basins. This mode of explanation of the tides, which has not yet been published, asserts that "In most cases the dominant ocean tides have their origin in definite systems whose free periods of oscillation are very nearly those of the tidal forces; and that the time of high or low water in each is the time when the virtual work of the tidal forces upon the system becomes zero." The time and height of the tides in Lake Superior and the eastern portion of the Mediterranean Sea, as computed by the corrected equilibrium theory, were found to agree with observations quite well. A number of localities forming fractional areas having dependent stationary waves were enumerated, the tides in the Gulf of Suez and in the Gulf of Maine being selected as examples which were somewhat fully explained.

Mr. L. A. Bauer then exhibited a number of lantern slides showing photographs of distinguished men in the line of Meteorology and Magnetism. A number of views of noted magnetic observatories were also given. On account of the lateness of the hour Mr. Bauer was obliged to omit a descriptive paper which he had prepared on the subject.

E. D. Preston,
Secretary.

DISCUSSION AND CORRESPONDENCE.

ELECTRICAL UNITS AND THE INTERNATIONAL CONGRESS.

In Mr. Wolff's interesting article on the 'Electrical Standards of the Office of Weights and Measures (Science, March 16, 1900), there is an unjustifiable criticism (unintentionally so, I have no doubt) of the work of the International Congress of 1893, in defining the three fundamental units.

A careful reading of the official report of the Chamber of Delegates will show that a special effort was made to avoid the error which Mr. Wolff thinks the Congress committed. As the official Proceedings include little of the discussion which occurred during sessions lasting nearly a week, a brief reference to the history of these definitions may be useful. A large part of one of the early sessions was spent in discussion, which almost became controversy, of the definitions of the ohm, ampere and volt. A set of definitions was submitted by the American delegates which were *primarily* rigorous, essentially those of the British Association Committee, the material representations being defined as approximations. The idea was to adopt definitions which in themselves would never need revision, leaving the way open, however, to any better approximations in material standards that might be possible in the future. These definitions were advocated by the American and English delegates, but they were opposed by the German and French members of the Chamber. At the end of the day it looked as if the Chamber might not be able to come to an agreement upon even the fundamental units, and to avoid so unfortunate an issue a Committee consisting of Messrs. Von Helmholtz, Mascart, Ayrton and Mendenhall, with the President of the Chamber, Professor Rowland, was appointed to bring in a report defining the ohm, ampere and volt at the next session.

This committee reported on Thursday, August 24th, and its conclusions, which were unanimously adopted by the Chamber, became the basis of all subsequent work.

It will thus appear that the definitions of the fundamental units as issued by the International Congress were not exactly what the American and English delegates would have chosen, but some sort of a compromise was necessary in order to avoid a failure. Care was taken, however, to see that there was really no inconsistency or absurdity present or possible in the language used. The ampere is said to be '*represented sufficiently well for practical use by, etc.*,' and in the definition of the volt the same phrase occurs so that the ampere is *not* declared to be a current of a certain silver depositing power, nor is the volt declared to be a certain fraction of the E. M. F., of a Clark cell. A variation of the same language is used in defining ohm but it was found impossible to get exactly the same words in. When, in 1894, Congress enacted a law legalizing these units, a few slight verbal changes were made without altering the meaning.

T. C. M.