



SATURDAY, NOVEMBER 22, 1930.

## CONTENTS.

	PAGE
Administration and Research in India . . . . .	797
Physics and Reality. By Prof. Herbert Dingle . . . . .	799
Lavoisier and the Study of Combustion. By Prof. A. Smithells, C.M.G., F.R.S. . . . .	801
High Voltage Cables . . . . .	802
Our Bookshelf . . . . .	803
Letters to the Editor :	
The Ether and Relativity.—Sir Oliver Lodge, F.R.S. . . . .	804
Genetics, Mathematics, and Natural Selection.—Dr. R. A. Fisher, F.R.S.; Prof. R. C. Punnett, F.R.S. . . . .	805
The Behaviour of Methane Molecules and Argon Atoms in Collisions with very slow Electrons.—Dr. Henry L. Brose and J. E. Keyston . . . . .	806
Helium Ratios of the Basic Rocks of the Gwalior Series.—Dr. V. S. Dubey . . . . .	807
Passage of an Electric Discharge through Gases.—Prof. J. B. Seth and Bal Mokand . . . . .	808
Properties of Dielectrics in Electric Fields.—G. L. Addenbrooke . . . . .	808
Ball Lightning.—Dr. A. Russell, F.R.S.; H. Southorn . . . . .	809
Crystal Structure of the $\beta$ -Phase of Aluminium-Bronze.—Ichiji Obinata . . . . .	809
Cage for the Study of Sheep Ticks.—J. H. Tetley . . . . .	809
Recent Work on Insulin . . . . .	810
Faraday's Diary. By Thomas Martin . . . . .	812
Obituary :	
Prof. Adolf Engler. By A. B. R. . . . .	814
Mr. B. B. Woodward . . . . .	815
News and Views . . . . .	816
Our Astronomical Column . . . . .	821
Research Items . . . . .	822
Colour Vision. By Prof. H. E. Roaf . . . . .	825
Preservation of Fish at Sea . . . . .	826
Problems of Cotton Growing . . . . .	827
University and Educational Intelligence . . . . .	827
Historic Natural Events . . . . .	828
Societies and Academies . . . . .	829
Official Publications Received . . . . .	831
Diary of Societies . . . . .	831

*Editorial and Publishing Offices :*

MACMILLAN & CO., LTD.,

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

Editorial communications should be addressed to the Editor.

Advertisements and business letters to the Publishers.

Telephone Number: GERRARD 8830.

Telegraphic Address: PHUSIS, WESTRAND, LONDON.

No. 3186, VOL. 126]

## Administration and Research in India.

WHATEVER may be the outcome in the immediate future of the political situation in India, and however it may be affected by the Round Table Conference now sitting in London, it must be remembered that pledges have been given which would result in the exercise of the effective power of government passing in an increasing degree into the hands of the Indian people. This is not the place, even if it were not too late, to enter into argument as to the wisdom of the course that has been adopted in handling Indian affairs; it is the outcome of a policy which was initiated long ago. Enlightened according to the ideas of its day, that policy, nevertheless, failed to appreciate the essential quality of the problem and the conditions which governed its solution.

Under our dominion in India, the administrative, executive, and judicial functions were long solely in the hands of British officials. In the native States with princely rulers, native institutions functioned under the supervision of a British political officer, whose duty it was in case of need to exercise a firm, if tactful, restraining influence over the head of the State. In both cases, control was vested in men trained in the traditions of a great service, men who looked for no material gain from the position they held. Nevertheless, however sympathetically exercised, this control was an alien control, the control of a foreign aristocracy in a conquered land—a condition with which India had been familiar from her earliest historic times.

With the spread of humanitarian and democratic ideals in the nineteenth century, as the Empire expanded, there grew up the conception of a tutelage of the backward races by the white man. To some this meant no more than the preservation of the *Pax Britannica* and an autocratic, if just and benevolent, rule which eliminated the more objectionable features of native custom, but on the whole left it very much where it was. The line of demarcation between the ruler and the ruled was rigorously observed. This was, on the whole, the point of view of Mr. Rudyard Kipling and on broad lines that of the Indian civilian. It did not preclude, and indeed more often than not was accompanied by, a very considerable understanding of native customs and ways of thought, as well as appreciation of their bearing upon the problems of government.

On the other hand, a more widely held, if perhaps less well informed, opinion regarded it as incumbent

upon the white man to raise the status of the native in the scale of civilisation and to train him to a point at which he would be capable of taking a part in the civic life and government of his country. However this aim is to be regarded as an ideal, there can be no two opinions, in the light of experience, as to the means adopted for its attainment. The end in view was to be attained by education—education, that is, on the European model—and a share in representative institutions when the time was ripe and the native had reached the necessary standard of civic responsibility. Hence we find the children of West Africa on their way to this desirable goal reciting in English lists of the capes and rivers of Great Britain!

In India the opportunity was readily grasped by certain classes of the population. Converts—too often solely *ad hoc*—thronged the missionary schools; universities, with curricula framed on English lines, flourished in the various provinces; and Indians were admitted to the Civil Service, the Bar, and the Bench. Gradually representation was introduced in the local and central councils, though tempered by an official British element; “India for the Indians” then became the cry of the political agitator. Home Rule was admitted as a not unreasonable claim.

The peculiar conditions of India have served to disguise the fact, which soon became apparent in dealing with the backward races in our other dependencies, that training upon European lines and through institutions other than those of the people themselves was not suited to their needs. India has a civilisation of her own with a long history behind it. For centuries her culture has attained high development on its own lines in the arts, in literature, in philosophy, and even in a science of its kind. Those of the Indian peoples to whom this culture was native were intellectual, intelligent, and of a singular flexibility of mind. They rapidly assimilated European ideals and methods of education, at least superficially. Their success in law, in medicine, and in some branches of science has been conspicuous both in their own universities and in those of Europe.

The undoubted intellectual ability and adaptability of a certain section of the population and the clamour of agitators who loudly proclaim their hostility to a ‘foreign’ rule have led many into thinking not only that India is capable of self-government, but also that Indian rule for India will bring peace and an absence of friction in the work of administration. In truth, all that will have been done will be to take the administration

from one race and hand it over to another which will not necessarily stand in much closer relation to the population of its jurisdiction than the European. The educated Indian in number represents an exceedingly small percentage of the total population.

The problem of the government of India, the real India, remains unchanged. India is still not one, but many. The lack of unity arising from differences of caste and of race will still be there. The multiplicity of creeds will persist, even though Hinduism may seek by the imposition of an official pantheon and a common name to mark off its millions, with their varied beliefs and their local godlings, from Mohammedan and Parsi. The customs and modes of thought of the peasant population, the wild tribes, the hill men, the nomads, and the outcasts may well be as strange to the educated Indian as they are to the English civilian fresh from his university. In the recent examination for the Indian Civil Service, it would appear that of the twenty-four successful candidates from all parts of India, the big majority were Hindus. In a country so vast as India and varying so profoundly in custom and sentiment, in what respect does any one of these when outside his own district, his own race, and his own creed hold the advantage over the English civilian? Differences of caste, of race, of religion, and of culture will still have to be bridged. Sympathy informed by knowledge will be no less an essential of good and efficient rule.

The mass of the Indian peoples is indifferent to politics; its vital interests are moulded by its religious beliefs. Whatever may be the form of constitution ultimately adopted, in the last resort its efficiency, in view of the peculiar character of Indian conditions, will rest on the relations of the district official with the people under his jurisdiction. It should be unnecessary to labour the point that this depends upon an intimate knowledge of racial character and religious and social customs. This goes deeper than the broad distinction between Mohammedan and Hindu, or even the major differences within the latter group.

It has frequently been pointed out that the intimate knowledge such as is here held necessary demands intensive study. In the records of the Indian census, in the pages of Risley, of Crooke, and of the many others who have written on the customs and beliefs of the peoples of India, is much invaluable material to form the groundwork of such study; but none would deny that in the collection of information bearing on the ethnology

and culture of the Indian peoples much still remains to be done. Whatever change may be brought about in the government of India, this work should be continued.

There can be no question that the Indian university will have an increasingly important charge in the future of the country. With it will lie a great part in educating the administrator and in preparing him for the performance of his function in the government of his country. In the past, it must be admitted, the curricula of the universities have in too great a degree looked to western culture for inspiration. It is true they have not neglected Indian studies; but even in these, especially in earlier days, they have fostered the literary and speculative bias of the native of India, and especially of the native of Bengal. In Indian studies, literary and textual criticism of the Indian classics, philosophy, epigraphy, and the study of literary historical sources have prevailed, to the almost entire exclusion of the problems and conditions of the living India.

In another column we refer to the records of research which have been carried out at the University of Allahabad in recent years. It is there pointed out that great stress is now laid on research in university work. These records indicate the importance which, to-day, is attached to practical work in the natural sciences. On the other hand, in the more specifically Indian side of the work research is almost exclusively literary. Without in any way attempting to minimise the importance of these studies in their bearing upon the history and culture of India, it is permissible to suggest that the universities have a great field for research at their doors. The ethnology, the social anthropology, and the economics of the Indian peoples are matters of vital importance which call for investigation. These are fields to which the natives of India themselves have paid too little attention. Among them it is true there are a few now living who have earned a world-wide reputation by their devotion to anthropological studies; of some whose activities have recently turned in this direction it would not be too harsh to say that their theories have been coloured by their political prepossessions. In view of the practical importance of these studies for the future good government of India, the universities would do well to encourage research in the laboratory and in the field. Incidentally, by so doing they would effect a valuable and much-needed contribution to the advancement of anthropological knowledge at large.

No. 3186, VOL. 126]

### Physics and Reality.

*The Mysterious Universe.* By Sir James Jeans. Pp. ix + 154 + 2 plates. (Cambridge: At the University Press, 1930). 3s. 6d. net.

WHY do we call the universe mysterious? Is it because we know so much about it or so little? The impression left by Sir James Jeans's fascinating book is that it is because the interpretation given appears more fantastic than that which is interpreted. Perhaps the only true mystery is one which is not destroyed by solution.

We exist as the result of an accident to the sun some 2000 million years ago. The stage thus being set, the actors unaccountably appeared and began to interrogate their surroundings. To primitive man simple things were obviously regular, while complex things were apparently capricious. Caprice was more impressive than monotony, and the universe was thought of as anthropomorphic. As time passed, more attentive observation caused a continuous transfer of phenomena from the category of caprice to that of regularity, and the universe was accordingly reinterpreted as a machine. In these last days the machine has broken down, and left a thought-form which is the present physical conception of the ultimate nature of the world and appears to bring us back to caprice, rechristened 'indeterminacy', as the original source of events.

Such is the panorama of scientific history which Sir James Jeans shows us. With a wealth of apt illustration he traces its course, showing in detail how the relativity and quantum theories have led up to the present position, and in conclusion describes his philosophy of the universe as a thought in the mind of a controlling mathematician who has no perceptible emotion, morality, or aesthetic appreciation.

It is admirably done. Despite a few infelicities—the result, apparently, of undue haste—we know of only one book on the same themes which deserves comparison with it. It is difficult to conceive of a more excellent account of the recent developments of physics for the general reader. Most readers, however, will be chiefly interested in the summing-up, and this we find not so admirable. Sir James's review of mankind's successive attitudes towards the universe is too summary to include transition stages, and one of these seems to us, in view of recent developments, to be of the greatest significance. Let us try to indicate it by presenting two different points of view taken in scientific work and thought.