tington; 'Determination of All the Groups of Order p^m, p being any Prime, which Contains the Abelian Group of Order p^{m-1} and of Type (1, 1, 1, . . .),' by G. A. Miller; 'A Class of Simply Transitive Linear Groups,' by L. E. Dickson; 'Errors in Legendre's Tables of Linear Divisors,' by D. N. Lehmer; review of 'Recent Books on Mechanics,' by E. B. Wilson; review of Kiepert's 'Calculus,' by E. W. Davis; 'Correction'; 'Notes'; 'New Publications.'

DISCUSSION AND CORRESPONDENCE.

FORCE AND ENERGY.

To the Editor of Science: In my address, published in your number for July 4, I have used the word 'force' without saying as clearly as I should have done that it is used in the sense of energy, as that term is now applied in physics. It seemed to me that to a general audience force would be more significant. As Helmholz wrote of the Erhaltung der Kraft, perhaps an outsider may be pardoned for using 'force' with the above defined meaning.

Charles S. Minot.

Boston, July 5, 1902.

ETHER WAVES FROM EXPLOSIONS.

About a year ago the writer began a systematic attempt to examine into the effect of explosions upon the ether. A few prior experiments had yielded results explainable on the assumption that such action existed. The investigation was suggested by Young's observation upon a solar outburst as given in his work on the sun.* The Greenwich magnetic curves which Young gives for the dates August 3 and 5, 1872, are so persuasive in their character that an attempt was made to reproduce these results by a terrestrial explosion. It was also thought that the motion of rifle bullets might yield some recognizable result.

It seems probable that, in order to produce a magnetic disturbance, recognizable by a needle, the explosion should be as large and violent as possible. With the coherer as a receiver, it would seem that sharpness of the explosion and atomic periodicity might be more directly involved.

* 'The Sun,' 1881, pp. 156–159.

The work has been attended with great difficulty. The buildings and grounds of Washington University, where the work has been attempted, are in the heart of the city of St. Louis, and street cars are almost continually passing. Only between two and three o'clock in the morning was it found possible to obtain brief intervals fairly free from great disturbance. Even then the needle was continually in motion. The explosions at such an hour were necessarily limited in violence by the possibilities of damage to property, and have been doubtless an outrage upon people who wished to sleep.

So far the results have been inconclusive. Deflections have been obtained, but they have not been reducible to any system which could be rationally explained. It was apparent that the sound wave and the shock have been involved. This work will be carried on in the open country, where larger explosions can be made at a distance from the receiving apparatus. In the meantime it is most interesting to know that the volcanic explosion on the island of Martinique has apparently produced the results which we had been seeking.

Francis E. Nipher.

ECOLOGY.

To the Editor of Science: Doubtless your readers are heartily tired of the discussion upon the word ecology, and I shall not attempt to reply to Mr. Bather's letter in your issue of June 20, farther than to state that his explanation does not appear to me to improve his case materially beyond providing an ample cloud to cover a graceful retreat.

But aside from the main points at issue, I agree with Mr. Bather that the use of the word ecology in such an expression as 'the ecology of a glacial lake' is somewhat unfortunate. Every botanist interested in such studies knows that this phrase is simply a convenient abbreviaton for 'the ecological relations [or features, etc.] of the vegetation of a glacial lake,' and, when used in a botanical publication, it produces no misunderstanding. Nevertheless, as the present discussion has shown, it may mislead others, and therefore botanists could better use the word in such a way as to make