class of species. Mr. Pollard briefly described a short collecting trip in West Virginia and Virginia.

THE eleventh regular meeting was held at the residence of Mr. C. L. Pollard, November 1, 1899. The election to active membership of Mr. William R. Maxon, of the United States National Museum, was announced. Mr. C. L. Shear spoke of his discovery of a truffle, *Terfezia oligosperma*, in Maryland, stating that this was the first record of its appearance in the United States. His remarks were illustrated by specimens and by microscope slides. Mr. J. N. Rose described the mescal industry of Mexico, exhibiting photographs of the mescal plant itself and of the mode of preparing the liquor, a sample of which was passed around among the members. Mr. L. H. Dewey gave an account of various weeds observed by him on a trip through the southern states during the past summer; the most prevalent species, he considered, were the following: *Leptilon divaricatum*, *Diodia teres*, *Cassia occidentalis*, *C. Tora*, *Helenium tenuifolium*, *Croton capitatus*, and *Solanum rostratum*. Mr. Pollard exhibited the first decade of a distribution of North American Violaceæ undertaken by Professor Greene and himself. Professor John M. Coulter, of the University of Chicago, who was present as a guest of the Club, gave a short address on the organization and aims of the department of botany in that institution.

CHARLES L. POLLARD,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE SCIENCE OF METEOROLOGY.

TO THE EDITOR OF SCIENCE: In reading the admirable address by Dr. Marcus Benjamin, in your JOURNAL of November 3d, it occurs to me that the learned Doctor is rather hard on meteorology when he speaks of "*that science which we now dignify by the name of meteorology*" (see page 628). Are we to understand that this science has recently been dignified by giving it this new baptismal name? Have we of the present generation devised this dignified name for a new branch of science? My understanding is that meteorology as a branch of philosophical study is quite as old as astronomy, if not older, and that the name 'meteorologia' originated with that profound school of philosophy of which Plato and Socrates were the expounders. To them, or possibly even to their predecessors, we owe the system of nomenclature 'astronomia,' 'meteorologia,' 'geometria,' etc., by which they designated the various branches of knowledge. Doubtless, Dr. Benjamin meant to refer to 'that science which Plato and Socrates dignified by the name of meteorology.' The correction is worth making in order that your readers may not forget that the study of the atmosphere has from the most ancient times been recognized as a distinct branch of science.

C. A.

NOTES IN PHYSICS.

THE MAGNETIZATION OF LONG IRON BARS.

DR. C. G. LAMB, in the *Philosophical Magazine* for September, gives some interesting experimental results concerning the distribution of magnetic induction along a long cylindrical iron rod. When the rod is weakly magnetized, the mean positions of its poles are comparatively near the ends of the rod; with stronger magnetization the poles move farther from the ends; and with very strong magnetization the poles move more and more towards the ends. This result, as Dr. Lamb points out, has important bearing upon the magnetic testing of iron by Ewing's method.

THE VELOCITY OF THE CHARGED AIR PARTICLES NEAR A DISCHARGING METAL POINT.

PROFESSOR A. P. CHATTOCK in the *Philosophical Magazine* for November, gives the results of a very ingenious determination of the velocity of the charged air particles or *ions* in the electrical discharge from a metal point. He finds the velocity to be 413 centimeters per second for positive ions, and 540 centimeters per second for negative ions, both for an electric field of 300 volts per centimeter. This result is in remarkable agreement with the velocities of the air ions which are produced by X-rays and by uranium radiations. Professor Chattock also shows that the velocity of the wind which blows from a discharging point is not greater than 2 per cent. of the velocity of the ions, and

he estimates that these ions are molecular aggregates of about 8000 ordinary molecules each. This estimate of the mass of the ions is, of course, based upon data not altogether satisfactory.

THE RESPIRATION CALORIMETER AT MIDDLETOWN, CONN.

PROFESSORS ATWATER AND ROSA give, in the *Physical Review* for September and October, a very complete description of the calorimeter chamber which they are using at Middletown in their interesting experiments upon energy transformations in the human body.

THE COMPENSATED ALTERNATOR.

THE alternating current dynamo, when used to supply current to lamps only, or to one type of electric motors only, may be made to give constant electromotive force by providing a compound field winding. When, however, an alternator supplies current in varying amounts to lamps and to motors simultaneously, the electromotive force cannot be kept constant by compounding. One of the most interesting of recent improvements in the alternator is that of E. W. Rice, Jr., of the General Electric Company. The alternator and exciter are mounted on the same shaft, and the alternating currents pass through the exciter armature on their way to the mains, causing such variations of the electromotive force of the exciter as to compensate for all kinds of variations of load on the alternator. This new alternator is described in the *American Electrician* for November.

W. S. F.

NOTES ON INORGANIC CHEMISTRY.

A PAPER has been lately issued by the Wisconsin Academy on the influence of the presence of pure metals upon plants, by E. B. Copeland and L. Kahlenberg. It is a complete refutation of the theory of Nageli of the oligodynamic effects of metals upon plants, which is that where a plant is growing in water, in contact with a metal as copper, a trace of copper goes into the solution as a metal and produces a toxic action very different from that produced by a salt of copper in solution. In the experimental portion of the work of Copeland and Kahlenberg, plants (corn, oats, lupines and soja beans) were grown in water in paraffin coated glass beakers, in which were exposed as nearly as possible the same surfaces of different metals. Twenty-five or more elements were tested, and while at the end of the experiment many of them were scarcely tarnished, most showed themselves to have had some influence upon the plant used. Comparing with the sequence given by Neumann of elements arranged according to their surface tensions—magnesium, aluminum, manganese, zinc, cadmium, thallium, iron, cobalt, nickel, lead, hydrogen, bismuth, arsenic, antimony, tin, copper, mercury, silver, palladium, platinum, gold—all of these elements down to mercury, except aluminum, tin and magnesium, are injurious, and excepting further manganese and bismuth, fatal during the time of the experiment. Mercury and silver were sometimes injurious, palladium, platinum and gold never. Regarding aluminum and magnesium, their salts are comparatively harmless. Comparing their results with the known toxicity of the salts of the corresponding metals, the authors conclude that the poisonous action is due to the solution of the metal in the form of a salt and not to an action of any other nature. The paper gives an interesting summary of our knowledge on the toxicity of metals toward plants, and has also a bibliography of the subject.

IN a paper on the heat of combination of copper with zinc, presented to the Chemical Society (London), Dr. T. J. Baker makes use of chlorin water and of HNO_3, $3H_2O$ as solvents of the brass. Up to 30% copper no heat of formation could be detected; it then begins and rises to an ill-defined maximum at 62% copper, and then gradually sinks to zero at 100% copper. This alloy of 62% copper, while possessed of somewhat remarkable properties, does not correspond to any simple atomic compound ($Cu_5Zn_3 = 61.8\%$ copper); the existence of the supposed compound $CuZn_2 (= 32.6\%$ copper) is rendered doubtful from the fact that the alloy of this proportion shows almost no heat of formation.

FURTHER researches on radiant matter in pitch-blende have been made by A. DeBierne,