

September 11, 1953, Afternoon Session

Business data handling	R. A. MANGINI, John Hancock Life Insurance Co.
Premium billing performed by large-scale computers	R. T. WISEMAN, Sun Life Assurance Co. of Canada, Montreal, Canada
Periodic billing and accounting	E. F. COOLEY, Prudential Insurance Co. of America, Newark, N. J.
The development and application of electronic equipment in Monsanto's accounting department	E. J. CUNNINGHAM, Monsanto Chemical Co., St. Louis, Mo.
Experience with the Census UNIVAC	D. H. HEISER & J. L. MCPHERSON, Bureau of the Census, Department of Commerce, Washington, D. C.
Budget computation on IBM 701	Lt. R. E. UTMAN, Navy Aviation Supply Office, Philadelphia, Pa.

OTHER AIDS TO COMPUTATION

BIBLIOGRAPHY Z

1099. ANON., "Chart for the resolution of angles," *Product Engineering*, v. 22, no. 6, 1951, p. 187.

To be used for representing spatial figures on a plane.

1100. ANON., "High speed response in electromechanical integrator," *Product Engineering*, v. 24, no. 6, 1953, p. 240.

A combination of variable speed drive and d.c. feed back integrator constitutes an integrator whose input is a voltage regarded as a function of the time and with mechanical counter output.

1101. E. BROMBERG & R. D. MCCOY, "Calculating machines—new tools for the designer," *Product Engineering*, v. 22, no. 3, 1951, p. 85–88.

This article contains brief descriptions and photographs of REAC equipment and components including the servo multiplier and resolver and function generator. Also various applications to engineering problems are described.

1102. F. W. BUBB & W. L. MORRIS, "How analogical computing devices can serve process industries," *Chem. Engineering*, v. 57, no. 7, 1950, p. 142–144.

1103. W. H. BURROWS, "Methods of calculating with graph papers," *Product Engineering*, v. 22, no. 4, 1951, p. 140–145; also no. 6, p. 168–171.

1104. F. P. COZZONE, "Organizing a computer center in the engineering department," *Product Engineering*, v. 23, no. 1, 1952, p. 136–141.

Various types of digital and analogue computers are described. A chart is given, showing the relative suitability of these types for aircraft design

problems. The organization, personnel problems, power requirements and space layout for an engineering computing center are considered.

F. J. M.

1105. A. S. HALL & D. C. TAO, "Analysis of a symmetrical five-bar linkage," *Product Engineering*, v. 23, no. 1, 1952, p. 175-177; also "Design charts for a five-bar linkage," p. 201, 203, 205.

1106. B. H. LIST, R. C. McMASTER, & R. L. MERRILL, "Analogous systems in engineering design," *Product Engineering*, v. 24, no. 1, 1953, p. 184-195.

Various network type analogues and a differential analyzer are discussed.

1107. C. P. NACHOD, "Nomograph for the volume of cones or pyramids," *Product Engineering*, v. 22, no. 5, 1951, p. 209.

1108. D. W. PEACEMAN & J. E. VIVIAN, "Bantam differential analyzer," *Chem. Engineering*, v. 57, no. 8, 1950, p. 106-107.

This article describes a small differential analyzer built by A. B. MACNEE and using his multiplying unit.

1109. D. H. PICKENS, "The electronic analog computer," *Product Engineering*, v. 24, no. 5, 1953, p. 176-185.

Principles and certain engineering applications of an electronic differential analyzer based on a feed back d.c. amplifier are discussed.

1110. W. W. SOROKA, "Equivalent dynamical systems for complex vibration problems," *Product Engineering*, v. 23, no. 7, 1952, p. 130-133.

A method of setting up a mechanical analogue with lumped masses and linear springs for structural vibration problems is described.

1111. W. W. SOROKA, "Resistance network analogue for solving vibration problems," *Product Engineering*, v. 22, no. 4, 1951, p. 103-105.

A manually adjusted resistance network is described.

1112. E. C. VARNUM, "Circular nomogram theory and construction technique," *Product Engineering*, v. 22, no. 8, 1951, p. 152-156.

An explanatory article with engineering examples.

1113. E. C. VARNUM, "Nomogram for evaluating test data," *Product Engineering*, v. 24, no. 2, 1953, p. 215.

A circular nomogram for applying the "t test" to determine the significance of a difference of means.