

BIBLIOGRAPHY

The Analog Art and the Operational Amplifier are inseparable, having common roots in feedback; and both have been sources of fascination to us during the past twenty years and more. Although the Operational Amplifier seems destined for a grand future as a component in instrumentation and "building-block" electronics, one can always find refreshment, inspiration, and guidance at the Source. As an example, we list here an incomplete sampling of the books to be found—in our library, but—in our offices and laboratories, and, opened, on the desks of our engineers. Please note the rather heavy emphasis on Analoguery.

Following that list is one of articles and publications printed or reprinted by us in recent years and still available at no charge, arranged by subject. For a more comprehensive (though somewhat dated) list, see *The Lightning Empiricist*, Volume 12, Number 2, April, 1964. Admittedly, even these are but a drop in the ocean of literature that has been and (especially) is yet to be written on this subject.

For those who would dig even more deeply, we suggest reference to the applications publications of companies that manufacture analog products. Readers of this Publication are of course invited to keep up to

date via the Philbrick mailing list. Among these, one should consider the continuing evolution of our own *Applications Briefs*, *The Lightning Empiricist*, new reprints, technical data, and catalog documentation. We also recommend to our readers the splendid service, now performed by Simulation Councils, Inc., of La Jolla, California, in their journal, *Simulation*, entitled "Simulation Survey and Literature Review," formerly published at the Georgia Institute of Technology as *Analog Computers Literature Review*, by Mr. L. W. Ross.

BOOKS

<i>Analog Computation</i>	Jackson	McGraw-Hill
<i>Analog Computing in Engineering Design</i>	Rogers & Connolly	McGraw-Hill
<i>Analog Simulation</i>	Karplus	McGraw-Hill
<i>Analogue and Digital Computer Methods in Engineering Analysis</i>	James, Smith, & Welford	International Text-book Company
<i>Analogue Computation (4 Vols.)</i>	Fifer	McGraw-Hill
<i>Analogue Computers (Translated from the Russian)</i>	Eterman	Pergamon Press
<i>Analogue Computing at Ultra High Speed</i>	MacKay & Fisher	Wiley
<i>Computer Handbook</i>	Huskey & Korn	McGraw-Hill
<i>Computers in Education</i>	Hall	Pergamon Press
<i>Design Fundamentals of Analog Computer Components</i>	Howe	D. Van Nostrand Co.
<i>Electronic Analog and Hybrid Computers</i>	Korn & Korn	McGraw-Hill
<i>Electronics for Scientists</i>	Malmstadt, Enke, & Toren	W. A. Benjamin, Inc.

Elektronischer Analogrechner

Experiments in Electronics
Generalized Instrumentation for Research and Teaching

Ernst

R. Oldenbourg, Munich

Evans

Prentice-Hall

Morrison

Washington State U. Press (reprinted by and available gratis from Philbrick Researches)

Handbook of Computers and Control

Grabbe, Ramo, Wooldridge (Editors)

Wiley

High Speed Analog Computers

Tomovic & Karplus

Wiley

Introduction to Analog Computation
Introduction to Electronic Analog Computers

Ashley

Wiley

Warfield

Prentice-Hall

Introduction to Feedback Systems

Harris

Wiley

Mathematical Machines (Vol. 2)

Murray

Columbia U. Press

A Palimpsest on the Electronic Analog Art

Paynter

Philbrick Researches

REPRINTS & ARTICLES

I. APPLICATIONS

A. Bio-Medical Analysis

"Analog Computation of Respiratory Response Curve" T. W. Murphy, Memorial Sloan-Kettering Cancer Center, and R. Crane, Electronic Gear, Inc. (Reprint No. 41)

"A New Instrument For The Summation Of Evoked Responses From The Nervous System" Burton S. Rosner, Ph.D., Truett Allison, M.A., Elliot Swanson, B.S.E.E., and William R. Goff, Ph.D., West Haven Veterans Administration Hospital, Yale University School of Medicine, and Ampex Corporation. (Reprint No. 37)

"Respiratory Carbon Dioxide Response Curve Computer" J. Weldon Bellville, Sloan-Kettering Institute, and J. C. Seed, Wellcome Research Laboratory. (Reprint No. 26)

B. Computers

"Analog Techniques Applied To Business Models" F. M. Verzuh and P. D. Hansen. *The Lightning Empiricist* (XII:1).

"Analog Yesterday, Today & Tomorrow" G. A. Philbrick. *The Lightning Empiricist* (XI:4).

"Automatic Digital Setup and Scaling of Analog Computers" Dr. Henry M. Paynter, Massachusetts Institute of Technology, and Julian Suez, International Business Machines Corporation. (Reprint No. 47)

"Intentionally Unconventional Analoguery" *The Lightning Empiricist* (XI:1).

"Matrix Programming Of Electronic Analog Computers" R. E. Horn, Westinghouse Electric Corporation, and P. M. Honnell, Washington University. (Reprint No. 2)

"Modern Analog Computing Machines" G. A. Philbrick, Philbrick Researches, Inc.

"A New Active-Passive Network Simulator For Transient Field Problems" Walter J. Karplus, Dept. of Engineering, University of California. (Reprint No. 31)

"Precision Analog Memory Has Extended Frequency Response" T. A. Brubaker, Dept. of Electrical Engineering, University of Arizona. (Reprint No. 36)

"A Report To Engineers And Management" George A. Philbrick Researches, Inc. (Reprint No. 24)

"Ordering and Selection Processes and Ultra-Reliable Systems" H. M. Paynter, Massachusetts Institute of Technology.

"Time Domain Synthesis Based On A Passive Tardigrade Module" *The Lightning Empiricist* (XI:3).

C. Industrial Process Analysis

"Operational Amplifier Techniques in Process Control" Dr. Peter D. Hansen, Philbrick Researches, Inc. (Reprint No. 45)

"Computer Representations of Engineering Systems Involving Fluid Transients" F. D. Ezekiel, Massachusetts Institute of Technology, and H. M. Paynter, Massachusetts Institute of Technology. (Reprint No. 12)

"Contribution to the Stability Theory of Systems of Surge Tanks" Charles Jaeger, Water Turbine Dept., English Electric Company Limited. (Reprint No. 3)

"Dynamic Analysis of Heat Exchanger Control" Bruce D. Hainsworth, The Foxboro Company, Vincent V. Tivy, The Foxboro Company, and Dr. Henry M. Paynter, Massachusetts Institute of Technology. (Reprint No. 1)

"Fast Time Scale Simulation of a Reactor Control System" G. Friedensohn, Nuclear Dev. Corp. of America, and D. H. Sheingold, Philbrick Researches, Inc. (Reprint No. 11)

"Hydraulics by Analog" Henry M. Paynter, Massachusetts Institute of Technology. (Reprint No. 8)

"On an Analogy Between Stochastic Processes and Monotone Dynamic Systems" H. M. Paynter, M.I.T. (Reprint No. 5)

D. Instrumentation

"Capabilities of Some Non-Linear Instrument Circuits for Low-Level Transients" Bruce Seddon, Philbrick Researches, Inc. (Reprint No. 40)

"Vacuum Tube Electrometers Using Operational Amplifiers" G. F. Vanderschmidt, Lion Research Corporation. (Reprint No. 30)

"Subaudio Tunable Amplifier" J. M. Reece, Naval Research Lab. (Reprint No. 29)

"Operational Amplifier as Direct-Reading Precision Resistance Comparator" Philbrick Researches, Inc. Application Brief.

"P65A's Used to Form a Low-Noise Differential Instrument Amplifier" Philbrick Researches, Inc. Application Brief.

"A Precision Amplitude-Distribution Amplifier" W. F. Caldwell, G. A. Korn, V. R. Latorre, and G. R. Peterson, Dept. of Elec. Engrg., University of Arizona. (Reprint No. 28)

"Instrumentation Based on Operational Amplifiers" (Parts I & II). C. N. Reilley, University of North Carolina. (Reprint No. 42)

"Controlled-Potential and Derivative Polarograph" and "Controlled-Potential Polarographic Polarizing Unit with Electronic Scan and Linear Residual Current Compensation" M. T. Kelley, H. C. Jones, and D. J. Fisher, Oak Ridge National Laboratory. (Reprint No. 25)

"Electronic Analog Instruments As Tools of Research & Development" George A. Philbrick, Philbrick Researches, Inc. (Reprint No. 35)

"Electronic Controlled-Potential Coulometric Titrator" M. T. Kelley, H. C. Jones, and D. J. Fisher, Oak Ridge National Laboratory. (Reprint No. 20)

"Electronic Determination of the I, G, and I/G Parameters of a Tunnel Diode" C. R. Gneiting, The Johns Hopkins University, Radiation Laboratory. (Reprint No. 34)

"Incremental Approach to Derivative Polarography" Clemens Auerbach, H. L. Finston, George Kissel, and Joseph Glickstein, Brookhaven National Laboratory. "Stationary Electrode Polarography with a Staircase Voltage Sweep". Charles K. Mann, Florida State University. (Reprint No. 38)

"Operational Amplifiers Symposium"

"Generalized Circuits for Electroanalytical Instrumentation" W. M. Schwarz and Irving Shain, University of Wisconsin.

"A Multipurpose Operational Amplifier Instrument for Electroanalytical Studies" William L. Underkofler and Irving Shain, University of Wisconsin.

"Power of Time and Exponential Current Chronopotentiometry" Royce W. Murray, University of North Carolina.

"A Multipurpose Electromechanical Instrument for Control of Potential or Current" George Lauer, Helmar Schlein, and R. A. Osteryoung, North American Aviation Science Center.

"Electroanalytical Controlled-Potential Instrumentation" Glenn L. Booman and Wayne B. Holbrook, Phillips Petroleum Co., Atomic Energy Division.

"A Digital Readout Device for Analog Integrators" E. Clifford Toren, Jr., and Charles P. Driscoll, Duke University.

"A. C. Polarography Employing Operational Amplifier Instrumentation" Donald E. Smith, Northwestern University.

"A Practical Instrument Synthesizer" Charles F. Morrison, Washington State University.

"The Heath Analog Computer as a Versatile Analytical Tool" Galen W. Ewing, New Mexico Highlands University, and Thomas H. Brayden, Jr., Louisiana State University.

"Instrumentation for Cyclic and Step-Function Voltammetry Using Operational Amplifier Switching Modules" Richard P. Buck and Robert W. Eldridge, Bell & Howell Research Center.

(Reprint No. 43)

"Recording Optical Pyrometer" Norman A. Blum, Avco Manufacturing Corporation. (Reprint No. 17)

"Second Harmonic Alternating Current Polarography with a Reversible Electrode Process" D. E. Smith and W. H. Reinmuth, Columbia University. (Reprint No. 33)

E. Signal Conditioners

"Impedance & Admittance Transformations" D. H. Sheingold. *The Lightning Empiricist* (XII:1).

"Missile Rate Simulator Provides Sinusoidal Motion for Guidance Systems" Joel K. Nelson, Boeing Airplane Co. (Reprint No. 16)

"A Particular Application of FM Tape Used With An Analogue Computer" David J. Cholley, Hercules Powder Company. (Reprint No. 39)

II. CIRCUIT TECHNIQUES

A. Computer Techniques

"A Circuit With Logarithmic Transfer Response Over 9 Decades" J. F. Gibbons and H. S. Horn, Stanford University. (Reprint No. 49)

"Multiplication and Logarithmic Conversion By Operational Amplifier-Transistor Circuits" William L. Pateron, Litton Industries. (Reprint No. 46)

"New Integrating Circuit and Electronic Analog for Transient Diffusion and Flow" J. Ross MacDonald, Texas Instruments, Inc. (Reprint No. 14)

"Q3-M1P Multiplier" *The Lightning Empiricist* (XII:3-4).

"Rate-of-Change Indicator" *The Lightning Empiricist* (XI:4).

B. Fundamental Circuit Techniques

"Analog Methods" Bruce Seddon, Philbrick Researches, Inc. (Reprint No. 27)

"Analog Computer Techniques Applied To Industrial Instrumentation and Control" George A. Philbrick Researches, Inc. (Reprint No. 18)

"Operation Of The USA-3 Amplifier With Positive Open-Loop Polarity" Philbrick Researches, Inc. Application Brief.

"PP65 As Amplifier With High Input Impedance" Philbrick Researches, Inc. Application Brief.

"Single-Ended Inverted Amplifiers" Philbrick Researches, Inc. Application Brief.

"Stabilized Follower Amplifier" Prof. Donald Deford, Northwestern University. (Reprint No. 23)

"Typical Operational Amplifier Applications" D. H. Sheingold, Philbrick Researches, Inc.

C. Voltage Current Regulation

"Analog Computer Reference Supply" C. E. Foiles, J. P. Hartmann, and H. Koerner, University of Arizona. (Reprint No. 21)

"High Precision Large Current Regulator" K. C. Brog and F. J. Milford, Case Institute of Technology. (Reprint No. 32)

"Operational Amplifier As Constant Current Source—I" Philbrick Researches, Inc. Application Brief.

"Use of Operational Amplifiers in Precision Current Regulators and Use of Operational Amplifiers in Accelerator Beam Control Systems" Karl Eklund, Columbia University. (Reprint No. 22)