any shadow of insincerity or cowardice in facing the ills of life, so deeply fascinated them, or realised that they were listening to a martyr to a grave cardiac affection, whose life for the last ten years had hung by a thread.

This is not the place for an estimate of James's achievements as a philosopher, but it will not be amiss to signalise the intimacy of his relations to science. It is not often that a philosopher of the first rank has had the good fortune to receive a scientific education or the literary genius to gain by losing a literary education. But William James is a shining example of how stimulus and freshness may be imparted even to philosophic subjects by one who is allowed to approach the real problems direct, and without wandering through a thick fog of historic errors. Originally trained for the medical profession, he became interested in "pure" science; accompanied Agassiz on an expedition to Brazil; was appointed to teach anatomy at Harvard; proceeded to the teaching of physiology; approached psychology from the physiological side; became a peerless master in the art of psychological description; applied his psychology with

revolutionising and revivifying effect to the study of religion, superstition, logic, and to that chamber of horrors for unsolved puzzles which is called metaphysics; and, finally, before he could formulate his conclusions, was taken from the world he had studied so variously and with such eager human sympathy. But at heart perhaps his attitude towards life always remained psychological. He was more interested in discovering and describing facts than in dogmatising and system-building with them, and almost as disregarding of formality as of technicality and pedantry.

To scientific psychology his services are admittedly immense. His work on "The Principles of Psychology" (1890) at once became a classic, and is likely to remain so. He found the science entangled in metaphysical obscurities and based on false descriptions. He insisted that it should be made a natural science, descriptive, and, wherever possible, experimental, and described its facts anew. His fundamental innovation was to perceive that the "facts" of consciousness form a continuous flow and *not* a succession or series of separate facts, as, since Hume, psychologists and their metaphysical opponents had alike assumed. The consequence was that the problem of *synthesis* disappeared, and that the function of scientific knowing became the *analysis* of a continuum. When the meaning of this has been fully grasped, it will be seen that a number of metaphysical puzzles (*e.g.* about "the one" and "the many") answer themselves.

But James also saw that if psychology was to progress further on the road to an exact science, it must not be only descriptive, but must devise applications of its theories sufficiently precise to discriminate between alternative interpretations by their differential values. This probably was one of the main motives that led him to make the great generalisation of scientific method which is known as pragmatism, though he also conceived it in another aspect as an extension to psychology and logic of the biological conception of survival and the Darwinian principle of selection. Of pragmatism he was practically the founder, though he took a hint and the name (which is a bad one) from his friend C. S. Peirce, and it was to the explanation and advocacy of this method that the last dozen years of his life were devoted. The controversy which was thereby started is still unfinished, and, indeed, is only just beginning to bear fruit.

But it is a psychological curiosity how few of the many who denounced James as a dangerous revolutionary perceived that the doctrine that the meaning of an assertion depends on the value of its consequences enunciated merely the scientific postulate that all assertions must be *tested*, and that any doctrine which could not be applied to any problem was unmeaning. One can only suppose that this philosophic generalisation of scientific practice was propounded to persons who, as a matter of psychological fact, were not in the habit of subjecting their pet convictions to any test, and therefore aroused so great an emotional disturbance that the actual doctrine was hardly attended to. A similar reception was accorded to James's account of the will and the right to believe. James, after pointing out that, as a matter of psychological fact, there existed a strong bias in men to believe what they desired, had restricted the right to believe to cases where a choice between a number of intellectually possible alternatives was practically necessitated, and asserted that in such cases the empirical consequences of the belief, favourable or otherwise, formed the test of its truth. Whereupon he was, in spite of repeated disclaimers, universally credited by his critics with exhorting men to believe whatever they pleased without regard to the consequences!



But all the world over the old dies hard, and the new has to struggle into birth so slowly that it is adult by the time it comes out, and the pioneers have to rough it. Logic will be the last science to submit to the sway of Darwinism, but there is no doubt that in the end it, too, will yield to the pragmatist followers of William James.

In addition to writing a large number of articles and reviews which have never been republished, James was the author of the following substantive works:—"The Principles of Psychology" (1890), the "Text-book of Psychology" (1892), "The Will to Believe" (1896), the Ingersoll lecture on "Human Immortality" (1898), "Talks to Teachers" (1899), probably the easiest and most delightful introduction to psychology extant, the "Varieties of Religious Experience" (1902), "Pragmatism" (1907), "A Pluralistic Universe" (1909), and "The Meaning of Truth" (1909).

#### DR. LOUIS OLIVIER.

DR. LOUIS OLIVIER, whose death we announced last week, was one of the best-known men of science in France, and had many friends also in Great Britain. He was only fifty-six years of age, and that the scientific world should have been deprived of his influence and activities when years of further work were anticipated has caused widespread regret.

For most of the following particulars of his career we are indebted to M. Louis Brunet. Louis Olivier was born at Elbeuf on June 29, 1854. He studied at the Museum of the Sorbonne, and obtained the degree of doctor of science in 1881, with a thesis entitled "L'appareil tegumentaire des racines," which was awarded the Bordin prize of the Paris Academy of Sciences. Entering Pasteur's laboratory, he carried on bacteriological work, which led to some valuable results, such as the reduction of sulphates by micro-organisms, and, in collaboration with M. Ch. Richet, the existence of various bacteria in the lymph and blood of healthy fishes. In 1888 he went to Havre as director of the municipal laboratory there, and to form a course in bacteriology for medical men.

But the work for which Dr. Olivier deserves the lasting gratitude of the scientific world was the foundation of the *Revue générale des Sciences pures et appliquées* in 1890. When making arrangements for the establishment of that journal, Dr. Olivier was kind enough to state that he desired it to have much the same scope and character as NATURE. Possessed of vast knowledge of men and matters in all departments of science, he was able to exercise sound judgment upon the numerous contributions submitted to him, and was successful in securing authoritative collaborators, not only in France, but also in other countries, to deal with subjects of wide interest and prime importance. During numerous visits to England, he obtained the active support of many men of science here, and they mourn his loss as that of a friend as well as of an editor.

At the outset, the *Revue générale des Sciences* was recognised as a substantial addition to the periodical literature of science. The outlook was wide, the contributors men of distinguished eminence and sound knowledge, and the subjects important; and the journal has maintained this character throughout its existence. As an example of the breadth of view, we may mention that arrangements were made by Dr. Olivier for special reports to be supplied to his journal of the meetings of the Royal Society of London and of other leading scientific societies in Europe. So far as we are aware, no other journal abroad gives such attention to the progress of science in Great Britain

as is still devoted to it by the *Revue générale des Sciences*.

In 1897 Dr. Olivier established a series of cruises which have enabled many of his countrymen to visit various places, with guides well acquainted with the aspects of scientific interest presented by them. Among the countries to which he thus introduced many travellers are Spitsbergen, the Canary Islands, Scotland, Egypt, and the Caucasus.

Though Dr. Olivier was not a member of the Paris Academy of Sciences, Prof. Bouchard, who presided at the meeting of the academy on August 16, expressed sorrow at his death, and this testimony to the esteem in which he was held was put on record in the *Comptes rendus*. This exceptional mark of honour shows the high regard in which Dr. Olivier was held in France, and we are sure that in our own country there is real regret that one whose life has been of such great service should have passed into silence while actively engaged in his work for the extension of scientific knowledge.

#### NOTES.

IN accordance with previous announcements, arrangements have been made to hold the autumn meeting of the Iron and Steel Institute at Buxton, on Monday to Friday, September 26-30. The following are among the subjects of papers to be brought before the meeting:—Electric steel refining, D. F. Campbell; manganese in cast iron and the volume changes during cooling, H. I. Coe; sulphurous acid as a metallographic etching medium, E. Colver-Glauert and S. Hilpert; the theory of hardening carbon steels, C. A. Edwards; the influence of silicon on pure cast iron, A. Hague and T. Turner; the preparation of magnetic oxides of iron from aqueous solutions, S. Hilpert; the utilisation of electric power in the iron and steel industry, J. Elink Schuurman; some experiments on fatigue of metals, J. H. Smith.

At the autumn meeting of the Institute of Metals, which is to take place in Glasgow on September 21-23, the following papers will probably be read:—The heat treatment of brass: experiments on 70:30 alloy, Messrs. G. D. Bengough and O. F. Hudson; some common defects occurring in alloys, Dr. C. H. Desch; shrinkage of the antimony-lead alloys, and of the aluminium-zinc alloys, during and after solidification, Mr. D. Ewen; the effect of silver, bismuth, and aluminium upon the mechanical properties of "tough-pitch" copper containing arsenic, Mr. F. Johnson; metallography as an aid to the brass founder, Mr. H. S. Primrose; magnetic alloys formed from non-magnetic materials, Mr. A. D. Ross.

A HITHERTO unknown region in New Guinea, near the central mountain range in Netherlands territory and west of the Fly River, has been visited by a Dutch explorer, Dr. H. A. Lorentz, who has published an account of the inhabitants. These, unlike the people found further west by the English expedition under Captain Rawling, are not pigmies, and most of Dr. Lorentz's description shows that they are not very far removed from the typical dwellers in the Fly River region. They wore no clothes, and lived in small huts about ten feet from the ground, as do some of the people of the Fly delta. As usual among the western Papuans, they used the bow and arrow, and had stone axes, the common weapon of all Papuans, until the advent of the white man. Mutilation was practised. The women cut off the middle finger of the left hand, the men removed the upper portion of one ear. This tribe was found to smoke and grow tobacco, which is not used on the coast of