lowing this are 'Reflections suggested by the New Theory of Matter,' by Arthur James Balfour; a discussion of 'The Mathematical Physics of the Nineteenth Century,' by Horace Lamb; 'Heredity and Evolution,' by William Bateson; 'The Perception of the Force of Gravity by Plants,' by Francis Darwin; 'The Ethnological Work of Lane Fox,' by Henry Balfour; 'On Mountains and Mankind,' by Douglas W. Freshfield; 'Correlation of Reflexes and the Principle of the Common Path,' by C. S. Sherrington; and 'Invention and Discovery,' by Charles A. Parsons. The number contains the index to Vol. LXV.

Bird Lore, for September-October, contains articles on 'President Roosevelt and Bird Protection'; 'A Woodcock at Home,' by E. G. Tabor; 'October Bird Music,' by Earle Stafford; 'King Cole, a Biography,' by Susan M. Morse; the sixth paper on 'The Migration of Warblers,' by W. W. Cooke, and the 'Climatic Variation in Color and Size of Song Sparrows,' by Frank M. Chapman. There are also book reviews and notes, the Audubon Department and an educational leaflet on the 'Screech Owl,' by William Dutcher.

Beginning in January next, a new educational journal, entitled 'The Nature Study Review,' will be published bi-monthly with Dr. M. A. Bigelow, adjunct professor of biology at Teachers College, Columbia University, as managing editor.

DISCUSSION AND CORRESPONDENCE.

THE METRIC SYSTEM.

To the Editor of Science: I wish to object to a statement recently made with regard to the use of old names in countries that have accepted the metric system. It has been said that the common people in continental Europe are not yet fully accustomed to the metric system, and have partly retained the old names in preference to the new ones.

This is absolutely untrue, as far as it refers to Germany. After the official introduction of the metric system in that country, it took a very short time—if not a fortnight, certainly only a few months—to make the 'masses' familiar with it, and about a year after its introduction there was nobody but a few old and decrepit people that had been unable to master it. In fact, there was general rejoicing on account of the riddance from the old and cumbersome system. Indeed, a few of the old words are occasionally used in Germany, but only such that come very close to a metric unit ('Pfund,' 'Maass'), and these are always used in the metric sense, and nobody wants to imply by this that he is opposed to the metric system, or that he is unable to grasp it: it is merely a variety of speech, and distinctly individual or local.

The whole discussion of the metric system carried on recently in Science has been very amusing to the writer, and has furnished stuff for merriment to others. Is it actually the case that the opponents of the metric system believe that the American people are incapable of accomplishing the identical thing that has been done in Germany thirty years ago in a surprisingly short time? Is it actually impossible to obtain correct information about the way it was done there, and about the consequences and incidents connected with this change?

A. E. Ortmann.

Pittsburgh, Pa.

SPECIAL ARTICLES.

IS MATTER TO BE ABOLISHED?

Of late we have been hearing many intimations that matter has had its day. Formerly matter and its properties engaged the attention of the physicist. Later the ether was discovered, and now we are told that the ether and electrons are all that will be left, when the new discoveries have been fully digested. In connection with these statements I wish to lay down a few propositions which may have been overlooked.

It does not appear that electricity has ever been separated from something that has mass.

The propositions that matter has mass, and that a mass of matter has inertia, seem to me to be fundamentally different from each other.

If the inertia of matter can be accounted for as an electromagnetic phenomenon, it may be measured in new units. Instead of being merely a mass phenomenon, it may be referred

to the fundamental units in which all electromagnetic quantities are measured, *i. e.*, the units of mass, length and time.

Formerly the unit of force was referred to the unit of mass only. People talked about a pound of force. Later it was discovered that a force could also be measured in terms of the centimeter, the gram and the second. When that step was taken there was no talk about matter being abolished. Perhaps the present idea is due to the behavior of radium and uranium. When an 'atom' explodes, and exhibits qualities which entitle a few substances to be considered as cranks among substances, we have been thrown off our guard for a moment. We have had all sorts of explosives before. Some of them exploded so slowly that we did not call them explosives at all. When certain crystallized salts lose their form, due to the slow emission of the same emanation that is given off by all animals and plants, we were not greatly disturbed. Nitro-glycerin has long been going to pieces, and giving off more energy per gram per second than any radio-active body yields. But when it was found that these radio-active bodies are going to pieces, and giving off more energy per gram than any other body has been known to give before, we seem to have been induced to suspect all matter of being capable of doing so.

An architect who should learn that the bricks with which he is familiar are not the final elements in his structure would hardly be justified in losing his respect for houses. What does it matter that his bricks contain molecules, which are composed of atoms, which are composed of electrons, and perhaps something else? Does the fact that houses have been known to fall to pieces and give off energy change his estimate of those houses which do not fall? Is he justified in supposing that all houses are really falling, and that their motion will become appreciable if we wait long enough to make the motion so large that we can see it? FRANCIS E. NIPHER.

CURRENT NOTES ON METEOROLOGY.

REPORT OF THE CHIEF OF THE WEATHER BUREAU.

AMONG the most important matters referred to in the administrative portion of the report of the chief of the weather bureau for 1902–3 are the following: In place of the small chalk-plate weather map (11 x 16 ins.), now issued from twenty-three of the weather bureau stations, larger maps (22 x 16 ins.), prepared in the same way, are to be used, if the necessary additional appropriation can be secured. Professor F. H. Bigelow is continuing his studies on the general circulation of the atmosphere and the nature of cyclones and anticyclones, believing that his results 'point unmistakably to a theory which will supersede those heretofore published in meteorological literature.' One of the most important steps which have been taken in the history of the weather bureau is the plan to build up a great center of meteorological research at Mount Weather, on the crest of the Blue Ridge Mountains, about six miles from Bluemont, Va., and the work which it is proposed to do there will, if the plan can be fully carried out, lead to valuable results. Among the investigations which are announced as likely to be undertaken are the exploration of the upper air by means of kites and balloons, the study of numerous problems in solar physics, observations in electricity and magnetism, etc. A new seismograph has been procured and installed in Washington.

MONTHLY WEATHER REVIEW.

The Monthly Weather Review, for May, 1904 (dated July 22), contains the following articles of general interest: 'The Circulation in Cyclones and Anticyclones with Precepts for Forecasting by Auxiliary Charts on the 3,500-foot and the 10,000-foot Planes,' by Professor Frank H. Bigelow; 'The Sensation of Discomfort,' by W. F. Tyler; 'The Promotion of Meteorology,' in which is incorporated a letter from Dr. J. M. Pernter, of Vienna, in regard to a bill introduced into the last congress 'to promote further discovery and research in meteorology'; 'Invariability of our Winter Climate,' by W. B. Stockman. Also the following notes: 'Local Cooperation in Frost Prevention,' 'The Meteorology of Jamaica,' and 'Humming of Telegraph Wires and Poles.' The *Review* also announces the