−2° to 33°C and salinity from 0 to 20 parts per 1000. This ensures precision in the determination of the speed of sound in water, within this range of salinity, of 0.6 m/sec without interpolation.

The second part of the tables (pages 37–180) covers the same temperature range and salinity ranging from 20 to 40 parts per 1000. The steps are, respectively, 0.05°C and 0.2 part per 1000; thus, the precision of determination of the speed of sound without interpolation is here 0.3 m/sec.

The nomograms are divided into two groups according to salinity, the first group containing Nomograms 1 to 3 for salinity ranging from 0 to 20 parts per 1000, and the second group containing Nomograms 4 to 8 for salinity from 20 to 40 parts per 1000. The range of temperature represented in these nomograms is −2° to 30° Centigrade.

Since the values given in the tables and nomograms are values for zero depth in sea water, it is necessary to introduce the correction, Δv_p, for depth. These values are given for depths ranging from 0 to 10,990 meters. They are always positive, and are considered constant at 0.0161 m./sec. for depths up to 100 meters. The tables of corrections (pages x to xii, also one insert page) are based on the contents of W. D. Wilson's paper entitled "Speed of sound in sea water as a function of temperature, pressure and salinity," in the *Journal of the Acoustical Society of America*, v. 32, 1960, p. 641–644. Another basic assumption used in compiling the correction table is that a depth of 10 meters corresponds to a hydrostatic pressure of 1 kg/cm^2.

The references include three British, four Soviet, and five American authors.

The format of the tables is clear and convenient. Since only a few table and column headings are involved and the format of the tables is clear, these tables could be of value to persons who make use of similar publications in the English and German languages.

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1. *Tables of the velocity of sound in pure and sea water for use in echo sounding and sounding ranging*, Hydrographic Department of the Admiralty, London, 1927; also D. J. Mathews, *Tables of the velocity of sound in pure water and sea water*, 2nd ed., 1939; 3rd ed., 1944, Hydrographic Department of the Admiralty, London.

2. V. A. Del Grosso, *The Velocity of Sound in Sea Water of Zero Depth*, Report N 4002, Naval Research Laboratory, Washington, 1952.

49 [S, X].—Rudolph E. Langer, Editor, *Partial Differential Equations and Continuum Mechanics*, The University of Wisconsin Press, Madison, 1961, xv + 397 p., 24 cm. Price $5.00.

This volume prints in full the invited papers and in abstract the contributed papers at a symposium in 1960. As to be expected in such a case, the quality of the papers is uneven. As a whole, the papers on pure analysis represent the state of the art in their field much better than those on continuum mechanics, which are also far fewer in number. The typing is as attractive as typing can be, and there are fewer misprints than usual, but the reviewer fails to see why the Department of the Army of the vaunted richest country in the world cannot afford ordinary printing as used by our poorer neighbors, or what purpose is served by publication of these papers here rather than through the normal channels of selection by the numerous journals.

Among the many excellent papers on the general theory of partial differential equations should be mentioned those of Leray, Moser, Hörmander, and Morrey. An interesting new type of problem is set up and solved by B. Frank Jones; in this problem, a coefficient function in the partial differential equation is to be determined by initial and boundary data that would lead to an overdetermined problem if the coefficient were fixed. This type of problem obviously has great use in applications to complicated systems whose constitution is only partly known; results of this kind make possible inferences about the internal nature of the system from use of observations on the boundaries.

Three papers concern directly techniques or error estimates in numerical calculation. Jim Douglas, Jr. sets up an alternating direction method for iterative solution of Laplace's equation in any number of dimensions. From the error estimates he concludes that this method is the most efficient known for Laplace's equation over a rectangular parallelepiped. The brothers Nitsche obtain error estimates for the computation of certain integrals in whose integrands occur solutions of elliptic differential equations. Poritsky discusses improvement of convergence. Weinberger obtains bounds for the square of the norm of the error in the Rayleigh-Ritz procedure, on the assumption that lower bounds for the desired proper numbers are known.

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50 [V, W, Z].—Benjamin Mittman & Andrew Ungar, *Computer Applications—1960*, The Macmillan Co., New York, 1961, vi + 193 p., 24 cm. Price $5.75.

This small volume contains papers from the 1960 Computer Applications Symposium sponsored by the Armour Research Foundation. It is divided into two sections. Part One, "Business and Management Applications," includes the use of automatic data processing systems for handling subscription lists, information retrieval in libraries, and filling mail-orders; Part Two, "Engineering and Scientific Applications," presents applications of computers in weather forecasting, the design of optical lens systems, and electronic data communications. The wide spectrum of applications described in these papers vividly demonstrates the impressive and fast-growing uses of digital computers in management, business, engineering and scientific research. A list of titles and authors follow:

Electronic Processing of 10 Million Subscription Records—B. H. Klyce

Prediction of Program Running Time as an Aid in Computer Evaluation—T. J. Tobias

A COBOL Processor for the UNIVAC 1105—J. J. Jones

The Computer in the Library—V. W. Clapp

Computer Control of Mail-Order House Operations (IBM-650 Tape RAMAC)—S. Kritzik

An Electronic Computer in Economic Research—M. H. Schwartz