

temperature, but where the work done is not necessarily confined to overcoming pressure. The coordinate used to define the state may be of the most general type; *e. g.*, quantity of electricity, as used by Helmholtz. (2) Systems whose state is defined by more than two coordinates. An example of such a case would be an electrolytic cell in which the effect of pressure is not negligible. Professor Buckingham's article gives an interesting discussion of the graphical, as well as the analytical, treatment of such cases. The article is one which will do good, for the subject is one which must be presented in many different forms, as well as with great clearness, if our text-books are to be freed from the hazy and unsound treatments of Thermodynamics with which they now abound.

*The Refractive Index and Reflecting Power of Water and Alcohol for Electric Waves:* By A. D. COLE. In preliminary work the index of refraction for waves 260 cm. long was found to be 8.95 for water and 5.24 for alcohol. These results are in fair agreement with values obtained by other observers, as well as with the values computed according to Maxwell's theory from the dielectric constants. Using much shorter waves (5 cm.) Prof. Cole then again determined the indices, the object being to find at what wave-length dispersion begins. The absorption of both liquids was so great that a prism method could not be used, even with the delicate means at hand for detecting and measuring the waves. The method finally adopted depended upon the measurement of the *reflecting power* of the two liquids. The index was then computed by Fresnel's formula. The values obtained were 8.85 for water and 3.2 for alcohol. It thus appears that there is considerable dispersion by alcohol between the wave-lengths 260 and 5 cm.

*A New Electrolytic Generator for Oxygen and Hydrogen:* By W. S. FRANKLIN.

*An Apparatus for Illustrating the Laws of Falling Bodies:* By H. M. RANDALL and W. A. MARKEY.

Books reviewed: GRAY and MATHEWS, *Bessel Functions*; GROTH, *Physikalische Krystallographie*; JAHN, *Grundriss der Thermochemie*; PRESTON, *Light*.

#### SOCIETIES AND ACADEMIES.

##### NORTH CAROLINA SECTION OF THE AMERICAN CHEMICAL SOCIETY.

THE second meeting of the North Carolina Section of the American Chemical Society was held in Chapel Hill, N. C., on July 7, 1896. The Secretary reported ten new members as received since the last meeting. After the transaction of some routine business the following papers were read: 'Crystallized Aluminum,' by F. P. Venable; 'The Detection and Purification of Saccharin,' by B. W. Kilgore; 'Reduction of Sulphuric Acid,' by C. Baskerville; 'A Comparison in Digestibility of Raw and Steamed Cotton Seed,' by J. A. Bizzell and A. H. Prince; 'An Attempt to Form Some Organic Compounds of Zirconium,' by Thos. Clarke; 'The Determination of Sulphur in the Presence of Iron,' by W. A. Withers and R. G. Mewborne; 'The Action of Phosphorus Trichloride upon an Ethereal Solution of Hydrogen Dioxide,' by W. A. Withers and G. S. Fraps; 'Some Difficulties in the Way of the Periodic Law,' by F. P. Venable. The Section then adjourned to meet in Raleigh next winter. The Section has doubled its numbers in less than six months.

#### NEW BOOKS.

*Herbart's A B C of Sense—Perception and Minor Pedagogical Works.* Translated with Introduction, Notes and Commentary, by WILLIAM J. ECKOFF. New York, D. Appleton & Co. 1896. Pp. xviii+288. \$1.50.

*Grundriss einer exacten Schöpfungsgeschichte.* By HERMANN HABENICHT. Wien, Pest, Leipzig, A. Hartleben. Pp. viii+135. Plates vii.

*Tenth Report of the New York State Entomologist, for the year 1894.* J. A. LINTNER. Albany, University of the State of New York. 1895. Pp. 341-633.

*Manual of Midwifery.* W. E. FOTHERGILL. New York and London, Macmillan & Co. 1896. Pp. xiii+484. \$2.25.

*The Monetary and Banking Problem.* LOGAN G. McPHERSON. New York, D. Appleton & Co. 1896. Pp. iv+135. \$1.00.