

Erratum: Rocket Measurements of Upper Atmosphere Ambient Temperature and Pressure in the 30- to 75-Kilometer Region

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FIGURE 8 is in error in the position of the first four values in the curve of P_0' . These values actually continue the trend of the other values and should be replaced by the following: 214 mb, 31.2 km; 201 mb, 31.7 km; 179 mb, 32.1 km; and 168 mb, 32.5 km. These four values did not enter into the computations presented in the other figures.

Erratum: Nucleation of Lead with Preferred Orientation

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IN the third paragraph, on impure lead, instead of "free surface of the solid," read: "free surface normal axis of the solid."

Research Reports

Propagation in Semi-Infinite Wave Guides. J. Shmoys, Report No. EM-63. Write to New York University, Institute of Mathematical Sciences, Division of Electromagnetic Research, 25 Waverly Place, New York 3, N. Y. (No charge.)

This report contains translations of six papers by L. A. Vajnshtejn dealing with problems of radiation of acoustic and electromagnetic waves from parallel-plane and cylindrical wave guides. The following papers have been included:

(1) Rigorous solution of the problem of an open ended parallel-plane wave guide, *Izvest. Akad. Nauk Kazakh S.S.R., Ser. Fiziol.* 12, 144-65 (1948);

(2) On the theory of diffraction by two parallel half planes, *ibid.*, 12, 166-180 (1948);

(3) Theory of symmetric waves in a cylindrical wave guide with an open end, *Zhur. Tekh. Fiz.* 18, 1543-64 (1948);

(4) The theory of sound waves in open tubes, *ibid.*, 19, 911-30 (1949);

(5) Radiation of asymmetric electromagnetic waves from the open end of a circular wave guide, *Doklady Akad. Nauk* 74, 485-8 (1950);

(6) Diffraction at the open end of a circularly cylindrical wave guide whose diameter is much greater than the wavelength, *ibid.*, 74, 909-12 (1950).

In the first two of these papers, which deal with the parallel-plane wave guide, both even and odd symmetry and both boundary conditions ($u=0$ and $\partial u/\partial n=0$) are considered simultaneously. The first paper presents the solution of the problem, and the second gives the asymptotic form of the solution and the physical interpretation of this asymptotic form. The remaining four papers deal with the case of a cylindrical wave guide. Of these the first deals with symmetric electromagnetic waves presenting the solution and a discussion of asymptotic behavior; the second one deals with sound waves, both symmetric and asymmetric, and includes a discussion of resonance phenomena in organ pipes; the third presents a generalization of the previous treatment of electromagnetic waves to asymmetric modes; and the fourth and

last paper gives a physical interpretation of the asymptotic form of the solution for electromagnetic waves.

In this country, as is well known, these problems have also been solved by the Wiener-Hopf method.¹ However, the published presentations of these solutions usually contain some restrictions and the generalizations have nowhere been explicitly carried out. The papers of Vajnshtejn presented here should prove to be of value because of the thoroughness with which the problems are treated and because Vajnshtejn has introduced some interesting concepts and methods not included in the aforementioned works.

¹ A. E. Heins, *Quart. Appl. Math.* 6, 157-66 (1948); *ibid.* 6, 215-20 (1948); *ibid.* 8, 281-91 (1950). H. Levine and J. Schwinger, *Phys. Rev* 73, 383-406 (1948).

Units of Weight and Measure—Definitions and Tables of Equivalents. Dr. L. V. Judson, National Bureau of Standards Miscellaneous Publication 214, pp. 64. Order from the Government Printing Office, Washington 25, D. C. Price 40 cents (55 cents outside the U. S.).

This publication, superseding Miscellaneous Publication 121 issued in 1936, defines the units of length, mass, area, volume, and capacity in use in the United States. It also gives tables of interrelation and tables of equivalents for these units in the metric system and in the U. S. customary system. The volume also contains sections of the fundamental equivalents, the approved spelling and abbreviation of each of the most common units of weight and measure, and the status of the metric system in the United States. All of the tables and other material have been revised to conform to current definitions, equivalents, and usages.

Books Reviewed

Basic Processes of Gaseous Electronics. LEONARD B. LOEB. Pp. 1012+xvii, University of California Press, Berkeley, 1955. Price \$13.50.

The whole field of fundamental processes in gases is discussed in this book. The subjects considered in detail are: ionic mobilities, diffusion of charge carriers in gases, distribution of electron energies in an electric field, formation of negative ions, recombination, electrical conduction in gases, ionization by electron impact, and the second Townsend coefficient. The emphasis is on the analysis of recent experimental and theoretical research.

Proceedings of the International Conference of Theoretical Physics. Pp. 942+xxviii, Japan Society for the Promotion of Science, Tokyo, 1954. Price \$10.00, postage \$1.00 (order from Kinokuniya Book-Store Company, Ltd., 826 Tsunohazu 1-chome, Shinjuku-ku, Tokyo, Japan).

In September, 1953 a conference on theoretical physics was held at Kyoto and Tokyo. Fifty-five foreign physicists and many Japanese physicists participated. Readers of the *Journal of Applied Physics* will probably be particularly interested in the following sections of the *Proceedings*: Polymers, dislocations, molecules, metals, electron theory of intrinsic magnetization, antiferro- and ferri-magnetism, magnetic resonance, dielectrics, color centers, liquid helium, and superconductivity. About one-half of the book is devoted to the topics cited; the other half is devoted to field theory, elementary particles, nuclear physics, and statistical mechanics.