

composed of matter at all, it must be in that sub-atomic condition characteristic of the manifestation of electricity. The corona from its very appearance suggests a streaming out from the sun of attenuated matter, or of force. That a repellant force actually emanates from the sun is shown by the solar action upon the tails of comets, always turning them from itself. It seems to have been fairly well established that all substances are radio-active, differing only in degree in the possession of this property. It is but a step further to conclude that all celestial bodies are sending out emanations of matter in the most attenuated state, and that these effects, in the case of the sun, become visible as the solar corona. Following this trend of thought, we may safely assume that the earth and moon each has its own corona. The aurora borealis then may be an exhibition of our corona shining by its own light, the angle at which the sun strikes the corona being such as to preclude the reflection of sunlight to the observer's eye. The zodiacal light might be explained as being due *mainly* to sunlight reflected from our own coronal matter. As in this case we should not be viewing the earth corona by its own light, the flickering effect of the northern light would not be prominent.

The hypothesis here offered seems to account for the puzzling mixed spectra of the so-called zodiacal light. It further explains the existence of the shafts high in the north and the undecided character of the light, on the evening of March 27. Both the zodiacal and auroral theory utterly fail to account for these. Wandering into the domain of conjecture, it is interesting to speculate whether the solar, terrestrial and lunar coronas are identical in nature. If they are not, it would seem to indicate that radio-activity was a function of the heat of the radiating body, and we might expect the spectra to group themselves in the order named as regards simplicity. If the spectra should prove to be the same, we might fairly conclude that coronal material is the final form of disintegrating matter, as a nebula is the first form.

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QUOTATIONS

THE CAVENDISH LABORATORY

LORD RAYLEIGH, as chancellor of the University of Cambridge, performed his first official act by opening the new wing of the Cavendish Laboratory, which Lord Rayleigh, as a Nobel prize-man, presented to the university. The ceremony was all the more interesting because, as Professor J. J. Thomson observed, it occurred upon the anniversary of the opening of the original Cavendish Laboratory, which the university owed to the generosity of the seventh Duke of Devonshire, who was chancellor in 1874. During the thirty-four years that have elapsed since the founding of the laboratory, Lord Rayleigh has been closely connected with it, and the physical research which it was designed to promote. His interest in it, indeed, began, as he remarked yesterday, before it existed. He had then become acutely aware of the scientific destitution of the university, and of the difficulty of acquiring systematic scientific training. Much good work had been done in physical research, but it had to be carried out by earnest students either in their own houses or in some college where the equipment was more meager than students of the present day can easily realize. Lord Rayleigh's activity in seeking a remedy for that state of things was much greater than might be inferred from his characteristically modest remark that he had some share in urging Clerk-Maxwell to accept the appointment of professor of experimental physics. That brilliant man's tenure of the post was not a long one, and on his lamented death in 1879 Lord Rayleigh succeeded him as Cavendish professor. During the five years of his professorship Lord Rayleigh carried out some fundamental researches with results which more recent investigations have only corroborated. Since that time the post has been held and adorned by Professor J. J. Thomson; but Lord Rayleigh's interest in the laboratory and its work has been continuous and keen. The extension which he has given to its accommodation was very urgently needed on account of the steady growth in the

number of students pursuing original research; but the university is poor and, but for his timely aid, might have waited long for this addition to its teaching facilities. The present phase of scientific investigation is marked by a need for costly apparatus which earlier experimenters do not seem to have felt so acutely and which certainly could not have been supplied. Lord Rayleigh, we may judge from a reference to his earlier studies, does not approve the tendency to disparage simpler methods of research, and it is conceivable that some day a great man will again arrive at an epoch-making discovery by means surprisingly simple. Originality is perhaps not always fostered by a wealth of apparatus, still there is an immense amount of work at the present day which can be carried on nowhere but in well-equipped laboratories like the Cavendish. When the present extension has again been overtaken by the influx of students, Cambridge will no doubt again find among her sons some one to emulate the liberal and public-spirited action of her present distinguished chancellor.—The London Times.

SCIENTIFIC BOOKS

Social Psychology: An Outline and Source Book. By EDWARD ALSWORTH ROSS. New York, The Macmillan Company. 1908. Pp. xviii + 372.

It must have required considerable courage on the part of Dr. Ross to venture a new book on social psychology. For although he says in the preface that "the ground is new," still, as he well knows, and as his materials show, the subject itself is very old and has been worn threadbare. The only thing that could be done, and the thing that he has virtually done, was to undertake a new compilation of the matter already extant. For, without making a count, it seems safe to say that fully one half of the matter of the book is between quotation marks, and its character as a compilation would have been apparent if all the citations had been printed in different type. But this is very far from being a criticism of the book. Indeed, under the circumstances it is its highest commendation.

And yet he has by no means utilized all the literature. Professor Sumner's "Folkways" reached him too late for use, but it would have been an inexhaustible source of facts for such a work. One of the most important omitted works is Michailovsky's elaborate treatise on "The Heroes and the Crowd," which first appeared in *Russian Wealth* in 1882 and was republished in a collection of essays in 1896.¹ In this essay imitation and suggestion are ably handled, and many of Tarde's best thoughts are anticipated. The religious epidemics of the middle ages are described in detail, and contagious manias of suicide and homicide are fully treated. The subject of the influence of the mind on the body, now brought into such prominence by Christian science, received special attention, not merely in recording the alleged instances of "stigmata," but in enumerating many other illustrations. In no other work, so far as I know, is the case of Jacob's "ring-streaked, speckled and spotted" sheep and goats referred to this principle, not only as illustrating its effect on animals, but as showing that it was understood by Jacob and effectively acted upon.

Another of the older, much neglected works is Carpenter's "Mental Physiology," 1875, which deals in a scientific way with many of the psychic phenomena now referred to social psychology. Carpenter laid great stress on the principle which he called "expectancy," which is really none other than that now perhaps less happily called "suggestion."

But of course Tarde's works stand out as the leading contributions to social psychology, and it is refreshing to see them prominently recognized by Dr. Ross in the preface to this book. It has become so much the custom of American writers, while reiterating the truths they contain, to ignore their source, that this manly acknowledgment will be appreciated by all admirers of the great French sociologist.

Dr. Ross well says that social psychology is not the same as psycho-sociology. It is not

¹ "Heroi i Tolpa," Russkoe Bogatstvo, 1882; Sochineniya, Vol. II., St. Petersburg, 1896, pp. 95-190.