SCIENCE:

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NOTICE TO CORRESPONDENTS.

The writer of a paper "*On Ether*" will much oblige by forwarding his name and address.

THE DISCOVERY OF NEPTUNE.

The brilliant theoretical discovery of this planet by Leverrier and Adams, will be distinctly remembered by many of our readers. Soon after the publication of the mathematical investigation made by the two astronomers who had won so much glory, Professor Benjamin Pierce, of Harvard College, startled the scientific world by the announcement that after all this discovery was only a happy accident, and that the planet found by Galli, in accordance with the directions of Leverrier, was not the planet "to which geometrical analysis had directed the telescope." This statement by Professor Pierce has, we believe, found but little credence among European astronomers and mathematicians. Among those who were well qualified to judge, and who may be considered as free from from national prejudice on this question, we mention Hansen, the well-known theoretical astronomer of Germany, and Jacobi, one of the ablest mathematicians of the same country; both of whom expressed the opinion that Professor Pierce was himself mistaken. In a posthumous book recently published on "Ideality in the Physical Sciences," edited by his son, Professor J. M. Pierce, the present professor of mathematics in Harvard University, Professor Pierce reiterates his former opinion on the discovery of Neptune. It appears that a few years before his death he had made a careful review of his former investigations, and says, p. 173: "I strictly adhere to the correctness of my early statement." This opinion seems to be shared also by Professor J. M. Pierce, who says, p. 201 of the Appendix: "It is to be regretted that the correction of the error was not received, on the part of the French astronomer, with the magnanimity and fairness which it is always painful not to find associated with high intellectual power."

Intrinsically, the question raised by Professor Pierce is an interesting one, and the whole matter seems to us worthy of a new and careful discussion. It may well be doubted whether the argument used by Professor Pierce, that there is a change in the character of the perturbations near the distance of 35.3, will apply to the method employed by Leverrier and Adams in their discussion of the perturbations of Uranus. This method is so interesting that we invite the attention of students of theoretical astronomy to this question, which seems to us capable of a complete and definitive mathematical solution.

VIVISECTION.

Dr. Darwin in a letter to a friend has expressed his views upon vivisection. He writes:

"I know that Physiology cannot possibly progress except by means of experiments on living animals, and I feel the deepest conviction that he who retards the progress of Physiology commits a crime against mankind. Anyone who remembers, as I can, the state of this science half a century ago must admit that it has made immense progress, and is now progressing at an ever-increasing rate. What improvements in medical practice may be directly attributed to physiological research is a question which can be properly discussed only by those physiologists and medical practitioners who have studied the history of these subjects; but so far as I can learn, the benefits are already very great. No one, unless he is grossly ignorant of what Science has done for mankind, can entertain any doubt of the incalculable benefits which will be derived from Physiology, not only by man, but by the lower animals."

PROBABLE BRANCHIAL ORIGIN OF THE THYROID AND THYMUS GLANDS.

BY S. V. CLEVENGER, M.D.

There are many reasons for believing that the thyroid and thymus are rudimentary gills, one of the main objections to the view being the structure of these bodies, but in the light of modern biology, structure is almost meaningless in homologizing, besides, the tissues of these parts are not the same in all animals. Owen (Vol. I. p. 565) says the thymus appears in Vertebrates with the establishment of lungs as the main or exclusive respiratory organ. In Siren and Proteus the thymus is wanting, as in all fishes. Gegenbaur (p. 554) speaks of the thyroid as an organ with unknown physiological relations, and that "in fishes it is placed not far from the point at which it was formed, that is, at the anterior end of the trunk of the branchial anterior and between it and the copula of the hyoid arch. In amphibia near the larynx, and is set on the inner surface of the posterior comna of the hyoid." Gegenbaur considers it as an organ of use among Tunicata. This latter idea, as well as the one I have advanced, needs verification. I am unwilling to devote more time to the subject until I can ascertain whether some one has not preceded me in announcing the homology, if it be really one. Much light can be thrown upon the disease known as Goître by clearing up this point.