lines of force has been definitely established from theoretical considerations. Voigt has obtained equations which indicate not only this result, but also double refraction at right angles to the lines of force. The experimental results of Voigt apparently confirm this conclusion for glass and sodium vapor. The author calls attention to the fact that the results obtained by Voigt might be due to the Faraday effect. He finds this to be the case with glass, but confirms Voigt's conclusion for sodium vapor.

The next paper was by Professor A. Wilmer Duff, on the 'Viscosity of Liquids at Low Rates of Shear.' According to ideas developed by Poisson, Maxwell, and others, a liquid differs from a solid in having either a low modulus of rigidity or a high rate of relaxation under shearing stress, and the coefficient of viscosity contains a term that varies inversely as the rate of shear. Experiments by Professor Duff, made at a rate of shear about 1,000 times lower than the lowest in Poisenille's experiments, seem to show that, while the coefficient of viscosity of kerosene is the same within rates of shear that vary as 50,000 to 1, that of water is slightly larger at the low rates of shear than at the high rates used in Poisenille's experiments. This might be interpreted as indicating a definite, although very narrow, limit of perfect elasticity for water under shearing stresses.

'Results of Determinations of the Mechanical Efficiency of Musical Instruments,' were presented by Professor A. G. Webster. The determinations were made with the help of the apparatus designed by the author for sound measurements, which was described at the April, 1902, meeting of the Society. The efficiencies obtained were extremely small, indicating that sound-producing machines are even more inefficient than those used in producing light.

A paper by Dr. Herschel C. Parker on 'Experiments with Very Brief Electrical Contacts' gave an account of tests of a gravity contact key devised by Dr. Charles Forbes. The apparatus itself had been exhibited at a former meeting. Dr. Parker finds that reliable contacts can be obtained ranging in duration from 0.1 sec. to about 0.00001 sec.

Brief papers by Professor W. J. Humphreys, on 'A Comprehensive Boyle's Law Apparatus' and 'A Lecture-room Method of Analyzing Irregular Electric Currents,' dealt with these subjects from the pedagogical standpoint.

The last paper on the program was by Dr. C. A. Skinner, on the 'Critical Current Density and Cathode Drop in Vacuum Tubes.' The author referred to the difference in the formulæ obtained by Stark and himself giving a relation between cathode drop, current density, and pressure. Dr. Skinner explains the difference as due to the fact that wire electrodes were used in the experiments of Stark, while in the case of his own experiments disk electrodes had been used.

As one day proved too short a time to complete the program of the society, the joint meeting with Section B was continued on Thursday, January 1, a number of the above-mentioned papers being presented on that day. The meeting may properly be regarded as one of the most interesting and successful which the society has ever held.

Ernest Merritt,
Secretary.

SCIENTIFIC BOOKS.

A Nature Wooing at Ormond by the Sea. By W. S. Blatchley, author of 'Gleanings from Nature.' Indianapolis, The Nature Publishing Company. 1902. 12mo. Pp. 245.

The author went to Florida in the early

part of 1899 in the quest of health and occupied himself by observing 'facts and fancies about animals and plants.' His place of residence was about a hundred miles south of Jacksonville. His observations, with occasional reveries on other subjects, combined with remarks upon the conditions prevailing in the times of Bartram, Michaux and Say, make up the chief part of the volume. In an appendix he presents a list, with notes, of one hundred and fifty species of insects collected.

The most important discovery made was that of the left humerus of the great auk from a large shell mound on the Spanish Grant. The writer found a second specimen of a similar animal thirty feet distant from the one obtained by Mr. Blatchley (see SCIENCE, XVI., p. 203). Hence it would seem as if the facts were well established that the great auk was once a resident of Florida, and presumably of the whole Atlantic coast.

This mound is over one thousand feet long and ten feet thick, composed largely of the shell of the *Donax,* which is still used for food. Twenty-seven other species of mollusca were secured, besides several fish, turtles, alligators and half a dozen mammals. A few implements were also picked up.

The author presents his facts in a very pleasant way, easily appreciated by all intelligent people, apart from tourists and scientists.

C. H. HITCHCOCK.

HANOVER, N. H.

SCIENTIFIC JOURNALS AND ARTICLES.

Journal of Physical Chemistry, December.—'On the Passage of a Direct Current Through an Electrolytic Cell,' by S. L. Bigelow. A study of the cause of the residual current when the electromotive force is below the decomposition point. 'On the Critical States of a Binary System,' by Paul Saurel. 'Deduction of the Magnitude of the Osmotic Pressure in Dilute Solutions according to the Kinetic Theory,' by Peter Fireman. The deduction is drawn that the osmotic pressure of a substance in dilute solution is equal to the corresponding gas pressure of that substance at the same temperature. The conclusion is also drawn that, in general, the kinetic energy of the molecules of a liquid is equal to that of gas molecules at the same temperature. This number of the *Journal* also contains the index to Volume VI.

January.—'The Rate of Oxidation of Ferrous Salts by Chromic Acid,' by Clara C. Benson. This paper includes an analytical method for determining ferrous iron in the presence of ferric salts and chromic acid. 'Electromotive Force of Alloys of Tin, Lead and Bismuth,' by E. A. Shepherd. 'Reduction of Insoluble Cathodes,' by Alfred T. Weightman. Chiefly a study of the reduction of lead sulfid. 'Electrolytic Preparation of Sodium Amalgam,' by E. S. Shepherd.

THE *Journal of Comparative Neurology* for December contains the following articles: 'On the Origin of Neuroglia Tissue from the Mesoblast,' by Shinkishi Hatai. Describes and figures the proliferation of neuroglia cells from the walls of the embryonic capillaries. 'On the Number and on the Relation between Diameter and Distribution of the Nerve Fibers Innervating the Leg of the Frog,' by Elizabeth Hopkins Dunn. A continuation and control of a previous study, showing, among other conclusions, that the largest nerve fibers do not run the longest course, as Schwalbe supposed, but terminate in the thigh. In the next paper, 'A Note on the Significance of the Size of Nerve Fibers in Fishes,' by C. Judson Herrick, this conclusion is confirmed for the fishes, and observations presented tending to show that the size of nerve fibers, within certain limits, is determined by the state of functional development of the organ innervated. 'The Eye of the Common Mole, *Scalops aquaticus machrinus,*' by James Rollin Slonaker. The eye is described in detail and found to be in so greatly reduced condition as to render it very improbable that it can function at all. Twenty pages of book reviews complete the number.

SOCIETIES AND ACADEMIES.

ENTOMOLOGICAL SOCIETY OF WASHINGTON.

THE 174th regular meeting was held on January 8, 1903, eighteen members and two