



**MANAGEMENT
INFORMATION
SYSTEMS**

• **INDEX**





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• **INDEX**



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FOREWORD

THE DATA PROCESSING FIELD has mushroomed in the past decade. This publication has grown out of our necessity to have a comprehensive reference to all published material in the area that can be broadly described as management information systems. We believe that this volume will be of real value to management at all levels.

Management Information Systems Index covers 4,000 article titles from about 250 publications. Not only have periodicals become more numerous, but each carries more data processing articles per publication each year; this is a reflection of the growing activity and interest in the subject.

In addition to the article bibliography, there is a review section of books for 1961-62 covering about 50 books, and reviews of over 80 books published prior to that date. There is also a cumulative book bibliography of 500 books published to the date that MISI went to press.

Data processing now cuts across nearly every type of business and institution and one is not surprised to find detailed articles even in the consumer press.

Management Information Systems Index will be kept up to date by annual supplementary editions so that you may always have access to virtually unlimited information on any phase of this field at your fingertips.

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KEY TO PERIODICALS DEALING WITH DATA PROCESSING

DOMESTIC

ACCT. REV.

Accounting Review. Quarterly
American Accounting Assn.
c/o R. K. Mautz
218 David-Kinley Hall
University of Illinois
Urbana, Illinois
\$5.00 year
\$1.50 issue

ACCT'S. DIGEST

Accountants Digest. Quarterly
13 Bay View St.
Burlington, Vt.
\$5.00 year
\$1.50 issue

ADM. MGT.

Administrative Management
formerly Office Management and
American Business)
Beyer-McAllister Publications
212 Fifth Ave.
New York 10, N. Y.
\$4.00 year, U. S., Canada, Mexico
\$9.00 year other countries
45¢ issue

ADP NEWSLETTER

Automatic Data Processing Service Newsletter.
Bimonthly
430 Park Ave.
New York 22, N. Y.
\$37.50 year

ADV. AGE

Advertising Age. Weekly
200 E. Illinois St.
Chicago 11, Ill.
\$3.00 year
25¢ issue

ADV. MGT.

Advanced Management. Monthly
(Now Advanced Management-Office Executive
see AM-OE)

A.F.M.

Armed Forces Management. Monthly
American Aviation Publications, Inc.
1001 Vermont Ave., N.W.
Washington 5, D. C.
\$10.00 year U. S. and Canada
\$15.00 year foreign
\$1.00 issue

AIR TRAVEL

Air Travel. Monthly
American Aviation Publications, Inc.
139 N. Clark St.
Chicago 2, Ill.

ALA BULL.

American Library Association Bulletin
American Library Association
50 E. Huron St.
Chicago 11, Ill.
11 issues: members \$10.00

AMA MGT. RPT.

American Management Assn.
Management Report
1515 Broadway
New York 36, N. Y.
\$2.50 to AMA members
\$3.75

AMA RES. STUDY

American Management Assn. Research Study
1515 Broadway
New York 36, N. Y.
\$1.50 to AMA members
\$2.25

AM. CITY

The American City. Monthly
470 Fourth Ave.
New York 16, N. Y.
\$4.00 year
75¢ issue

AM. DOC.

American Documentation. Quarterly
School of Library Science
Western Reserve University
Cleveland 6, Ohio
\$6.00 year

AM. GAS

American Gas Assn. Monthly
420 Lexington Ave.
New York 17, N. Y.
\$5.00 year

AM. GAS JOUR.

American Gas Journal. 13 times yearly
The Petroleum Engineering Publishing Co.
800 Davis Bldg.
Dallas, Texas
\$3.00 year U. S. and Canada
\$5.00 year foreign
\$1.00 issue

AM. MATH. MO.

American Mathematics. Monthly
10 issues
University of Buffalo
Buffalo 14, N. Y.
\$5.00 year

AM-OE

Advanced Management-Office Executive.
Monthly
Society for Advancement of Management
and National Office Management Assn.
74 Fifth Ave.
New York 11, N. Y.
\$5.00 year members
\$8.00 year non-members
50¢ issue members
75¢ issue non-members

ART. YOUNG JOUR.

The Arthur Young Journal. Quarterly
Arthur Young & Company
165 Broadway
New York, N. Y.
Obtainable on request

AUDIO VISUAL INST.

Audio Visual Instruction. 10 issues year
1201 16th St., N.W.
Washington 6, D. C.
\$4.00 year
50¢ issue

AUDITGRAM

Auditgram. Monthly
National Assn. of Bank Auditors &
Comptrollers
38 S. Dearborn St.
Chicago 3, Ill.
\$6.00 year

AUTO. CONT.

Automatic Control. Monthly
430 Park Ave.
New York 22, N. Y.
\$10.00 year
\$1.00 issue

AUTOMATION

Automation. Monthly
Penton Building
Cleveland 13, Ohio
\$10.00 year
\$20.00 year foreign
\$1.00 issue

AVIATION WK.

Aviation Week & Space Technology. Weekly
McGraw-Hill Publishing Co., Inc.
330 W. 42nd St.
New York 36, N. Y.
\$7.00 year
75¢ issue

BANKING

Banking. Monthly
American Bankers Assn.
12 E. 36th St.
New York 16, N. Y.
\$5.00 year
50¢ issue

BEHAV. SCIENCE

Behavioral Science. Quarterly
Mental Health Research Institute
University of Michigan
Ann Arbor, Mich.
\$6.00 year

BELL SYSTEM TECH. JOUR.

Bell System Technical Journal. Bi-Monthly
AT&T
195 Broadway
New York 7, N. Y.
\$3.00 year

BELL TEL. MAG.

Bell Telephone Magazine. Quarterly
195 Broadway
New York 7, N. Y.
Free

BEST'S INS.

Best's Insurance News, Life Edition. Monthly

BEST'S FIRE

Best's Fire and Casualty News. Monthly
Alfred M. Best Co., Inc.
75 Fulton St.
New York 38, N. Y.
\$4.00 year
50¢ issue

BULL. OF THE MEDICAL LIBRARY ASSOC.

Bulletin of the Medical Library Association
4 issues
Mt. Royal & Guilford Aves.
Baltimore 2, Md.
\$7.00 year

BURROUGHS CLG. HOUSE

Burrough Clearing House. Monthly

BURROUGHS DATA

Burroughs Data. Semi-Annual
Burroughs Corporation
Detroit 2, Mich.
Free

BUS. AUTO.

Business Automation. Monthly
(Formerly Management and Business Automation)
OA Business Publications, Inc.
288 Park Ave. W.
Elmhurst, Ill.
Controlled Circulation
\$5.00 year
\$6.00 year Canada
\$12.00 year foreign
75¢ issue, U. S.
\$1.00 issue, all other countries

BUS. FORMS

Business Forms U.S.A. Inc.
National Business Forms Associates
409 E. Broward Blvd.
Ft. Lauderdale, Fla.

BUS. HOR.

Business Horizons. Quarterly
Indiana University School of Business
Bloomington, Ind.
\$6.50 year
\$2.00 issue

BUS. MGT.

Business Management. Monthly
Management Publishing Group
(formerly Management Methods, Management Magazines, Inc.)
22 W. Putnam Ave.
Greenwich, Conn.
\$5.00 year
\$6.00 year Canada, Mexico
\$10.00 year Foreign
75¢ issue

BUS. TOPICS

Business Topics. Quarterly
Grad. School of Business Administration
Michigan State University
Room 20, Morrill Hall
East Lansing, Mich.
Free

BUS. WK.

Business Week. Weekly
330 W. 42nd St.
New York 36, N. Y.
\$6.00 year
50¢ issue

CALIF. MGT. REV.

California Management Review. Quarterly
University of California
405 Hilgard Ave.
Los Angeles 24, Calif.
\$6.50 year

CHAIN ST. AGE

Chain Store Age. Monthly (except March and August)
2 Park Ave.
New York 16, N. Y.
\$3.00 year
35¢ issue

CHALLENGE

Challenge. 10 issues year
Institute of Economic Affairs
New York University
475 Fifth Ave.
New York 17, N. Y.
\$3.00 year
30¢ issue

CHEM. & ENG. NEWS

Chemical and Engineering News. Monthly
American Chemical Society
1155 - 16th St., N.W.
Washington 6, D. C.
\$6.00 year

CHEM. PROC.

Chemical Processing. Monthly
111 E. Delaware Place
Chicago 11, Ill.
Controlled Circulation

CIVIL ENG.

Civil Engineering. Monthly
345 E. 47th St.
New York 17, N. Y.
\$5.00 year
50¢ issue

COMM. ACM

Communications of the A.C.M. Monthly
Association for Computing Machinery
14 E. 69th St.
New York 21, N. Y.
\$10.00 year
\$5.00 year to members
\$2.00 issue

COMM. & FIN. CHR.

Commercial and Financial Chronicle. Biweekly
25 Park Place
New York 17, N. Y.
\$65.00 year
\$1.25 Mon. issue
50¢ Thurs. issue

COMP. & AUTO.

Computers & Automation. Monthly
815 Washington St.
Newtonville 60, Mass.
\$15.00 year
\$15.50 year Canada
\$16.50 year foreign

COMP. NEWS

Computing News. Bimonthly
Box 261
Thousand Oaks, Calif.
\$6.00 year
35¢ issue

COMP. REV.

Computing Reviews. Bimonthly
ACM Computation Center
University of North Carolina
P. O. Box 1184
Chapel Hill, N. C.
\$2.00 year non-members
\$1.50 year members

CONT. ENG.

Control Engineering. Monthly
330 W. 42nd St.
New York 36, N. Y.
\$3.00 year U. S. and Canada
\$15.00 year foreign
75¢ issue

CONTROLLER

The Controller. Monthly
Controllershship Foundation, Inc.
2 Park Ave.
New York 16, N. Y.
\$6.50 year
65¢ issue

CORNELL HOTEL & REST. QTLY.

Cornell Hotel and Restaurant Quarterly
327 Statler Hall
Cornell University
Ithaca, New York
\$3.50 year
\$1.00 issue

CRED. EXEC.

Credit Executive
Monthly Oct.-June
Bi-monthly Aug.-Sept.
71 W. 23rd St.
New York 10, N. Y.
\$3.00 year

CRED. & FIN. MGT.

Credit & Financial Management. Monthly
National Assn. of Credit Mgt.
44 E. 23rd St.
New York 10, N. Y.
\$5.00 year
\$5.50 year Canada
\$6.00 year foreign
50¢ issue

CRED. WORLD

Credit World. Monthly
National Retail Credit Assn.
375 Jackson Ave.
St. Louis 5, Mo.
\$5.00 year

CURR. CONT.

Current Contents. Bimonthly
Institute for Scientific Information
335 Seventeenth St.
Philadelphia 3, Pa.
\$25.00 year
\$10.00 year educational

DATAMATION

Datamation. Monthly
F. D. Thompson Publications Inc.
10373 W. Pico Blvd.
Los Angeles 64, Calif.
Controlled Circulation

DATA PROCESSING

Data Processing. Monthly
American Data Processing, Inc.
(formerly Gille Associates, Inc.)
2200 Book Tower
Detroit 26, Michigan
\$7.50 year U. S. and Canada
\$12.00 year, foreign subscriptions
75¢ issue

DATA PROCESSING ANNUAL

Data Processing Annual. Yearly
(formerly Punched Card/Data Processing Annual, Gille Associates Inc.)
American Data Processing, Inc.
2200 Book Tower
Detroit 26, Michigan
\$15.00 per volume

DATA PROC. DIGEST

Data Processing Digest, Inc. Monthly
1140 S. Robertson Blvd.
Los Angeles 35, Calif.
\$24.00 year
\$28.50 year foreign
\$3.00 issue

DATA PROCESSING YEARBOOK

Data Processing Yearbook
American Data Processing, Inc.
2200 Book Tower
Detroit 26, Michigan
\$15.00 per volume

DATA PROCESSOR

Data Processor. Monthly
IBM
590 Madison Ave.
New York 22, N. Y.

DATEx DIGEST

Datex Digest. Quarterly
Datex Corporation
1307 S. Myrtle Ave.
Monrovia, Calif.
Gratis

DEPT. STORE ECON.

Department Store Economist. Monthly
Chestnut & 56th Sts.
Philadelphia 39, Pa.
\$7.50 year
75¢ issue

DUN'S REV.

Dun's Review & Modern Industry. Monthly
99 Church St.
New York 8, N. Y.
\$5.00 year
75¢ issue

ED. & PSY. MEAS.

**Educational and Psychological
Measurement. Quarterly**
Box 6907
College Station
Durham, N. C.
\$7.00 year

ED. & PUB.

Editor and Publisher. Weekly
Editor & Publisher Co.
850 Third Ave.
New York 22, N. Y.
\$6.50 year
20¢ issue

EEL BULLETIN

Edison Electric Institute Bulletin. Monthly
750 Third Ave.
New York 17, N. Y.
\$2.00 year

E. JOINT COMP. CONF.

**Proceedings Eastern Joint Computer Conference
Assn. for Computing Machinery**
14 E. 69th St.
New York 21, N. Y.
\$3.00 year

ELECT. AGE

Electronic Age. Quarterly
Radio Corporation of America
30 Rockefeller Plaza
New York 20, N. Y.

ELECT. DSGN.

Electronic Design. Biweekly
850 Third Ave.
New York 22, N. Y.
Controlled Circulation

ELECT. ENG.

Electrical Engineering. Monthly
345 E. 47th St.
New York 17, N. Y.
\$12.00 year
\$1.50 issue

ELECT. NEWS

Electronic News. Weekly
Fairchild Publications, Inc.
7 East 12th St.
New York 3, N. Y.
\$3.00 year
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ELECTRONICS

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330 W. 42nd St.
New York 36, N. Y.
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ENG. NEWS

Engineering News Record. Weekly
330 W. 42nd St.
New York 36, N. Y.
\$6.00 year
50¢ issue

FACTORY

Factory. Monthly
30 W. 42nd St.
New York 36, N. Y.
\$2.00 year
\$1.00 issue

FED. ACCT.

The Federal Accountant. Quarterly
Federal Govt. Accts. Assn.
1523 L. St. N.W.
Washington 5, D. C.
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\$1.50 issue

FEEDBACK

Feedback. 6 issues
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8758 Sophia Ave.
Sepulveda, Calif.

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Chicago 6, Ill.
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Fleet Owner. Monthly
330 W. 42nd St.
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\$3.00 year
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Forbes. Semimonthly
70 Fifth Ave.
New York 11, N. Y.
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Fortune. Monthly
Time & Life Bldg. Rockefeller Center
New York 20, N. Y.
\$10.00 year
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Frیدن, Inc.
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Financial World. Weekly
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Harvard Business Review. Bimonthly
Gallatin House
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Highway Traffic. Monthly
709 Republic Bldg.
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Gratis

IBM JOUR.

**IBM Journal of Research & Development.
Quarterly**
590 Madison Ave.
New York 22, N. Y.
\$5.00 year
\$1.25 issue

IMPACT

Impact of Science on Society. Quarterly
UNESCO Publication Center
801 Third Ave.
New York 22, N. Y.
\$1.75 year

IN. & AM. PRINT. & LITH.

**Inland and American Printer and
Lithographer. Monthly**
79 W. Monroe St.

Chicago 3, Ill.

\$5.00 year
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Industrial Design. Monthly
18 E. 50th St.
New York 22, N. Y.
\$10.00 year
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IND. DEV. & MFG. REC.

**Industrial Development and Manufacturers
Record. Monthly**
2592 Apple Valley Road
Atlanta 19, Ga.
\$12.00 year

IND. PACK.

Industrial Packaging. Monthly
6 N. Michigan Ave.
Chicago 2, Ill.
\$7.00 year
75¢ issue

IND. QUAL. CONT.

Industrial Quality Control. Monthly
6185 Plankinton Bldg.
161 W. Wisconsin Ave.
Milwaukee 3, Wis.
\$9.00 year
\$1.00 issue

IND. RESEARCH

Industrial Research. Monthly
Beverly Shores, Ind.
\$7.00 year
\$1.00 issue

INF. & CONT.

Information and Control. Quarterly
111 5th Ave.
New York 3, N. Y.
\$12.00 year

INST. & CONT. SYS.

Instruments and Control Systems. Monthly
845 Ridge Ave.
Pittsburgh 12, Pa.
\$4.00 year U. S. and Canada
\$6.00 year Latin America
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INT. AUD.

The Internal Auditor. Quarterly
Institute of Internal Auditors, Inc.
120 Wall St.
New York 5, N. Y.
\$4.00 year
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INTERPRETER

The Interpreter. Quarterly
Wilberforce University
Wilberforce, Ohio
Gratis

INTL. SCIENCE & TECH.

International Science and Technology. Monthly
Conover Mast Publications, Inc.
205 E. 42nd St.
New York 17, N. Y.
\$10.00 year

INVEST. DEALERS' DIG.

Investment Dealers' Digest. Weekly
150 Broadway
New York 38, N. Y.
\$20.00 year
50¢ issue

IRON AGE

Iron Age. Weekly
Chestnut & 56th Sts.
Philadelphia 39, Pa.
\$5.00 year
50¢ issue

ISA JOUR.

ISA Journal. Monthly
503 William Penn Pl.
Pittsburgh 19, Pa.
\$4.00 year
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JOUR. ACCTCY.

Journal of Accountancy. Monthly
American Institute of Certified Public Accts.
270 Madison Ave.
New York 16, N. Y.
\$8.00 year
85¢ issue

JOUR. ACM

Journal of the ACM. Quarterly
Association for Computing Machinery
14 E. 69th St.
New York 21, N. Y.
\$10.00 year
\$5.00 for members
\$4.00 issue
\$2.00 issue, members

JOUR. ASTD

**Journal of the American Society of Training
Directors. Monthly**
2020 University Ave.
Madison, Wis.
\$10.00 year

JOUR. BUS.

The Journal of Business. Quarterly
The University of Chicago Press
5750 Ellis Ave.
Chicago 37, Ill.
\$6.00 year
\$2.25 issue

JOUR. BUS. ED.

Journal of Business Education, 8 issues year
512 Brooks Bldg.
Wilkes-Barre, Pa.
\$4.00 year

JOUR. FRANKLIN INST.

Journal of Franklin Institute. Monthly
20th and Parkway
Philadelphia 3, Pa.
\$10.00 year

JOUR. IND. ENG.

Journal of Industrial Engineering. Bimonthly
American Institute of Industrial Engineers, Inc.
225 North Ave. N. W.
Atlanta 13, Ga.
\$10.00 year
\$2.50 issue

JOUR. MACH. ACCTG.

Journal of Machine Accounting. Monthly
National Machine Accountants Assn.
1750 W. Central Rd.
Mt. Prospect, Ill.
\$5.00 year domestic
\$10.00 year foreign

JOUR. MARKETING

Journal of Marketing. Quarterly
27 E. Monroe St.
Chicago 3, Ill.
\$8.00 year
\$2.00 issue

JOUR. RETAIL

Journal of Retailing. Quarterly
N.Y.U. School of Retailing
1010 Main Bldg.
Washington Square E.
New York 3, N. Y.
\$3.50 year
\$4.00 foreign
\$1.00 issue

JOUR. S.I.

Journal of Symbolic Logic
Association for Symbolic Logic
190 Hope St.
Providence, R. I.
\$6.50 year
\$2.00 current issue
\$2.50 back issue

LABOR LAW JOUR.

Labor Law Journal. Monthly
214 N. Michigan Ave.
Chicago 1, Ill.
\$10.00 year

LYBRAND JOUR.

Lybrand Journal. Quarterly
Lybrand, Ross Brothers & Montgomery
2 Broadway
New York 4, N. Y.
Gratis

MAPI FIN. REV.

MAPI Financial Review. Occasional
Machinery and Allied Products Institute
1200 Eighteenth St.
Washington 6, D. C.
\$1.00 copy

MFOA NEWS

MFOA News Letter. Bimonthly
Municipal Finance Officers Assn.
1313 E. 60th St.
Chicago 37, Ill.
\$12.00 year

MANAGE

Manage. Monthly
321 W. First St.
Dayton 2, Ohio
\$3.00 year

MAT. DES. ENG.

Materials in Design Engineering. Monthly
430 Park Ave.
New York 22, N. Y.
\$3.00 year
50¢ issue

MAT. HNDLG. ENG.

Material Handling Engineering. Monthly
812 Huron Rd.
Cleveland 15, Ohio
Controlled Circulation
\$5.00 year

MECH. CONT.

Mechanical Contractor. Bimonthly
Mechanical Contractors Association of America
45 Rockefeller Plaza
New York 20, N. Y.
\$2.00 year
25¢ issue

MGR.

Manager's Magazine. Quarterly
170 Sigourney St.
Hartford 5, Conn.
\$4.50 year, non-members

MGT. CONT.

Management Controls. Monthly
Peat, Marwick, Mitchell & Co.
70 Pine St.
New York 5, N. Y.
Controlled circulation

MGT. METH.

Management Methods. Monthly
(now Business Management)

MGT. SCIENCE

Management Science. Quarterly
Institute of Management Sciences
Mt. Royal and Guilford Aves.
Baltimore 2, Md.
\$10.00 year
\$8.00 to members
\$2.50 issue

MGT. & BUS. AUTO

Management & Business Automation. Monthly
(now Business Automation. See BUS. AUTO.)

MGT. REV.

Management Review. Monthly
American Management Assn.
1515 Broadway
New York 36, N. Y.
\$7.50 to members
\$12.50 year nonmembers
\$1.25 issue
\$1.00 issue members

MICH. BUS. REV.

Michigan Business Review. Bimonthly
School of Bus. Adm.
The University of Michigan
Ann Arbor, Mich.
Free

MILL & FACTORY

Mill and Factory. Monthly
c/o Hughes Printing Co.
205 E. 42nd St.
New York 17, N. Y.
\$10.00 year
\$1.00 issue

MO. LABOR REV.

Monthly Labor Review. Monthly
U. S. Bureau of Statistics
Superintendent of Documents
Washington 25, D. C.
\$6.25 year

MOD. OFF. PROC.

Modern Office Procedures. Monthly
812 Huron Rd.
Cleveland 15, Ohio
\$7.00 year
75¢ issue

MOD. RAILROADS

Modern Railroads. Monthly
201 N. Wells St.
Chicago 6, Ill.
\$8.00 year
\$3.00 issue

MTM

Modern Textiles Magazine. Monthly
303 5th Ave.
New York 16, N. Y.
\$5.00 year
\$1.00 issue

MUN. FIN.

Municipal Finance. Quarterly
Municipal Finance Officers Assn. of the U. S.
& Canada
1313 E. 60th St.
Chicago 37, Ill.
\$2.50 year
50¢ issue

NAA

N.A.A. Bulletin. Monthly
National Assn. of Accountants
505 Park Ave.
New York 22, N. Y.
\$10.00 year
75¢ issue

NMAA DATA PROC. PRCDGS.

NMAA Data Processing Proceedings
National Machine Accountants Assn.
1750 W. Central Rd.
Mt. Prospect, Ill.

NOMA TECH. QTLY.

NOMA Technical Quarterlies
National Office Management Assn.
Willow Grove, Pa.

NATION'S BUS.

Nation's Business. Monthly
U. S. Chamber of Commerce
1615 H. St., N.W.
Washington 6, D. C.
\$18.00 (three year basis only)
60¢ issue

NAT. PUB. ACCT.

The National Public Accountant. Monthly
919 18th St., N.W.
Washington 6, D. C.
\$4.80 year
40¢ issue

NAVY MGT. REV.

Navy Management Review. Monthly
Navy Management Office
Room 0127, Main Navy Building
Washington 25, D. C.
Remit: Superintendent of Documents
U. S. Government Printing Office
Washington 25, D. C.
\$1.50 year
15¢ issue
50¢ additional for foreign

N. Y. CERT. PUB. ACCT.

New York Certified Public Accountant. Monthly
New York State Society of C.P.A.
355 Lexington Ave.
New York 17, N. Y.
\$5.00 year
50¢ issue

OFFICE

The Office. Monthly
232 Madison Ave.
New York 16, N. Y.
\$5.00 year
50¢ issue

OFF. APPLIANCES

Office Appliances. Monthly
600 W. Jackson Blvd.
Chicago 6, Ill.
\$4.00 year
60¢ issue

OFF. AUTO. NEWS

Office Automation. Monthly
News Bulletin
155 Fifth Ave.
New York 10, N. Y.
\$37.50 year

OFFICE EXEC.

Office Executive. Monthly
(now Advanced Management-Office Executive
see AM-OE)

OFF. MGT. & AM. BUS.

Office Management and American Business. Monthly
(now Administrative Management
see ADM. MGT.)

OIL & GAS. JOUR.

Oil & Gas Journal. Weekly
211 S. Cheyenne Ave.
Tulsa 1, Okla.
\$6.00 year
\$1.00 issue

OR

Operations Research. Bimonthly
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430 Park Ave.
New York 22, N.Y.
- Automation**
Automation
Penton Bldg.
Cleveland 13, Ohio
- Auto. Progress**
Automation Progress
Strafford House
9 Eden St.
London N.W. 1, England
- Banking**
Banking
12 E. 36th St.
New York 16, N.Y.
- Best's Ins.**
Best's Insurance News
75 Fulton St.
New York 38, N.Y.
- Best's Ins. Fire**
Best's Insurance News, Fire & Casualty Edition
75 Fulton St.
New York 38, N.Y.
- Best's Ins. Life**
Best's Insurance News, Life Edition
75 Fulton St.
New York 38, N.Y.
- Bus.**
Business
180 Fleet St.
London E. C. 4, England
- Bus. Topics**
Business Topics
Michigan State University
East Lansing, Michigan
- Bus. Wk.**
Business Week
330 W. 42nd St.
New York 36, N.Y.
- Calif. Mgt. Rev.**
California Management Review
University of California
405 Hilgard Ave.
Los Angeles 24, Calif.
- Can. Ch. Acct.**
Canadian Chartered Accountant
69 Bloor St., E.
Toronto, Ont., Canada
- Can. Chem. Pro.**
Canadian Chemical Processing
1450 Don Mills Rd.
Don Mills, Ont., Canada
- Ch. Acct. Aust.**
The Chartered Accountant in Australia
Box 3921 G.P.O.
Sydney, Australia
- Chain St. Age**
Chain Store Age
2 Park Ave.
New York 16, N.Y.
- Challenge**
Challenge
New York University
475 Fifth Ave.
New York 17, N.Y.
- Chem. & Eng.**
Chemical & Engineering News
American Chemical Society
1155 Sixteenth St., N.W.
Washington 6, D.C.
- Chem. Processing**
Chemical Processing
111 E. Delaware Pl.
Chicago 11, Ill.
- C & A**
Computers & Automation
815 Washington St.
Newtonville 60, Mass.
- CACM**
**Communications for the Association for
Computing Machinery**
2 E. 63rd St.
New York, N.Y.
- Comp. News**
Computing News
Box 261
Thousand Oaks, Calif.
- Cont. Eng.**
Control Engineering
330 W. 42nd St.
New York 36, N.Y.
- Controller**
The Controller
2 Park Ave.
New York 16, N.Y.
- Cost Acct.**
The Cost Accountant
63 Portland Place
London W. 1, England
- C & M**
Cost & Management
31 Walnut St., So.
Hamilton, Ont., Canada
- Cred. & Fin. Mgt.**
Credit and Financial Management
229 Fourth Ave.
New York 3, N.Y.
- C. W.**
Credit World
375 Jackson Ave.
St. Louis 5, Mo.
- Data Processing**
Data Processing
22nd Floor Book Tower
Detroit 26, Mich.
- Data Proc. Digest**
Data Processing Digest
1140 S. Robertson Blvd.
Los Angeles 35, Calif.
- Datamation**
Datamation
(formerly Research & Engineering)
10373 W. Pico Blvd.
Los Angeles 64, Calif.
- Dept. Store Econ.**
Department Store Economist
Chestnut & 56th Sts.
Philadelphia 39, Pa.
- DR & MI**
Dun's Review and Modern Industry
99 Church St.
New York 8, N.Y.
- Elect.**
Electronics
330 W. 42nd St.
New York 36, N.Y.
- Elect. Eng.**
Electronic Engineering
500 Fifth Ave.
New York 36, N.Y.
- Elec. News**
Electronic News
7 E. 12th St.
New York 3, N.Y.

- F. W.**
Financial World
 17 Battery Place
 New York 4, N.Y.
- Factory Mgt. & Maint.**
Factory Management & Maintenance
 330 W. 42nd St.
 New York 36, N.Y.
- Fed. Acct.**
The Federal Accountant
 1523 L St., N.W.
 Washington 5, D.C.
- Forbes**
 Forbes
 70 Fifth Ave.
 New York 11, N.Y.
- Fortune**
 Fortune
 9 Rockefeller Plaza
 New York 20, N.Y.
- Harv. Bus. Rev.**
Harvard Business Review
 Soldiers Field
 Boston 63, Mass.
- Ind. Welfare**
Industrial Welfare
 48 Bryamston Square
 London W. 1, England
- Inst. & Auto.**
Instruments & Automation
 (now Instruments & Control Systems)
 845 Ridge Ave.
 Pittsburgh 12, Pa.
- Inst. Prod. Eng. Jour.**
Institution of Production Engineers Journal
 36 Portland Square
 London W. 1, England
- Int. Aud.**
The Internal Auditor
 120 Wall St.
 New York 5, N.Y.
- Interpreter**
The Interpreter
 Wilberforce University
 Wilberforce, Ohio
- Jour. Acctcy.**
The Journal of Accountancy
 270 Madison Ave.
 New York 16, N.Y.
- Jour. Bus.**
Journal of Business Education
 512 Brooks Bldg.
 Wilkes-Barre, Pa.
- Jour. Franklin Inst.**
Journal of Franklin Institute
 20th & Parkway
 Philadelphia 3, Pa.
- Jour. Ind. Eng.**
Journal of Industrial Engineering
 32 W. 40th St.
 New York 18, N.Y.
- Jour. Mach. Acctg.**
Journal of Machine Accounting
 1750 W. Central Rd.
 Mount Prospect, Ill.
- Lybrand Jour.**
Lybrand Journal
 2 Broadway
 New York 4, N.Y.
- MA & DP**
Machine Accounting & Data Processing
 (now Data Processing)
 22nd Floor Book Tower
 Detroit 26, Michigan
- MAPI Fin. Rev.**
MAPI Financial Review
 Machinery & Allied Products Institute
 1200—18th St., N.W.
 Washington 6, D.C.
- MBA**
Management & Business Automation
 600 W. Jackson Blvd.
 Chicago 6, Ill.
- Mgt. Meth.**
Management Methods
 22 W. Putnam Ave.
 Greenwich, Conn.
- Mgt. Rev.**
The Management Review
 1515 Broadway
 New York 36, N.Y.
- Mgt. Science**
Management Science
 250 North St.
 White Plains, N.Y.
- Mgr.**
Manager's Magazine
 855 Asylum Ave.
 Hartford 5, Conn.
- Mod. Off. Proc.**
Modern Office Procedures
 812 Huron Rd.
 Cleveland 15, Ohio
- Mod. Railroads**
Modern Railroads
 201 No. Wells St.
 Chicago 6, Ill.
- Mun. Fin.**
Municipal Finance News Letter
 1313 E. 60th St.
 Chicago 37, Ill.
- NAA**
National Accountants Association Bulletin
 505 Park Ave.
 New York 22, N.Y.
- Nation's Bus.**
Nation's Business
 1615 H. St., N.W.
 Washington 6, D.C.
- Navy Mgt. Rev.**
Navy Management Review
 Supt. of Documents
 Washington 25, D.C.
- N.Y. Cert. Pub. Acct.**
New York Certified Public Accountant
 677 Fifth Ave.
 New York 22, N.Y.
- O & M Bulletin**
Organization & Methods Div. of H. M. Treasury
 Treasury Chambers
 Whitehall S.W. 1, England
- Office**
The Office
 232 Madison Ave.
 New York 16, N.Y.
- Off. Appliances**
Office Appliances
 600 W. Jackson Blvd.
 Chicago 6, Ill.
- Off. Eq. & Meth.**
Office Equipment & Methods
 481 University Ave.
 Toronto 3, Ont., Canada
- Off. Eq. News**
Office Equipment News
 146 Bates Rd.
 Montreal 8, P.Q., Canada
- Off. Exec.**
Office Executive
 1927 Old York Rd.
 Willow Grove, Pa.
- Off. Mgt.**
Office Management
 (now Office Management & American Business)
 212 Fifth Ave.
 New York 10, N.Y.
- Oil & Gas Jour.**
Oil & Gas Journal
 211 South Cheyenne
 Tulsa 3, Oklahoma
- P. S.**
Paperwork Simplification
 The Standard Register Co.
 Dayton 1, Ohio
- Personnel**
 Personnel
 1515 Broadway
 New York 36, N.Y.
- Price Waterhouse Rev.**
Price Waterhouse Review
 56 Pine St.
 New York 5, N.Y.
- Prog.**
The Program
 151 W. 51st
 New York 19, N.Y.
- Pub. Admin. Rev.**
Public Administration Review
 6042 Kimbark Ave.
 Chicago 37, Ill.
- PC/DP**
Punched Card Data Processing
 (now Data Processing)
 22nd Floor Book Tower
 Detroit 26, Mich.
- P.C. Annual**
Punched Card Data Processing Annual
 22nd Floor Book Tower
 Detroit 26, Mich.
- Purchasing**
 Purchasing
 205 E. 42nd St.
 New York 17, N.Y.
- R & E**
Research and Engineering
 (now Datamation)
 10373 W. Pico Blvd.
 Los Angeles 64, Calif.
- Railway Age**
Railway Age
 30 Church St.
 New York, N.Y.
- Res. for Ind.**
Research for Industry
 Stanford Research Institute
 Menlo Park, Calif.
- Retail Cont.**
Retail Control
 National Retail Merchants Association
 100 W. 31st
 New York 1, N.Y.
- Sec. Chron.**
Secretaries Chronicle
 13 Devonshire St.
 London W. 1, England
- Spectator**
The Spectator
 Chestnut & 56th Sts.
 Philadelphia 39, Pa.

Supv. Mgt.
Supervisory Management
1515 Broadway
New York 36, N.Y.

Systems
Systems Magazine
315 Fourth Ave.
New York 10, N.Y.

SPA Qtrly.
Systems & Procedures Quarterly
4463 Penobscot Bldg.
Detroit 26, Mich.

Tech. News
Technical News Bulletin
National Bureau of Standards
Superintendent of Documents

U.S. Government Printing Office
Washington 25, D.C.

Tubes & Tapes
Tubes & Tapes
American Gas Association
Edison Electric Institute
420 Lexington Ave.
New York 18, N.Y.

U. S. Inv.
U. S. Investor
286 Congress St.
Boston 10, Mass.

Univac Rev.
Univac Review
Remington Rand Univac
315 Fourth Ave.
New York 10, N.Y.

Wall St. Jour.
The Wall Street Journal
44 Broad St.
New York 4, N.Y.

Arth. Young Jour.
Arthur Young Journal
Arthur Young Co.
165 Broad St.
New York, N.Y.



REVIEWS OF BOOKS

IN THE DATA PROCESSING FIELD 1961-62

ACCOUNTING SYSTEMS: PROCEDURES AND METHODS, Second Edition by Cecil Gillespie. Published by Prentice-Hall Inc., 1961, 641 pages, \$12.00.

This simplified second edition of a successful book on accounting systems updates the reader with the latest concepts, methods, and advanced developments in office automation.

Written in easy-to-understand terms with illustrations and charts, it gives a clear grasp of a complete systems methodology to guide the practitioner who designs and installs complete systems or procedures. It will help the office manager or accountant who wants to improve procedures now in operation.

After describing how the scope and character of systems work are changing, the book goes on to demonstrate what management obtains from each of its business procedures and how they operate in today's accounting.

Vital new information on electronic data processing, revised material on punched card accounting and a new chapter on cost accounting are included in this revised edition.

ANALOGUE AND DIGITAL COMPUTERS edited by A. C. D. Haley and W. E. Scott. Philosophical Library, Inc., 303 pages, \$10.00.

Primarily intended for newcomers in the computer field, this book accomplishes the objective by including a chapter prepared by a specialist in a specific field. A certain amount of duplication results from this plan, however, each article or chapter clearly explains the subject matter. The introduction ties the chapters together in a readable form.

Subjects discussed are operation, application and design of analog computers; numbers representation, operation, and circuit elements of digital computers.

Papers are also presented on storage, input-output equipment and programming. Many references are included at the end of each chapter.

The fundamental difference between analogue and digital computers is explained in chapter 1: analogue computers use several variable physical quantities while digital computers are instructed to calculate and consider, by conditional transfer and other logic, assorted repetitious quantities.

Numbers representation, binary point, and negative numbers in digital computers are carefully explained in chapters 5 and 7. Here is repeated the observation, found in many current books, that the popular conception of computers as electronic brains is false: A computer can only follow instructions to calculate, discriminate between conditions, and proceed in one of several directions.

The need for, and types of, storage are explained in chapter 8, with discussions of delay-line type storage, core matrices, ferrite apertured plates, ferroelectric and diode capacitor store, and drums. Briefly explained is the role of magnetic tapes for additional storage.

ANNUAL REVIEW IN AUTOMATIC PROGRAMMING, Volume I, edited by Richard Goodman. Pergamon Press, Inc., 1961, 300 pages, \$10.00.

Papers read at the Working Conference on Automatic Programming of Digital Computers organized by the Department of Mathematics, Brighton Technical College, were compiled for Volume I. Subjects included

at the conference were future trends in automatic programming, some problems of a universal autocode and the Mark 5 system of automatic coding for TREAC. For PEGASUS there were papers on assembly, interpretive and conversion programs, operational experience, and an example of an autcoded program for sales analysis and forecasting. Other subjects covered the application of formula translation to automatic coding of ordinary differential equations; MERCURY autocode; automatic programming of DEUCE; the STANTEC-ZEBRA Simple Code and its interpretation; the SHARE Operating system for the IBM 709; the philosophy of programming; automatic programming and business applications; FLOW-MATIC and MATH-MATIC systems; TIDE — a commercial compiler for the IBM 650; and autoprogramming for numerically controlled machine tools. There are four appendices.

AUTOMATIK ABC, edited by Rudolf Roehr. R.v.Decker's Verlag, G.Schenck GMBH, Hamburg, 1961, 226 pages, DM 22 (approx. \$6.00).

This is a directory of suppliers of the whole automation industry in Germany, commercial and industrial. Some 550 German firms concerned with either production or distribution are listed, including data processing (27 firms) digital computers (14), accessories such as printers (17), punched tape readers, storage devices and the like.

An exhaustive index of products in English makes the use of the book, so far as the resources are concerned, easy and convenient for the English reader.

A section on selected components and accessories, such as switches, transistors and motors includes specifications of the main characteristics in tabulated form.

The directory is preceded by a survey (in German), illustrated by diagrams, of what can be automated, how it can be automated and what equipment is needed for automation. A detailed bibliography of books, of which about 25 are concerned with computers, programming and applications, makes up the rear.

AUTOMATION, ITS IMPACT ON BUSINESS AND PEOPLE by Walter Buckingham. Harper & Brothers, 1961, 196 pages, \$4.50.

The author explores, in layman's language, the explosion of scientific and technological knowledge and their relationship to the economic, social, and political scene.

From case studies, Dr. Buckingham looks at the effects of automation on management theory and personnel practices. He explores automation's impact on industrial organizations and structure, small business, jobs and working conditions, unemployment and displacement of workers, price stability, and economic growth.

His conclusions are that "automation is a powerful force at work remolding our economy and many of its major institutions; there is a high degree of it already; it is spreading rapidly and will continue to grow in scope and intensity; most of its limits can be overcome with intelligent planning; its benefits are enormous and varied; whole new concepts and systems of management are necessary to cope with it; working conditions are vastly improved although workers are not upgraded as is commonly supposed; automation need not cause unemployment or depressions although there is a lot of technological displacement; it can raise living standards tremendously but tends to unstabilize the econ-

omy; and much more rational planning for balanced economic and social growth will be required if we are to meet the challenges."

AUTOMATION AND SOCIETY, edited by Howard Boone Jacobson and Joseph S. Roucek. Philosophical Library, 550 pages, \$10.00.

This thick tome is a collection of case studies of many companies. It covers both factory automation and automation in the office, with sidelights on the effects of automating on employees and labor in general.

Topics cover automation in: manufacturing, automotive industry, metal working industries, electronics industry, communication machine manufacturing, railroads, post office; and in the office, discusses the teaching machines, automation and the accountant, automation in data processing for business — small, medium and large. Two chapters cover the Bell system.

Another section covers the responsibilities of automation: automation, employment and economic stability; quality in an automated economy; automation and education; automation's impact on capital and labor markets; on leisure; as a management problem; political aspects; personnel adjustments; public administration; and social stratification. The authors conclude with a glance at the technological and economic problems of automation in the U.S.S.R.

BANKING AUTOMATION AND THE MAGNETIC INK CHARACTER RECOGNITION PROGRAM by Dale L. Reistad. Detroit Research Institute, 1961, \$7.50.

This semi-technical book is designed to serve as a textbook dealing with automatic data processing for the financial industry, to give bankers a solid background in the fundamental principles, feasibility and methods of implementing MICR-ADP systems.

The text examines various approaches to banking automation — the general MICR program, the role of account numbering, control codes, the automatic processing of "on-us" documents, the automatic transit operation, sorting and filing of documents, and the role of the electronic computer in the MICR program.

COMPUTER LOGIC by Ivan Flores. Prentice-Hall, Inc., 1960, 458 pages, \$12.00.

Written for those who have some background in engineering and mathematics, this volume explains with text and many diagrams the circuit theory used in the construction of electronic computing equipment. While a definition of analog equipment is developed early in the book, most of the material deals with digital computers.

The relationship between computer design and computer use is given much emphasis. A mythical machine (POLYVAC) is used for a short discussion of programming, and the ideas of counting and number base are fully discussed. A chapter is given to the problem of the languages that are involved in problem stating and in using a computer; another chapter deals with input to and output from a computer — a subject the author feels has received too little attention in other literature.

The first half or more of the book is analytical, breaking down the many ideas, circuits, and components that go into modern computers and describing them in some detail. The author then synthesizes larger and larger equipment blocks throughout the latter part of the book, with ample diagrams to help illustrate how the circuitry and theory are combined to do the various jobs the complete computer must do. The last chapter gives a description of how a problem (determining correlation coefficients in a set of 20 waveforms) is handled and solved, from the time it is given to the computer programmer until the programmer gives the answer to the person who posed the problem.

The book has an index, a 50-page glossary, and a short annotated bibliography.

COMPUTERS AND HOW THEY WORK by James D. Fahnestock. Ziff-Davis Publishing Co., 1959, 228 pages, \$4.95.

Written in the popular vein at about the high school sophomore level, this book attempts to explain virtually

the whole gamut of computer technology in simple terms. The book should be useful to any person who has no mathematical background but has a need to know about computer circuitry. Both digital and analog computers are considered. The book has an index.

COST REDUCTION GUIDE FOR MANUFACTURING MANAGEMENT by H. Clifton Morse and E. E. Wyatt. Wyatt & Morse, Inc., 238 pages.

This guide comprises a group of questions, with space allotted for rated responses on all phases of business. The authors include discussion with each set of questions; a section on case histories, and a section on operations analysis audit. The material is a guide to organizing and promoting a cost reductions program. Rarely is so comprehensive a coverage of business functions found in one place.

Administrative methods and responsibilities of management are described in detail.

CRISIS WE FACE: AUTOMATION AND THE COLD WAR, THE by George Steele and Paul Kircher. McGraw-Hill Book Co., Inc., 1960, 220 pages, \$4.95.

The authors challenge the quality of our military defense and our economic position; they call for more effective automation and electronic computers.

They discuss the probable effect of radio-activity, resulting from a hydrogen bomb burst, on electronic systems in bombers, missiles and on CONELRAD. Their feeling is that these systems would fail to work under such conditions. Problems of management and government, such as complex organizational structures, and the multiple committees in the Department of Defense, are deplored, though the fault is laid to management, not engineers.

Included are suggested programs to help executives perform more effectively. It calls for standardized system components, simpler computers and automation, and improved research, stressing the need for better educational programs in management and engineering.

The book gives an understanding of new basic technical design concepts, a new approach to the organization of large groups, and insights into other areas concerned with survival of our country.

DAILY OPERATION OF THE COMPUTER ROOM. Automation Committee Report No. 3. Life Office Management Association, May, 1961, 26 pages, \$1.50 to members, \$3.00 to nonmembers.

Written by and for computer personnel in the insurance industry, this short report provides an excellent and comprehensive view of the functions of a computer room in an electronic data processing installation. The report deals with four topics: scheduling, including time estimates, priorities, and backup equipment arrangements; utilization records for the computer and for auxiliary equipment; console operation, including computer room organization and control over computer use, check sheets, instruction sheets, logs, programmed and unprogrammed halts, and testing; and the tape library, including duties of the librarian, storage, handling, transportation and identification of tapes, and control over tape usage. The value of this report is not restricted to those in the insurance field.

DECISION MODELS FOR INVENTORY MANAGEMENT by Robert B. Fetter and Winston C. Dalleck. Richard D. Irwin, Inc., 1961, 125 pages, \$5.75.

This book is designed as a guide for the interested and reasonably sophisticated operations analyst whose primary concern is the analysis of problems in inventory management.

The book provides such an analyst with the approach to the analysis of his problem through model formulation, data collection and analysis and solution. The solution should include the optimum inventory as the goal, with the rules formulated to produce answers as to how much inventory to carry: enough so that demand can be met, but not so much that the relative costs of carrying the inventory are excessive to demand.

The book is divided into three parts plus appendices

which include a glossary. Part one takes up inventory decision models: basic EOQ model — purchased lots; production lots; variation in demand, procural problems; and sensitivity analysis.

Part two deals with input data: costs and prices which include ordering, carrying and depletion costs; demand and lead time; and the Monte Carlo method.

Part three covers illustrative cases: basic EOQ model, production EOQ model; variable demand and lead time; quantity discounts; an integrated computer-oriented inventory management system; and a case study.

DIGITAL COMPUTER PRINCIPLES by Wayne C. Irwin. D. Van Nostrand Company, Inc., 321 pages, \$8.00.

The author has drawn on his experience in giving training courses for The National Cash Register Company to write this book. It is aimed at those who know little of digital computing but who wish to learn. He starts with explanations of the number systems (decimal, binary, octal) and their manipulation, then moves into symbolic logic covering truth tables, functions of variables, Boolean algebra, deriving equations, and minterm and maxterm forms, Venn diagrams, Karnaugh maps, and the Harvard minimizing chart. He explores the mechanization of logic, storage, and arithmetic, and the timing in computers.

Control of the process looks into selection of operation and operands, instructions, instruction format, and interconnection of subunits. Input-output equipment, binary codes, and conversion of base are explained. Principles of programming, use of a three address routine and alternate methods are shown; also details of how to detect and reduce errors. He concludes with a discussion of core logic and new techniques rapidly evolving in computer art.

ELECTRONIC BUSINESS MACHINES edited by J. H. Levenson. Philosophical Library, Inc., 270 pages, \$10.00.

A series of English lectures by twelve experienced electronic computer specialists is presented in three main sections: programming for business purposes, business management and electronic data processing, and computer equipment and applications. Although the original lectures were delivered in the summer of 1958, they have been rewritten with some updating to cover progress made in application of computers to business in the significant years of 1959-1960.

A goal of business, to accomplish integrated data processing, is expressed as an ideal with or without computers, and the technical limits to dumping all raw data into a computer which will spew out the required business facts are stated as an "unattainable ideal." In chapter 18, Mr. N. K. Moritz discusses this ideal under the title, Telecommunications.

Emphasis is placed on the investigation prior to a decision to use a computer. The necessity of top management support, inquisitive investigations and a carefully selected and informed analysis group is clearly stated. After the decision to use a computer is made a relatively long period of preparation is essential.

Three chapters are devoted to computer sorting techniques and flow charting, which are discussed in detail.

Under business management, chapters 8 through 14, the lectures cover business computer adjustments, selection and training of computer personnel, and problems of audit and control.

The concluding section includes discussions of input-output, magnetic tapes, punched cards and computers, and telecommunications. The editor believes the book provides answers that will be invaluable to the businessman. Developments, however, of new electronic business machines in the last two years must also be considered.

ELECTRONIC COMPUTERS by T. E. Ivall. Iliffe & Sons Ltd., London, and Philosophical Library, Inc., 1960, Second Edition, 259 pages, \$10.00.

Although this book devotes four chapters to analog computers, it contains some specific explanation of

digital systems, programming, and applications of computers in the United Kingdom. The ultimate conclusion as to the future of computers — the control of factories and real-time applications — is quite different from the view held in the United States.

The history of computer developments is presented first, followed by general principles, circuitry, and storage techniques. Computer applications are briefly, and without detail, explained to be in payroll, and other data processing accounting functions.

The author presents some recent developments which include nontechnical explanations of transistors, diodes, cryotons, thin film, and parametrons.

In total the book is good reading. The original publication date (1956) is evident, and mathematical formulae so often encountered in books on computers and computer componentry are not presented.

ELECTRONIC COMPUTERS AND THEIR BUSINESS APPLICATIONS by A. J. Burton and R. G. Mills. Ernest Benn, Ltd., 1960, 325 pages, 45 shillings.

As A. J. Barnard put it in the preface, this book would have saved many a trying time, had it been written six years ago. Organized in three sections — equipment, techniques, and applications — the book illuminates the thorniest of the problems of using computers for business purposes. It is written for the serious reader, and will require concentration and thought. The results of a careful reading, however, will be rewarding: the general reader will gain a good appreciation of why it takes so long to place an application on a computer; the programmer will find a fresh and stimulating discussion of his work; and both will perhaps see interesting possibilities in the latter part of the book, where basic business applications are analyzed in terms of the authors' imaginary computer, CASSEAC.

The American reader in particular should find some food for thought in the English approaches described for payroll, sales accounting and stock control, government applications, insurance, stock exchange, banking, and share registration, to each of which is devoted a chapter reviewing the basic data processing functions involved and suggesting one or more ways of handling the task on an electronic computer. In three chapters about programming, some fairly common misconceptions of what constitutes a good program are neatly exploded, to be replaced with more prosaic ideas which can only be the result of practical programming experience. A short chapter on staffing the installation is also worthwhile. It is significant, too, that the authors leave their fancies behind and do not indulge in speculation about the future role of the computer except in a seven-page final chapter. The book has five appendices and a thorough index.

ELECTRONIC DATA PROCESSING — AN INTRODUCTION by E. Wainright Martin, Jr. Richard D. Irwin, Inc., 1961, 423 pages, \$10.60.

Despite some similarities between this and other introductory texts in electronic data processing, this book represents an important contribution to the data processing field. There are a number of books which use the IBM 650 for instruction in computer programming, as does this one, and the use of payroll as one of the major application descriptions is also common enough. What is relatively uncommon is the balance which Dr. Martin (a mathematician) has struck between technical and scientific considerations on the one hand, and the hard and practical considerations of using a computer in a business setting on the other. The result is a concise treatment of electronic data processing, not presented at the high school or college freshman level, but intended primarily for the graduate student and others of comparable ability.

In addition to a well-written section explaining how to program the 650, the book contains an excellent 50-page summary of the punched card method, and chapters dealing with large-scale computers, random access files, systems analysis and design, computer in-

stallation activities and problems, considerations in the organization of a data processing activity, and a most interesting concluding chapter which Dr. Martin titles "Management Responsibility Toward Information Technology." There are four appendices and an index, and each chapter is followed by a summary, a thoughtful set of exercises, and a subject bibliography. In addition, the book is liberally footnoted with specific references.

Obviously very well grounded in his subject, the author emphasizes the value of block diagrams and flow charts in the design and use of data processing systems; shows clearly how to tie a coded computer program back to its block diagram; and follows his own advice by making full use of both flow charts and block diagrams throughout the text. On the subject of diagrams, those familiar with the widely circulated general block diagram of "How to get to work in the morning" will be interested in a new switch incorporated into Dr. Martin's version. For clarity, organization, and substance, this new book will be hard to surpass.

ELECTRONIC DATA PROCESSING AND AUDITING by Felix Kaufman. The Ronald Press Co., 1961, 180 pages, \$6.00.

Many persons responsible for the auditing of computer-processed information have been concerned about how this can best be accomplished. The combination of invisible records, new patterns of data organization, and the complexities of computer programming and operation have made it difficult for these persons to understand and resolve the differences between traditional auditing concepts and those engendered by the use of electronic computers. Dr. Kaufman, a C. P. A. and partner of Lybrand, Ross Brothers and Montgomery, has drawn on his extensive experience with both the auditing function and electronic data processing systems design and management to bridge the gap between these two disciplines with a well-illustrated and definitive treatment.

Without wasting the reader's time with more technical data than is required for the purpose of the book, the author explains the nature of computer processing and the planning steps involved; describes audit methods for a number of important computer-run applications; and then pinpoints some especially useful techniques currently being employed to audit various kinds of computer runs. Traditional audit procedures are examined one by one in context with electronic data processing, and the reasons for procedural changes, where necessary, are explained. The book has an index and contains many clearly understandable diagrams and flow charts.

ELECTRONICS IN ACTION, The Current Practicality of Electronic Data Processing, Special Report No. 22, American Management Association, Inc., 1961, 156 pages, \$3.75 to nonmembers.

This material was first presented in 1957 at the Third Annual Electronic Conference and Exhibit, sponsored by the Finance Division of AMA, in New York City.

This report stresses the current practicality of electronics in action. Leading practitioners from companies with well established programs report on their experience to date in dollars and cents terms. The papers indicate that management plans to utilize the improved reporting and analysis obtained to a greater extent.

The report covers feasibility studies of small, medium and large computers, with one negative report; selecting and training personnel; appraisals of several installations; new frontiers possible through simulation of inventory control, expansion planning, and design of business organization; and the future of electronics as a management tool.

ERROR-CORRECTING CODES by W. W. Peterson. Published jointly by The M.I.T. Press and John Wiley & Sons, Inc., 285 pages, \$7.75.

Although this book primarily discusses error-correcting codes it also goes into error detection and correction.

After stating the coding problems, in conjunction with binary code transmission, the techniques and capabilities of linear codes are presented. Major linear codes

are explained. Other codes and corrective and decoding methods are explained.

Most error detection and correction codes in a data communications system concentrate on conditions of each symbol. The broader problem deals with errors occurring in bursts.

Codes for correcting errors in "bursts" are required, and some of these codes are explained in Chapters 10 and 12.

The book is addressed to engineers. Although mathematics for understanding the theory presented are included, the reader should have a familiarity with modern algebra.

EXECUTIVE CONTROL AND DATA PROCESSING by Lowell H. Hattery. Anderson Kramer Associates, 1959, 92 pages.

A practical, compact review of data processing with computer systems in terms of providing better executive control of a business, Mr. Hattery's work is helpful in specifically defining the benefits and limitations of computer systems. Several check lists are presented covering executive responsibilities, report criteria, and which are helpful for determination of the data processing system to be used.

An unusual number of specific and useful guides are condensed into the 92 pages of this book.

EXECUTIVE DECISIONS AND OPERATIONS RESEARCH by David W. Miller and Martin K. Starr. Prentice-Hall, Inc., 1961, 435 pages, \$10.00.

The authors show how operations research helps the executive to analyze his problems and achieve optimal decisions. Written to meet the needs of the executive who is not going to develop mathematical models and solve statistical problems, it does not require extensive technical training to utilize the information contained.

Developed in four parts, the first covers the executive and decisions, including the history of the managerial function, the modern view of the executive, objectives, decision theory approach, and analysis of the payoff matrix. The second section covers OR and decisions through applied decision theory, qualitative models and quantitative models. Part three is on decision-problem paradigms of marketing, production, and administration. The last section covers the executive and operations research with evaluation of the problem, evaluation of OR methods, and implementation and control of OR solutions.

GLOSSARY OF TERMS IN COMPUTERS AND DATA PROCESSING by Edmund C. Berkeley and Linda L. Lovett. Berkeley Enterprises, Inc., 1960, 90 pages, \$3.95.

The fifth edition of the *Computers and Automation Glossary*, this volume contains almost 900 terms, defined more clearly and fully than usually noted in most attempts at glossaries in the field. The authors say:

"In this glossary, we have sought to define with particular care the special terms for key ideas. We have tried to define them fully, with sufficient comment and illustrations . . . In addition to this aim, we have sought to express the definitions for all terms in words that would be clear to a person relatively new to the field, one who did not already have some familiarity with the term he looked up. The main purpose of this glossary, in fact, is to give definitions that can be understood by the user."

GUIDE TO FORTRAN PROGRAMMING, A by Daniel D. McCracken. John Wiley & Sons, Inc., 1961, 77 pages, \$2.95.

Designed as a text or supplementary text on FORTRAN, the features of the FORTRAN program for the IBM 709 and 7090 are stressed primarily; differences existing for the 650 or 1620 are marked. Appendix I summarizes the characteristics of various FORTRAN programs; 1620 FORTRAN, 1620 GOTRAN, 650 FORTRAN, 650 for TRANSIT, 705 FORTRAN, 7070 FORTRAN, 704/709/7090 FORTRAN, Honeywell Algebraic Compiler, Philco 2000 ALTAC, and Control Data 1604 FORTRAN.

Eight case studies of various problems using FOR-

TRAN cover: column design; an efficiency calculation; damped oscillation; heat transfer; a servomechanism frequency response plot; simultaneous linear algebraic equations; an ordinary differential equation; and quadratic equation solution.

GUIDE TO U. S. GOVERNMENT STATISTICS by John L. Andriot. Third Edition. Documents Index, 1961, 400 pages, \$15.00.

This book is a reference to permit quick location of statistical sources by subject and to provide a comprehensive guide to statistical contents of the huge output of Federal publications.

This guide is updated every other year, in odd years, and a supplemental volume will be available in even years beginning with 1962. Together, these two volumes will be the most comprehensive reference tool on statistical information issued by the Federal Government.

IBM IN FRANCE by Boyd France. Tenth Case Study in a National Planning Association Series on United States Business Performance Abroad. National Planning Association, April, 1961, 108 pages, \$1.00.

A pamphlet-type study of the role played by one corporation in helping to lay the foundation for sound economic growth in a country less developed economically than the United States.

Operations conducted in France by the International Business Machines Corporation helped to accelerate the modernization of their factories and energy for the task of meeting the challenge of the Common Market.

This shows how French nationals, who man IBM's operations at every level, have absorbed the ideals and business policies of the parent company and have shown the way to industrial and social advances in many respects during the period of post-war economic development.

Chapters deal with the framework, progress, growth, policies and contribution to France with examples of the data processing revolution.

IDEAS, INERTIA AND ACHIEVEMENT edited by F. B. Turck, The American Society of Mechanical Engineers, 1960, 183 pages, \$5.00.

This is a study which resulted from a survey of over one hundred individuals, corporations and institutes who appraised the process of applying the results of research to industrial and military use.

The ASME believes that there is a serious lag between the discoveries of research scientists and applications of their findings in industry and for the armed forces.

The book is a collection of opinions from about 100 contributors most of whom agree that there is a dangerous lag, and suggest how to specifically deal with the problem and overcome it. There is acknowledgement that it is not always the scientist or engineer who can control what happens with research findings — it is mainly up to management to decide what to try to develop from material that is available from research.

Behind the entire problem is a general recognition that the United States is in danger of losing its industrial lead to other countries, that controlled economy countries are growing at a fast pace and may surpass us industrially.

INTRODUCTION TO ELECTRONIC DATA PROCESSING FOR BUSINESS, AN by Leonard W. Hein. D. Van Nostrand Company, Inc., March, 1961, 320 pages, \$9.00.

While use of the obsolescent IBM 650, as the machine by which programming is explained, may tend to make parts of this book outdated, it is still a very good basic text for undergraduates who might be enrolled in their first course dealing with business computers. Like other texts of its kind, the book develops basic concepts of both data processing and computers, describes the organization of an illustrative machine (the 650), and provides instruction in the use of the computer's operation codes, both apart from and as part of problem examples. The use of payroll and inventory control problems is also in line with other introductory texts in this subject area.

The latter part of the book contains interesting chapters on variable and fixed length record maintenance and on merging, sorting and report writing with the computer. Each of the book's chapters ends with a set of discussion questions and a set of problems. There are four appendices: three of them are programming references for the 650, the other is a listing of the Greek alphabet. An index follows the last appendix. As the author states in his preface, "This book decidedly is not a reference book."

LABOR ARBITRATION by Maurice S. Trotta. Simmons-Boardman Publishing Co., 1961, 438 pages, \$10.00.

With the growing concern over office unionization and the effects of electronic data processing on office workers, this new text should be good background reading for management personnel who have a responsibility in their company's data processing program. Part one of the book develops basic principles and procedures of labor arbitration. In part two, the case study method is used to examine major issues which have resulted in arbitration. This book is a definitive text on its subject.

MANAGEMENT AND CORPORATIONS 1985, edited by Melvin Anshen and George L. Bach. McGraw-Hill Book Co., Inc., 1960, 225 pages, \$5.50.

Fifteen eminent contributors looked into the crystal ball to see what changes were coming in economic and social areas that will significantly influence corporations, managers, and their decisions, during the next quarter of a century. They discussed what they foresaw at a symposium held for the tenth anniversary of the Graduate School of Industrial Administration, Carnegie Institute of Technology.

The principal theme of the symposium was the necessity of the corporations and their managers to effectively adapt to major changes in their environments, and covers the full scope of problems concerning the future functions and relationships of business management.

Among the papers included in this book are:

- The Corporation: Will It Be Managed by Machines?
- The Corporation: Its Coexistence with Men
- The Corporation in a Democratic Society
- The Management of the Multinational Corporation
- The Western Corporation and the Underdeveloped Economies
- The Corporation and Education, Ethics and Power Management and Change
- The Condition and Destination of Business Education

Emerging from these discussions can be found guideposts for management education and training that challenge present practice.

MANAGEMENT GAMES by Joel M. Kibbee, Clifford J. Craft and Burt Nanus. Reinhold Publishing Co., 1961, 343 pages, \$10.00.

This book is the first to give a comprehensive treatment to the subject of management games. It discusses problems of design and administration of both computer and manual games from the point of view of the management development man who must use them as part of his total educational effort. The authors draw upon their considerable experience with this new technique — two of them having been part of the team which built the original American Management Association exercises and the third being in charge of Remington Rand Univac's efforts in this area.

The authors discuss the history and future of management games with a particular emphasis on why, where and how they should be used. A chapter on the present state of the art is based upon a special survey conducted for the book in which over 200 experts in the field were polled as to their activities and ideas. Detailed case studies written by the game designers and training directors of some of the pioneers in the use of games — The Pillsbury Company, General Electric, Westinghouse and Imperial Oil, among others — are also included in an attempt to make the book as repre-

sentative and definitive as possible. A 20-page reference section describes the basic characteristics of approximately 100 games and tells the reader who to contact for further information.

The basic premise of the book is that a management game can be a very powerful educational tool for certain training objectives if it is properly used. The authors are firmly convinced that this technique will have at least as much impact upon business education as the introduction of the case study did more than 30 years ago. They foresee a considerable expansion in the number and types of games available and an expansion of the technique into other areas of business research.

MANAGEMENT INFLUENCE ON THE DESIGN OF DATA PROCESSING SYSTEMS by Edward L. Wallace. Harvard Business School, Division of Research, 1961, 259 pages, \$3.00.

This is a case study describing the efforts of a shoe manufacturing company to design an automatic data processing system to reduce clerical work and provide better production and inventory control. Emphasized are the company's problems of planning and how this led to the design and redesign of the system. As the company's study progressed it became apparent that company personnel had shifted emphasis of the study away from the initial problem of effecting improvements in operations planning and toward mechanization of existing data processing procedures.

An attempt is made to analyze the effects of each decision upon results expected from the new data processing system.

The study is in five parts: the introduction, description of the company and its planning methods, a previous attempt by the company to mechanize its data processing which failed because of lack of cooperation, planning, and inadequate equipment — this previous attempt influences the second try at automatic data processing. The book continues with a description of the system now planned, methods employed in planning and expected results, which is followed by a critique of the company's plan.

The author is Professor of Accounting and Business Administration at the University of Buffalo, formerly at Harvard Business School and the University of Chicago.

MANAGEMENT PROBLEMS IN THE ACQUISITION OF SPECIAL AUTOMATIC EQUIPMENT by Powell Niland. Published by the Division of Research, Graduate School of Business Administration, Harvard University, 1961, 336 pages, \$5.00.

This volume is the second publication of the Harvard Division of Research which analyzes the management implications of advanced technological developments in production.

Dealing with the first step in the automation process — the acquisition of nonstandard, nonconventional automatic equipment — this study has two objectives. First, the detailed description of acquiring special automatic equipment. Second, an analysis of trouble spots in acquisition.

The author expresses the viewpoint of top management and concludes such acquisition is a complex and difficult task after drawing on the experiences of companies in the metal-working field; however, the findings should prove of interest to other companies embarking on the acquisition of automatic equipment.

MARKETING JOB, RESPONSIBILITIES OF THE TOP MAN AND HIS STAFF, THE, edited by Elizabeth Marting. American Management Association, Inc., 1961, 438 pages, \$9.00 to nonmembers, \$6.00 to members.

This book is compiled from contributed articles by 47 executives and marketing specialists. In the introduction, *Creative Marketing as a Key to Sales Success*, Curtis H. Gager says: "Only a few years ago, the concept that marketing is a management function was little known, understood, or appreciated. Successful

marketing depends on having a sound working combination of many business elements, among which, importantly, can be listed such factors as:

"The aims of the company; the principles and policies of the company; the organization of talents and responsibilities within the company; the selection of people and the division of work; the identification of problems and opportunities; the targeting of major objectives; the formulation of detail plans to carry out the objectives; the adjustment of plans to financial capacity and degree of hazard; the examination; follow-up, and control of plans; the measurement of results."

The book details the basic function, specific responsibilities, co-ordination of new product effort, responsibility for the finished product, and relationships of marketing.

MATHEMATICAL MACHINES by Francis J. Murray. Volume I, **DIGITAL COMPUTERS**; Volume II, **ANALOG DEVICES**. Columbia University Press, 1961; Volume I: 300 pages, \$12.50; Volume II: 365 pages, \$17.50.

Illustrated with circuit drawings and mathematical formulae, these two volumes present digital and analog equipment from the standpoint of the mathematician. Volume I deals with the circuit devices which are incorporated into a number of digital machines, including manual and punched card electromechanical equipment as well as electronic computers. Volume II considers continuous computers, true analogs, and various mathematical instruments. Each volume has an index but no bibliography. Volume I includes a cursory survey of some computers. An excellent set for the mathematician.

MEASUREMENT AND CONTROL OF OFFICE COSTS, Master Clerical Data by Serge A. Birn, Richard M. Crosson and Ralph W. Eastwood. McGraw-Hill Book Company, Inc., June, 1961, 318 pages, \$7.50.

This book presents a complete catalog of elemental times for the performance of all manual activities and machine operating times for the more basic office equipment and explains the importance of measurement in the control of office costs.

Presenting a complete catalog of time values for 100 percent of all elements of clerical work the book refers to this catalog as Master Clerical Data — "MCD." The "MCD" is set by type of motion, rather than by department or end purpose.

Material in the book is carefully explained and easily understandable so that business men who want to reduce office costs will find that the philosophy, techniques, basic knowledge, and forms and data presented in the volume will serve them as an excellent guide in controlling office costs more effectively and efficiently.

PROCEEDINGS OF THE 1960, NINTH ANNUAL MEETING. Standards Engineers Society, Inc., 88 pages, \$5.00.

From the opening address throughout the several articles stress is placed on the influence of standardization as a factor to advance the American free enterprise system in world competition. Several less significant problems are identified by the following examples:

"So long as a West German company can produce a keg of nails, ship it to Detroit, and sell it there at a profit at less than it costs a Detroit company to manufacture . . . there is a real question as to the path of the U. S. economy."

"Some people like to focus on relative wage rates as the culprit behind the decline of U. S. industrial profits."

Standardization can combat the economic trends. Several ideas are well presented and developed: *Psychological Influences in Standardization* by Modhu S. Gokhale; *Better Engineering Writing* by Richard M. Koff — a useful, brief suggestion for any writing; *Number Systems* by Joseph Mozia and James V. Panke, and *Electronic Computers* — a New and Powerful Tool in Standardization by Andrew J. Pepper.

PROGRESS IN OPERATIONS RESEARCH, Volume 1, edited by Russell L. Ackoff. John Wiley & Sons, Inc., 1961, 489 pages, \$11.50.

This is the inaugural offering in a series of review volumes which will inventory mathematical techniques and research methods available to operations researchers.

The emphasis of this volume lies in the area of technical progress: in the development of modeling techniques and ways of using them to solve problems. The technical content forms the main part of the book, but preceding and following this are philosophical and professional considerations.

Eleven chapters cover the meaning, scope and methods of operations research; decision and value theory; a survey of inventory theory for OR viewpoint; mathematical programming; dynamic programming; dynamics of operational systems — Markov and queuing processes; sequencing theory; replacement theory; theory and application of simulation in OR; military gaming, and progress in OR — the challenge of the future.

PUNCHED CARDS by J. Sandford Smith. MacDonald & Evans, Ltd., 1960, 158 pages, 50 shillings.

This book states the author's idea that the development of computers "which seemed to sound the death knell" of punched card methods has actually encouraged greater interest in their application. The book is written in two parts: The Management Approach, which details the punched card method, equipment, and management requirements, and Examples of Punched Card Procedures.

Into this elementary discussion the author injects some pertinent remarks on items such as:

1. The philosophy of punched cards: data must be entered into the system at the first instance; if there are several entries on, say, an order, each should be recorded separately; and since data is entered only once it is necessary to establish the accuracy of the entries.
2. Multi-systems — two separate methods of entries of the same information, which are noted as frequent — should be avoided because of high cost of entry. The punched card should do record printing, statistics, and provide all associated requirements.
3. The punched card method is an ideal preliminary to computer consideration.

The case histories which indicate the state of punched card methods in England, to some American readers may lack the sophistication encountered in this country.

RESEARCH REVOLUTION, THE, by Leonard S. Silk. McGraw-Hill Book Co., Inc., 1960, 232 pages, \$4.95.

The author, senior editor and economics editor for *Business Week*, tackles the problem of how to achieve a good rate of economic growth in the United States. He discusses the impact on our economic growth of systematic technological innovation through scientific advance.

The book gives an account of the fundamental changes taking place in our economy, explaining the present and future implications for national economic policy and for business policy. Stressed is the investment that industry is making in knowledge, and its importance as a key to continuous economic growth.

The author takes electronics as an example of growth encouraged by research, the new products made possible by the appearance of transistors.

He suggests a new way to grow, and in the appendix includes an outlook for expenditures on research and development during the next decade by three other authors.

SEQUENTIAL DECODING by John M. Wozencraft and Barney Reiffen. Published jointly by The Technology Press of M.I.T. and John Wiley & Sons, Inc., 1961, 74 pages, \$3.75.

A monograph of a new series which covers coding theory related to data communications. Readers should have an elementary knowledge of calculus and probability theory. This research study, intended for com-

munications engineers, covers an investigation of the problem in designing systems whose performance approaches the bounds of coding theory in communications. Study was done at M.I.T. Lincoln Laboratory with an IBM 704 computer system used in part. This monograph points out that coding and decoding can become a practical design technique available to the communications systems engineer, data processing engineer, and information theorists.

SUCCESSFUL MANAGERIAL CONTROL BY RATIO-ANALYSIS by Spencer A. Tucker, McGraw-Hill Book Co., Inc., 1961, 434 pages, \$11.00.

"Years ago, one company could successfully compete against another by having lower hourly labor rates or because it paid less for materials. Not so today. Now the competitive battleground is in the tiny, elusive, and sometimes hidden areas of manufacturing concerns. *Profit making* now comes from constantly unmasking hidden costs or negative acts, from policing and guarding against insidious creeping change, from lighting up a hitherto unknown profit area. Today managerial inertia is a disease. Fact finding is vital.

"Profit planning requires much more than these efforts. Profit planning for the longer term must include action for growth and survival."

To keep the company in business and healthy, the author advocates the need for managerial control — MC — which is reliant on data not always in the usual financial statements. MC is a technique of reducing company data to significant ratios and interrelating their movement.

First, ratios are developed which evaluate facets of the economy which are vital to the company life and growth. Then control is provided by acting on the interrelationship of the movement of the ratios.

Explaining this, the author divides his book into: how to get effective management; tools for ratios and controls; elementary ratios for evaluating production; advanced ratios; managerial control of production; evaluation and control of sales effort; ratios for sales effort; sales ratios for evaluating product activity; evaluation and control of the sales function; integration of production and sales; financial management; evaluation of the capital structure; and integration of the activities of production, sales, and capital.

Although the book deals primarily with manufacturing, the same techniques are applicable to transportation and distribution, warehousing, and wholesaling.

TRANSMISSION OF INFORMATION by Robert M. Fano. Published jointly by M.I.T. Press and John Wiley & Sons, Inc., 365 pages, \$7.50.

Although this book is written primarily for communications engineers and graduate students in electrical engineering, it will be of interest to those who are in communications. It presents the foundations and results of the information transmission theory. The development of communications theory — transmission from source through encoders to channels and decoders to users — is explained as proceeding from two theories which are the works of Norbert Wiener and Claude Shannon. The text is devoted to the second branch of communications theory which originates from Shannon's work. Chapters are devoted to a measure of information, message ensembles, discrete stochastic sources, transmission channels, with several chapters on encoding and decoding. The appendix contains a series of problem tables of entropy and Gaussian distribution functions. The author assumes his audience has a mathematical background which includes knowledge of probability theory and of Fourier analysis.

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REVIEWS OF BOOKS IN THE DATA PROCESSING FIELD, PRIOR TO 1961

ADMINISTRATING A CONVERSION TO ELECTRONIC ACCOUNTING by Harold Farlow Craig, Harvard Business School, Div. of Research, 1955, 224 pages, \$2.50.

This is a case study of an actual company—disguised here as the Amalgamated Insurance Company—that converted to an electronic accounting system. It is concerned mainly with administrative rather than technical problems and should be of the greatest interest and value to any company contemplating the introduction of electronic equipment, as well as those companies that have already achieved conversion.

This is a very ably prepared study, describing in detail the administration set-up and problems before and after conversion, with numerous verbatim interviews with key personnel. Professor Craig includes his own observations on the evidence presented and his recommendations arising from the study.

His major conclusion is that while there are no general rules which an administrator can follow blindly, reflection upon the evidence presented in this particular case study should provide an executive with an opportunity to develop a conceptual framework, an attitude of mind and an approach to his own administrative situation.

AUTOMATIC DATA PROCESSING SYSTEMS: PRINCIPLES AND PROCEDURES by Dr. R. H. Gregory and R. L. Van Horn, Wadsworth Publishing Co., 1960, 705 pages, \$11.65.

A broad introductory textbook on electronic data processing, in non-technical terms this book gives an introduction to the data processing field as well as the fundamentals of equipment and systems environment. The authors originally began the book when they were with the Massachusetts Institute of Technology. It is the outgrowth of work done by Dr. Gregory and Mr. Van Horn for the U. S. Army Ordnance Corps.

AUTOMATIC DIGITAL CALCULATORS by A. D. Booth and K. H. V. Booth, Academic Press, Inc., 1956, 261 pages, \$6.00.

This is a general introduction to electronic computers which covers a wide range of subject matter (history, overall design, hardware, programming, applications) in a compact and easy to read style. Since it is slanted towards scientific computing and is generally technical in style, it will serve as an excellent introduction for the engineer or scientist. The British authors' approach to some problems pleasantly differs from that observed in similar American books on the market.

AUTOMATION AIDS EDUCATION by P. F. Johnston, M. M. Opiala and R. Van Dusseldorp, Iowa Dept. of Public Instruction, 1959, 144 pages.

Intended primarily for use within the data processing

department of the Iowa State Government, this volume is assembled in such a fashion that it easily can be used as a basic reference work in a data processing course. The examples used are concerned with the actual processing of work by the State of Iowa. As the authors aptly point out, it can help other state governments understand and evaluate data processing methods and equipment. This would be especially helpful to those states that do not as yet use automatic data processing techniques. The volume winds up with a look at current and future types of equipment and the necessity to keep informed in the field.

AUTOMATION AND SOCIETY, edited by Howard Boone Jacobson and Joseph S. Roucek, Philosophical Library, 550 pages, \$10.00.

This thick tome is a collection of case studies of many companies. It covers both factory automation and automation in the office, with sidelights on the effects of automating on employees and labor in general.

Topics cover automation in: manufacturing, automotive industry, metal working industries, electronics industry, communication machine manufacturing, railroads, post office; and in the office, discusses the teaching machines, automation and the accountant, automation in data processing for business—small, medium and large. Two chapters cover the Bell system.

Another section covers the responsibilities of automation: automation, employment and economic stability; quality in an automated economy; automation and education; automation's impact on capital and labor markets; on leisure; as a management problem; political aspects; personnel adjustments; public administration; and social stratification. The authors conclude with a glance at the technological and economic problems of automation in the U.S.S.R.

AUTOMATION BIBLIOGRAPHY, National Office Management Association, Willow Grove, Pa., 20 pages, \$2.00.

The first edition of the *NOMA Automation Bibliography* was published as a booklet in 1958, and the second edition was published in *Office Executive*, October 1959.

The second edition contains a compilation of selected articles, booklets, reports, and books that have been published on the subject of automation from July 1954 through August 1959; apparently it contains all the references given in the first edition. The references give the title, publication, author, and a short description of the material. The bibliography consists of three parts: one dealing with articles, booklets, and reports; the second with books; and the third giving an index of publishers mentioned in the first two parts.

The listing is alphabetical by title. This practice may

seem strange to those who are used to referring to articles by author. However, the bibliography has considerable value because it is annotated.

BANKING AUTOMATION AND THE MAGNETIC INK CHARACTER RECOGNITION PROGRAM by Dale L. Reistad, Detroit Research Institute, 1960, \$7.50.

This semi-technical book is designed to serve as a textbook dealing with automatic data processing for the financial industry, to give bankers a solid background in the fundamental principles, feasibility and methods of implementing MICR-ADP systems.

The text examines various approaches to banking automation—the general MICR program, the role of account numbering, control codes, the automatic processing of “on-us” documents, the automatic transit operation, sorting and filing of documents, and the role of the electronic computer in the MICR program.

BASICS OF DIGITAL COMPUTERS, Vols. 1, 2, 3, by John S. Murphy, John F. Rider Publisher, Inc., 385 pages (3 Vols.), \$7.95.

Designed as a step-by-step instructional manual, this book can be easily followed and understood without the aid of a trained teacher or instructor. Volume One begins with a general review of computer developments, moves into binary data representation and finally into elementary automatic calculation, programming and control. In Volume Two the pace accelerates by moving into internal circuits and special systems, highlighting the materials used, such as diodes, tubes and magnetic cores. Finally Volume Three explains in detail the major logical systems in a computer and discusses input-output units.

The work is thoroughly illustrated with simplified and easily-followed diagrams and examples.

BOUNDARY VALUE PROBLEMS IN DIFFERENTIAL EQUATIONS (Proceedings of a Symposium at The Mathematical Research Center, U. S. Army, University of Wisconsin, April 20-22, 1959), edited by R. E. Langer, University of Wisconsin Press, 324 pages, \$4.00.

This book consists of 19 papers, devoted mostly to partial differential equations. The contents may be roughly divided into three groups: (a) mainly theoretical (5 papers); (b) mainly applied (7 papers); and (c) mainly numerical (7 papers). In (a) there are treated: type-independent theory of first and second order systems, complete systems of solutions for singular elliptic equations, estimating quadratic integrals, and applications of dynamic programming; (b) is devoted to problems in continuum mechanics—these deal with: estimating drag and contraction coefficients, albedo functions, plane and three-dimensional stress analysis, thermoelasticity, free oscillations of liquids, and echo-areas of laminas; (c) contains papers on: monotonic operators, error estimates by fixed-point theorems, iterative methods for elliptic difference equations, numerical methods for analytic continuation with approximate data, numerical treatment of eigenvalue problems for ordinary differential equations, and the Rayleigh-Ritz principle. It must be added that numerical aspects are also considered in otherwise theoretical papers.

BUSINESS ELECTRONICS REFERENCE GUIDE, VOLUME 4, edited by Peggy Courtney, Controllershship Foundation, Inc., 1958, 602 pages, \$15.00.

The Controllershship Foundation has published a series of authoritative reference guides to electronic data processing in business. This, the fourth volume in the series, is an extremely useful reference guide. It contains comprehensive information on the various companies which now use computers, the number and types installed and the particular applications. A survey of all computers now being used is included, with detailed operating specifications and characteristics. There is also a list of training courses, publications, etc., and an extensive set of abstracts of articles from magazines. Unfortunately, it is stated in the foreword that this is to be the last such volume to be published.

COMMON MACHINE LANGUAGE for Mechanized Check Handling, Bank Management Publication 147, American Bankers Association, 1959, \$1.00.

Have you been wondering about those odd-looking symbols on checks you've handled? Or have you had unanswered questions about MICR, the magnetic-ink-character recognition which is on the way in banking? Although this booklet may not give you *all* the answers, it will not give you any *wrong* ones, for here are the final specifications on the characters and fields, straight from the people who made the specifications. Besides all the technical information, they have included a little on the history of MICR, and enough discussion to give an idea of how the banks are going to use their common machine language.

COMPUTERS AND HOW THEY WORK by James D. Fahnstock, Ziff-Davis Publishing Co., 1960, 228 pages, \$4.95.

The beginner in the field of computers will find this book an excellent introduction to electronic data processing. Easy to understand explanations are given for all aspects of the computer—from what they do, to how they do it. A typical chapter, “How Computers Remember,” includes a discussion of memory access, magnetic core properties, buffers, shift registers, recording modes, etc. The book contains an index.

COMPUTERS AND PEOPLE—Business Activity in the New World of Data Processing by J. A. Postley, McGraw-Hill Book Co., Inc., 1960, 251 pages, \$6.00.

What modern computers can mean to readers for whom these machines are designed to serve—such as executives, department managers, and other non-technical people—is explained in this book which gives a realistic picture of electronic devices that can lead to fresh techniques of business operation and control. Mr. Postley provides a clear discussion of the economics of computers and explains equipment in terms that can readily be grasped by non-specialists. He describes compromises that the data processing specialist must make in behalf of the organization he serves as well as the decision-making aspects of computers and changes that must be made by business to utilize data processing most effectively.

Future equipment and computer capabilities are predicted, and the role that computer manufacturers should play in maximizing benefits to users is also treated. The book discusses the personnel problems created by modern data processing equipment and includes an illustrative review of some present and forthcoming applications of computers.

COMPUTERS: THEIR OPERATION AND APPLICATION by Edmund C. Berkeley and Lawrence Wainwright, Reinhold Publishing Corp., 1956, 366 pages, \$8.00.

The authors have divided the book into eight main sections and subdivided each section. It features both digital and analog computers, with a section devoted to each. Anyone concerned or interested in the field of computers will find these two sections enlightening since an analysis of cost, advantages and reliability are discussed. Although published several years ago, the section on large scale automatic digital computers deals with currently available IBM and UNIVAC computers. Under section VIII: Miscellaneous, are very worthwhile subsections, some of which are References, Roster of Organizations Making Automatic Computing Machines and a Glossary of Terms and Expressions.

CREATIVE THINKING by Charles S. Whiting, Reinhold Publishing Corp., 1958, 168 pages, \$3.95.

This is the first in a series of management science publications by Reinhold Publications. On the face of it, it would seem that this book is not relevant to the field of punched card data processing. It is concerned with the utilization of brainstorming and allied techniques to develop sound and imaginative management

policy. The major portion of the work is concerned with the techniques for stimulating and effecting creative thinking. Since in the field of automation imaginative thinking and planning are highly important, this book is recommended.

CRISIS WE FACE: AUTOMATION AND THE COLD WAR, THE, by George Steele and Paul Kircher, McGraw-Hill Book Co., Inc., 1960, 220 pages, \$4.95.

The authors challenge the quality of our military defense and our economic position; they call for more effective automation and electronic computers.

They discuss the probable effect of radio-activity, resulting from a hydrogen bomb burst, on electronic systems in bombers, missiles and on CONELRAD. Their feeling is that these systems would fail to work under such conditions. Problems of management and government, such as complex organizational structures, and the multiple committees in the Department of Defense, are deplored, though the fault is laid to management, not engineers.

Included are suggested programs to help executives perform more effectively. It calls for standardized system components, simpler computers and automation, and improved research, stressing the need for better educational programs in management and engineering.

The book gives an understanding of new basic technical design concepts, a new approach to the organization of large groups, and insights into other areas concerned with survival of our country.

CUTTING THE COST OF YOUR EDP INSTALLATION by Canning, Sisson and Associates, 1958, 175 pages and Check Lists.

Canning and Sisson have compiled a worthwhile reference text on the installation of a large or medium scale computing system. They have accomplished this by the case study method. The principles outlined were reached after discussing the problem of EDP installation with a number of companies that had gone through the experience. These organizations were in the best position to render advice as well as facts concerning this important and costly step. Even if an organization is not large enough to consider a computer, large or medium scale, the principles defined in this work are pertinent to any type of automatic office equipment installation.

DATA PROCESSING, 1958 Proceedings, edited by Charles H. Johnson, National Machine Accountants Association, 1958, 412 pages, \$10.00.

These proceedings render a complete account of meetings, seminars, speeches and addresses. The application write-ups and workshop seminars have the most value, if a hierarchy of importance is believed needed. The problems of industries were discussed and in many instances solutions to these problems were attained. *Data Processing 1958* is a worthwhile reference guide for NMAA members and the industry at large.

DATA PROCESSING, 1959 Proceedings, edited by Charles H. Johnson, National Machine Accountants Association, 1959, 394 pages, \$10.00.

Mr. Johnson has compiled and edited a worthwhile volume of the proceedings of the 1959 convention of the NMAA held in St. Louis, Mo. It is essentially a narration of the seminars, panels and discussions that were conducted. Many of the general articles are of interest to everyone in the data processing field. Some of these lively presentations are: "Why Automate?" by R. A. Gilbert; "What To Automate?" by E. W. Range; "Training Tomorrow's Leaders Today" by R. Guyon; and the text of General L. R. Groves keynote address, "Facing the Time Barrier."

DIGITAL COMPUTER PRINCIPLES by Wayne C. Irwin, D. Van Nostrand Co., Inc., 321 pages, \$8.00.

The author has drawn on his experience in giving training courses for The National Cash Register Company to write this book. It is aimed at those who know

little of digital computing but who wish to learn. He starts with explanations of the number systems (decimal, binary, octal) and their manipulation, then moves into symbolic logic covering truth tables, functions of variables, Boolean algebra, deriving equations, and minterm and maxterm forms, Venn diagrams, Karnaugh maps, and the Harvard minimizing chart. He explores the mechanization of logic, storage, and arithmetic, and the timing in computers.

Control of the process looks into selection of operation and operands, instructions, instruction format, and interconnection of subunits. Input-output equipment, binary codes, and conversion of base are explained. Principles of programming, use of a three address routine and alternate methods are shown; also details of how to detect and reduce errors. He concludes with a discussion of core logic and new techniques rapidly evolving in computer art.

DOCUMENTATION AND INFORMATION RETRIEVAL by J. W. Perry and Allen Kent, Press of Western Reserve University and Inter-science Publishers, Inc., 156 pages.

This book concerns documentation and information retrieval, an introduction into the basic principles and cost analysis through use of mathematical models. In science and technology so much material is being published that it is almost impossible to keep track of it without development of new methods and techniques. The techniques of librarianship—its systems, its mechanisms, its corpus of practice—may have outdistanced its fundamental theory. The poverty of innovation that now characterizes librarianship makes evident that need for re-examination of fundamental principles which underlie men's use of recorded knowledge.

The authors are engineers by training and experience, documentalists, library researchers and educators by choice. They have spent years pioneering in the development of mechanized systems for searching and correlating the literature which is the background for the basic analysis of this book.

DYNAMIC MANAGEMENT DECISION GAMES by Jay R. Greene and Roger L. Sisson, John Wiley & Sons, Inc., 1959, 84 pages, \$2.95.

It is particularly significant that such a publication should be forthcoming at this time. There are seven different management games which can be played and scored without the aid of computers for scoring or evaluating. Aside from the "do-it-yourself" opportunities, the best single portion of the book is the introduction. The authors express in a concise manner exactly what, how and why "gaming" is such a valuable management tool. Their basic comparisons enable the most unsophisticated of us to realize the answers to the what, how and why. It can be safely said that with active participation in the games presented, the reader can develop as well as sharpen his own prowess in business acumen and so be a more valuable individual to his organization.

EFFECT OF AUTOMATION ON ACCOUNTING JOBS, THE, by M. L. Edwards, Doctoral Dissertation, 1959, 507 pages (microfilm copy available from University Microfilm, Inc., \$6.45).

Personal traits, work habits, and job preparation required by workers in the automatic data processing field are very similar to those required in other office workers. However, those having responsibilities in education for business, at both the secondary school and collegiate levels, should begin immediately to resolve the vocational education problems resulting from changes in the methods routine clerical work can be accomplished.

Data was derived from an extensive survey of current literature and case study reports, based on interviews with 42 data processing supervisors, relative to the circumstances surrounding the utilization of punched card equipment.

This study might be used by business educators as a look into the overall operations of data processing units; to provide a better understanding of the implications of automation for business education and to

identify the educational needs in meeting the challenge of automation.

ELECTRONICS COMPONENTS HANDBOOK, Volume III, edited by K. Henney, C. Walsh and H. Mileaf, McGraw-Hill Book Co., Inc., 1959, 192 pages, \$10.00.

Publication of Volume 3 of the Electronic Components Handbook completes the series. It gives factual information on certain electronic components in wide use. Emphasis throughout this volume has been placed on component types. Where military specifications exist they are summarized, and in addition much general know-how, safety factors, and other matters useful to the equipment designer are included.

This volume provides data on transformers and inductors, including power, pulse, hybrid, bistable, as well as connectors, including jacks, plugs and sockets. Also presented are terminals and hardware, including knobs, dials indicating light assemblies, flexible shafting and fasteners.

ELECTRONIC COMPUTERS AND MANAGEMENT CONTROL by George Kozmetsky and Paul Kircher, McGraw-Hill Book Co., Inc., 296 pages, \$5.00.

This practical book, written primarily for the business executive, does not require a technical background for comprehension. It tells how computers operate and how they may be applied to business problems. Planning and control decisions using electronic data processing systems are included and practical help in selecting electronic data processing systems is suggested. The performance of major components of the system, including input, processing, storage, control and output is defined.

The fundamental characteristics of electronic systems and the basic concepts of the scientific methods of analysis are described. Administrative problems experienced in introducing computer systems, management planning and control, programming, scheduling and feedback are among some of the special features.

ELECTRONIC DIGITAL COMPUTERS by Franz L. Alt, Academic Press, Inc., 1958, 336 pages, \$10.00.

Most of the early development of electronic computers was stimulated by engineering and scientific applications and many books on the subject are authored by scientists, even when they are written for the businessman. This one, subtitled *Their Use in Science and Engineering*, is for the computer designer or the programmer who has at least some mathematical background. There is much of general interest, however, especially in the areas of programming and coding, and the non-mathematician, if not inhibited by frequent use of scientific type examples, may benefit from many of the chapters.

ELECTRONIC DIGITAL COMPUTERS by Charles V. L. Smith, McGraw-Hill Book Co., Inc., 1959, 443 pages, \$12.00.

The book is organized roughly into five sections. Following three introductory chapters are four chapters on basic elements (e. g., logic circuits and memory cells), five chapters on component devices (e. g., shifting registers, adders, and large-scale memories), and four chapters on the manner in which a complete computer is built up from these. Finally, there is a single chapter on the super-speed machines now being developed. This general pattern is a fairly typical one, and perhaps as good as any; it is somewhat irritating, however, to be led through a maze of detail on shifting registers, counters, and adders, only to find a digression in the form of two chapters on large-scale memory devices standing before a description of the complete arithmetic unit.

The book contains some information on early developments at Princeton, Harvard, and M.I.T., which should be of interest to those who have a clear picture of the present state of the computer art and wish to know how it reached that state. The neophyte, however, will receive a distorted picture of the computer field

today, in the absence of treatment of commercial developments.

ELECTRONICS IN ACTION, The Current Practicality of Electronic Data Processing, edited by Elizabeth Marting, American Management Association, Inc., 1957, 156 pages, \$3.75 (\$2.50 to members).

Special Report No. 22, based on the third annual electronics conference sponsored by the A.M.A., consists of the papers delivered at this conference. The book is divided into three pertinent areas: Feasibility Studies, Electronics at Work and New Frontiers. This last area is most interesting in that it deals with the "future ramifications of automation." Inasmuch as the future of that time is now "the present," it is interesting to see that the recent recession was not apparent or anticipated. To this extent normal development was retarded.

ELEMENTARY ANALYSIS — A MODERN APPROACH by H. C. Trimble and F. W. Lott, Jr., Prentice-Hall, Inc., 1960, 621 pages.

The book is primarily a basic introduction into mathematics as used in analysis. Due to the ever increasing use of data processing equipment for analysis in the office, it will serve as a source reference for data processing personnel. The authors have used the outline and information from a course taught to college freshmen as an introduction to calculus and higher mathematics. Undoubtedly, the question of their students' plus the authors' abilities in mathematics have combined to assemble this excellent self-instructing and reference text.

ELEMENTARY MATHEMATICS OF LINEAR PROGRAMMING AND GAME THEORY by Edward G. Bennion, Bureau of Business and Economic Research, Michigan State University, 140 pages, \$5.00.

This book is written for the reader who wishes to learn the rationale underlying linear programming and game theory. The author, by limiting the scope of his discussion to fundamental concepts, has designed his book to meet the needs of the mathematically unsophisticated reader. The result is a scholarly contribution to a growing field of study which should be of great interest to business practitioners.

ENGINEERING DATA PROCESSING SYSTEM DESIGN by Arthur D. Even, D. Van Nostrand Co., Inc., 1960, 250 pages, \$6.50.

Mr. Even presents the step-by-step details required to install and utilize a microfilm-punched card system in an engineering department or firm. The volume and size of drawings in this business can present a multitude of problems — storage, retrieval, duplication, and reference are the high-volume headaches for which the book suggests a solution. In short, all drawings are coded according to use and the drawings are micro-filmed; the coding is then punched in a card and the microfilm is mounted on the same card. These cards can then be handled by punched card equipment and readily stored for future reference and retrieval.

Although the book is highly specialized and directed only to engineering departments, the method has more general application and may be of value in any problem which requires storage and reference of more than alpha-numeric information.

FASTER, FASTER by W. J. Eckert and Rebecca Jones, Watson Scientific Computing Laboratory, 1956, 160 pages, \$3.75.

To quote the sub-title on the title page, this book is "A Simple Description of a Giant Electronic Calculator and the Problems It Solves." The authors use the special purpose computer, NORC, built by IBM for the U. S. Naval Ordnance Department. The book remains very elementary yet covers design and highly technical areas of computer operation. Although the authors refer to the NORC for specific examples, the principles and basic diagrams used to illustrate these principles are applicable to electronic computers of other manufacturers. It is a very readable and qualified basic book on the tools of data processing.

GLOSSARY OF AUTOMATION TERMS, prepared by the National Office Management Association's Automation Committee, 1958, 38 pages, \$2.00.

This is a practical reference guide. Some 500 words and phrases applying to automatic data processing are defined.

GLOSSARY OF TERMS IN COMPUTERS AND DATA PROCESSING by Edmund C. Berkeley and Linda L. Lovett, Berkeley Enterprises, Inc., 1960, 90 pages, \$3.95.

The fifth edition of the *Computers and Automation Glossary*, this volume contains almost 900 terms, defined more clearly and fully than usually noted in most attempts at glossaries in the field. The authors say:

"In this glossary, we have sought to define with particular care the special terms for key ideas. We have tried to define them fully, with sufficient comment and illustrations . . . In addition to this aim, we have sought to express the definitions for all terms in words that would be clear to a person relatively new to the field, one who did not already have some familiarity with the term he looked up. The main purpose of this glossary, in fact, is to give definitions that can be understood by the user."

HANDBOOK OF AUTOMATION, COMPUTATION AND CONTROL, Volume 1, Control Fundamentals, edited by E. M. Grabbe, S. Ramo and D. E. Wooldridge, John Wiley & Sons, Inc., 1958, 994 pages, \$17.00.

This is the first of three volumes; the other two are to be called *Computers and Data Processing* and *Systems and Components*. This book is written for the technician, engineer or scientist; however a great many subjects are treated and usually with pleasing brevity — there are 26 chapters written by 29 different contributors — and the exceptionally eager non-technician might find a selective browsing sufficiently rewarding. Subject matters in this first volume are General Mathematics, Numerical Analysis, Operations Research, Information Theory and Transmission and Feedback Control — an extremely wide range of content for even a book of this many pages.

HANDBOOK OF AUTOMATION, COMPUTATION AND CONTROL, Volume 2, Computers and Data Processing, edited by E. M. Grabbe, S. Ramo and D. E. Wooldridge, John Wiley & Sons, Inc., 1959, 1,093 pages, \$17.50.

This is the second in an announced series of three volumes. The first one, published in 1958, covered control fundamentals. This volume ranges over the entire area. The subjects are comprehensive and authored by experts who treat of analog as well as digital computing systems. There is a section of "Unusual Computer Systems" which describes special systems and adaptations constructed for a particular and peculiar need. Among the subjects in Volume 2 are: Computer Terminology, The Use of Digital Computers and Data Processors and Design of Digital Computers. The authors read like a "Who's Who" of data processing and include J. W. Carr, E. Tomash, R. L. Sisson, R. G. Canning, H. Tellier.

HANDBOOK OF ELECTRONIC CONTROL CIRCUITS by John Markus, McGraw-Hill Book Co., Inc., 1959, 350 pages, \$8.50.

This compilation gives a selected reference to over 250 electronic circuits, each complete with values of components. The salient points of a number of circuits of a given type can be obtained as a guide for choosing the most promising circuit for a particular application. Advances in the field are included to show the present state of the art of circuitry in many areas including computer control circuits, machine control circuits, etc. Each presentation covers a circuit based on equipment now in actual operation. Consequently, the practical usefulness of any circuit being considered for adaptation has already been proved. This volume is the third in a series of handbooks compiling important circuits for easy access. It extends but does not duplicate the two earlier volumes.

HANDBOOK ON DATA PROCESSING METHODS, Part I (provisional edition), prepared jointly by Statistical Office of the United Nations, New York, and Statistics Division, Food and Agriculture Organization of the United Nations, Columbia University Press, 1960, 110 pages, \$1.00.

The preparation of these studies has been undertaken to assist less developed countries in processing statistical information. Very little suitable information on the subject exists in easily available form, and it was felt that a series of studies on the most important aspects of data processing would be of use. Twelve studies are contemplated, five have been completed and are included in this first paper bound book.

The five sections included are: scope and principal methods of data processing; planning, organizing and administering data processing services; the elements of planning and operating a punched card installation; manual methods and tools for data processing; and punched card sorting.

Those sections yet to come will deal with: source documents — their design and location; codes and coding techniques; punched cards (types and design); punching and verifying; auxiliary punched card machines; punched card tabulating machines; supervision of a machine department.

All the studies should be useful to professional statisticians; the major part of the first three sections has been prepared primarily for government officials who may be unfamiliar with statistical methods and data processing techniques, to get some background for decisions on financing, organizing, and administering such installations.

The remaining studies will be published when completed. Eventually the entire study will be collected in one volume and will deal with methods and other processing aspects. The remaining sections are mainly for the use of supervisory personnel of processing services, and for statisticians.

The emphasis in these studies is on punched card methodology. No attempt is made to evaluate the relative merits of the various available machines. However, there is a list of international offices of those manufacturers making punched card equipment for those who might wish to query them.

Books and periodicals, both those put out privately and by governments of the United States, Canada, England and France, have been searched for background material in this study, if the footnotes are an indication.

Mention is made briefly of electronic computers, but the subject is not pursued as it is outside the scope of the present study.

The material is clearly and logically presented and should be helpful to those who do not know much about this field.

HIGH SPEED COMPUTING DEVICES by the staff of Engineering Research Associates, Inc., edited by W. W. Stiffler, Jr., McGraw-Hill Book Co., Inc., 1950, 451 pages, \$7.00.

When this book was published, the impact of computers on American business was just beginning. Written during the excitement and turmoil of the time, the book has survived a decade and is still useful as a basic reference text. It begins with a detailed explanation of computers; goes on to switches and gates, machine design, arithmetic systems and numerical analysis. These factors constitute Part I and are the basic ground work for any computing system. Part II covers actual computing systems and includes desk calculators, punched card computers, large scale digital computing systems, etc. Part III, the last major sub-division, treats of the physical components, methods and techniques used to make up a computing system, as well as data conversion types and methods. The volume contains a wealth of diagrams and is written in a straight-forward, non-technical manner.

HIGH SPEED DATA PROCESSING by C. C. Gotlieb and J. N. P. Hume, McGraw-Hill Book Co., Inc., 1958, 338 pages, \$9.50.

While there are several chapters on computers in

general and hardware in particular, the main part of this book is devoted to the subject of solving problems on a computer, i.e., analysis, flow-charting, programming and coding. It is quite thorough, clearly written, and should be an excellent text for a college course (a set of problems is given in the appendix) or a comprehensive introduction for the trainee. A Basic Hypothetical Machine is introduced to allow for exemplification of ideas contained in the text. It is interesting to note that the authors have refrained from the universal practice of devising cute names for both real and mythical computers. Since the principles of programming, and even many of the details, are similar for various computers now on the market, there is little doubt that one can first study programming in general and then easily learn the details of a particular coding system.

IDEAS FOR MANAGEMENT, edited by Colver Gordon, Systems and Procedures Association, 1959, 440 pages, \$16.00 (\$10.00 to members).

This is the complete array of papers delivered and seminars conducted at the eleventh annual international meeting at Buffalo, New York. The first part of the volume is concerned with the Association and the business conducted by the various chapters. One of the most interesting sections, entitled "World Systems," presents some interesting observations of systems and concepts employed elsewhere in the world. Some of the papers are concerned with factory automation and paper processing. However, the principles utilized are most certainly widely applicable. One or two of the papers are somewhat wordy but all in all, it is a worthwhile reference work for the punched card data processing library.

IDEAS, INERTIA AND ACHIEVEMENT, edited by F. B. Turck, The American Society of Mechanical Engineers, 1960, 183 pages, \$5.00.

This study resulted from a survey of over one hundred individuals, corporations and institutes who appraised the process of applying the results of research to industrial and military use.

The ASME believes that there is a serious lag between the discoveries of research scientists and applications of their findings in industry and for the armed forces.

The book is a collection of opinions from about 100 contributors, most of whom agree that there is a dangerous lag and suggest how to specifically deal with the problem and overcome it. There is acknowledgment that it is not always the scientist or engineer who can control what happens with research findings—it is mainly up to management to decide what to try to develop from material that is available from research.

Behind the entire problem is a general recognition that the United States is in danger of losing its industrial lead to other countries, that controlled economy countries are growing at a fast pace and may surpass us industrially.

INFORMATION PROCESSING, Proceedings of the International Conference on Information Processing, UNESCO, Paris, 1960, 497 pages, \$25.00.

In June, 1959, UNESCO held an international scientific congress on computation and its state of development. The papers of the congress are presented in *Information Processing*. These papers, generally, are technical and extremely detailed. They are printed in the language in which they were presented—English, French, German, and Russian.

The seven chapters of the book, each having up to twenty articles, are: Mathematical methods of digital computing; Common symbolic languages for computers; Automatic translation of languages; Pattern recognition and machine learning; Logical design of computers; Computer techniques of the future; and Miscellaneous topics. They cover, to a large extent, the developments in scientific computation made thus far.

The book has much information, and should be accessible to everyone in scientific computation.

INSTRUMENTS FOR MEASUREMENT AND CONTROL by Werner G. Holzbock, Reinhold Publishing Corp., 416 pages, \$10.00.

This book is recommended as an excellent source of information in the field of instrumentation. At first glance this subject may seem to be of little concern to most of our readers; however, many new applications today are overlapping the fields of data processing and automation. The book describes and illustrates all of the most recent devices for measuring and controlling temperature, moisture, pressure, flow, etc. In non-mathematical language the design, construction and operation of instruments are discussed. A special chapter on Trends is devoted to the development of centralized systems, miniaturization and digital computers.

INTEGRATED COST CONTROL IN THE OFFICE by Frank M. Knox, McGraw-Hill Book Co., Inc., 1958, 304 pages, \$7.50.

Methods of organizing a systematic program integrating the individual efforts of the entire office staff are spelled out in this handy guide to office management. The fourth in the NOMA management book series, it offers practical techniques for reducing and controlling costs in addition to defining the office cost control problem.

The author stresses control over forms, methods and procedures, clerical work measurement, work simplification and automation in the office.

The methods presented are not theoretical; they have been tested and proved in business organizations of various sizes. Members of the office staff can follow and apply these methods directly and achieve worthwhile results in the reduction of paperwork and office expense.

Tables of Typical Record Retention Periods and an Evaluation Check List for Office Cost Control are included.

INTEGRATED DATA PROCESSING by H. John Ross, Office Research Institute, 1960, 80 pages, \$2.00.

This small book discusses savings possible through integrated data processing, whether clerical manual or electronic. The author points out that the departmentalization of paperwork is expensive, with everyone having to duplicate writing of forms, handling, and increasing chances of errors in the many transcriptions. While he does not deny the savings possible with the installation of electronic data processing, he believes that it is the broadening of the base and the integration that brings about much of the savings. The speed of the machine helps where there is a great volume, but even a small office would benefit by reviewing its paper handling, improving forms, cutting down duplication of effort.

INTRODUCTION TO ELECTRONIC DATA PROCESSING by R. Nett and S. A. Hetzler, The Free Press, 1960, \$6.75.

Prepared for those who will have to decide whether or not to adopt computers in their research organization, business, or government agency, the book covers the technology, techniques, economy, and personnel problems of computer research. The authors have been able to encompass in clear fashion a wealth of material because they have avoided discussing details which are of interest only to mathematicians and computer engineers. A valuable section of the book describes available computer equipment.

This book to some extent is based on the experience acquired by the authors working in the Electronic Data Processing Training Program for the Air Force's Air Materiel Command. This program was organized and directed by Dr. Hetzler aided by Dr. Nett, where they observed the problems attendant to the largest electronic data processing enterprise in existence. As a result it lacks understanding of the medium size business data processing problem.

MANAGEMENT GUIDE TO ELECTRONIC COMPUTERS, A, by William D. Bell, McGraw-Hill Book Co., Inc., 1957, 403 pages, \$6.50.

The realistic, important facts about the uses of

electronic computing systems in business are spelled out in this first-hand information guide. The jobs possible for data processing set-ups are developed as case histories with actual experiences to substantiate them.

Programming features of the computer and what constitutes a data processing machine are summarized in this book. The author explains input and output devices, memory, arithmetical and logical functions and printing devices.

Other management questions such as personnel, cost, checking, maintenance and repair are answered factually. The book has been written to give the businessman and the executive the kind of information which they want and need to know.

MANAGEMENT IN THE INDUSTRIAL WORLD: AN INTERNATIONAL ANALYSIS by Frederick Harbison and Charles A. Myers, McGraw-Hill Book Co., Inc., 1959, 413 pages, \$7.00.

Thanks to financial sponsorship by the Ford Foundation, Princeton University, and M.I.T., the authors were able to complete a distinguished pioneering effort in international comparative management. The expressed purpose of this study is to trace the logic of management development as related to industrial growth. The authors are concerned more with the dynamics of development and the basic trends of managerial growth with an analysis of particular practices. Emphasis is placed on the evolution of management and on the forces which are likely to mold its future development.

Part I (134 pages) includes the following chapters: Organization and Management, Management as an Economic Resource, Management as a System of Authority, Management as a Class, The Development of Managerial Resources, and The Logic of Management Development. Part II (257 pages) includes chapters on management in India, Modern Egypt, Chile, Israel, France, Italy, Japan, Germany, Sweden, Great Britain, and the Soviet Union, as well as American Management in Perspective, and Management of Foreign Firms in Economically Underdeveloped Countries.

Although some students of management may criticize the authors' omission of the foreman as a part of management, little else will disturb them. The comparative studies point out that, in practice, American management techniques remain unique; other countries simply do not copy them. This is not, of course, surprising to anyone familiar with "caste systems" in other societies. So long as management means dealings of men with men, differences in social practices will mean differences in management practices.

This book points out that American management practices, as a whole, are far from perfect. Apparently, we are doing more than any other country to develop increasing numbers of competent managers at all levels who are vitally essential to any economically progressive country. No one seriously concerned with management methods can afford to remain indifferent to this book. (Reviewed by Ernest Huebner, General Aniline & Dye Corporation.)

MANAGEMENT ORGANIZATION AND THE COMPUTER, edited by G. P. Shultz and T. L. Whisler, The Free Press, 1960, 244 pages, \$7.50.

Much has been written in the past decade to introduce management to the computer and its uses. Very little of this written material has been devoted to the effect of the computer on the organizational structure of the company, yet to every computer user this effect is of major significance. A notable exception to this lack of material is *Management Organization and the Computer*.

The book is a collection of papers presented at a University of Chicago seminar sponsored by the McKinsey Foundation. The editors have divided the papers into four parts: a discussion of ideas about the impact of computers on management; an analysis of the technological developments in data processing; a presentation of new concepts of organization; and five case studies. Each of the parts is well done and presents concepts of value to any manager, even if he has no plans to use a computer in his organization.

Of particular interest to those already familiar with business-computer applications is the section on technology dealing with such questions as: What is a computer? What can it do? How much decision-making can be given to it? In what way does the computer relate to the world of the administrator? What about the economics of computers? Not all the answers are given, of course, but a fresh approach is presented which helps one find his own answers.

The case studies are presented by managers and represent management's views of five computer installations. The value of these studies lies in their similarity; there is a broad outline of organization which all have been forced to follow. The problems and frustrations of one are common to all.

Management Organization and the Computer should be on the "must" list of every executive having anything at all to do with data processing.

MANAGERIAL ACCOUNTING — An Introduction, by Harold Bierman, Jr., The Macmillan Company, 1959, 483 pages, \$10.00.

This book is separated into two major portions, the first concerned with financial accounting and the second with managerial accounting. For all managers and supervisors of punched card data processing departments this volume is almost a necessity since it gives an overall idea of the details of accounting, such as how and why items are treated as they are. But the second half is most important because it tells what to do with the results of the accumulated data and the resultant decisions to be derived from the evidence of the data. Throughout, the thorough treatment of the why and wherefore of applying automatic techniques or not applying them itself renders the reading of this book a valuable asset.

MATHEMATICAL METHODS FOR DIGITAL COMPUTERS, edited by A. Rolston and H. S. Wilf, John Wiley & Sons, Inc., 1960, 293 pages, \$9.00.

A collection of 26 papers on topics in applied mathematics which have been successfully handled by digital computers, this book is a handy reference for those programming scientific problems. Included are articles on matrices and linear equations, ordinary and partial differential equations, statistics, and some miscellaneous topics.

Except for a single chapter on generation of elementary functions, the papers follow a standard format: description, mathematical discussion and derivation, calculation procedure with a flow chart, a sample problem, computer memory requirements, running-time estimates, and a good collection of references. Although accuracy of the method is usually discussed in the mathematical exposition, few limits of accuracy are given.

MATHEMATICAL METHOD OF OPERATIONS RESEARCH by Thomas L. Saaty, McGraw-Hill Book Co., Inc., 1959, 11 + 421 pages, \$10.00.

If the book being reviewed were limited in subject matter to the material promised by the title, it would find a valued place on the most-used shelves of the practitioner's library. Additional philosophical, historical, and otherwise general material enhances its value and provides most interesting and valuable reading.

The background required of the reader includes a course in the calculus with some additional topics usually found in an advanced calculus course and some knowledge of matrix theory. There are a few places in which a degree of analytical experience would be helpful.

Chapter 1 is a discussion of the history and concepts of Operations Research. Part 1, Scientific Method, contains three chapters: Chapter 2. Some Remarks — Scientific Method in Operations Research; Chapter 3. Mathematical Existence and Logical Proof; Chapter 4. Elementary Classical Methods in Model Formulation.

Part 2, "Optimization (Mathematical) Programming and Game Theory," contains one chapter on each of these three subjects. Part 3 contains chapters devoted to

probability statistics, and queuing theory, with a chapter on applications of probability.

Part 4 consists of a thoughtful and provocative essay on creative thinking and its role in operations research.

MATHEMATICAL PROGRAMMING by N. V. Reinfeld and W. R. Vogel, Prentice-Hall, Inc., 1958, 239 pages, \$8.00.

This is a "cook-book" approach to linear programming, presented in an understandable and non-mathematical manner. Starting with the most simple distribution method, and going through the Simplex method and an approximation method by Vogel, it gives the step-by-step process required to find optimum solutions to given problems. There is almost no discussion on the setting-up of problems for solution, but this weakness of the book is in part covered by a large chapter (*over one-quarter of the book*) on case studies in the use of linear programming. A very brief description of a computer method of solution is included.

Although easy to read, *Mathematical Programming* does not satisfy the requirements of a basic text on the subject, principally because of the lack of attention to the formulation of problems, and also because no background is attempted; the book is void of proofs, and the authors seem to fear that even mention of the word "algebra" will send their readers scurrying. Finally, the title is misleading. The authors point out that the methods are applicable to more than just linear equations, hence they feel *Mathematical Programming* is a more accurate description of the subject; however, Linear Programming as a field of mathematics is well known, as are its extensions to non-linear equations, and the field of mathematical programming would seem to cover much more than that.

For those desiring a ready reference to the method of solutions of linear programming problems, this book offers much.

MEASUREMENT AND EVALUATION OF ORGANIZATIONAL PERFORMANCE by Paul Wasserman, Cornell University, 1959, 110 pages, \$3.75.

This publication is a worthy service for all students of management.

Management has long been concerned with finding answers to the thorny problems of evaluating accomplishment. Although much has been published in this area, few attempts have been made to classify the literature. Most material on measurement and evaluation deals with technical activities at the basic organizational levels; administrative activity has been a more elusive concept to measure.

In addition to business and public administration, the author includes selections from military, education, library, and health administration published between 1945 and September, 1958. The abstracts are descriptive rather than analytical. The author states that criticism has been exercised only by virtue of inclusion or exclusion.

The bibliography is divided into four main parts: I. Measurement and evaluation—General and Theoretical Material; II. Measurement of the Total Enterprise; III. Measurement of the Functional Units of Organizations; and IV. Measurement of Individual Performance. Two indexes are included: 1. By author; 2. By title.

This reviewer recommends the bibliography without reservation to anyone who is interested in the study of management problems. (*Reviewed by Frederick Renner, Administrative Services, U. S. Postal Department.*)

MODERN PROGRAMMER, THE, by Charles O. Reynolds, Pyramid Publishing Co., 1960, 164 pages, \$4.50.

The author covers the requirements of a good programmer who must be idea man, diplomat, manager, trainer, human relations expert, and salesman, as well as continuous producer of new programs. Also included in the volume are instructions on preparing a program, block diagramming, punched card equipment and its uses, and the Rmac 305. There are chapters on getting ready for an installation, problems and answers for Rmac programming, and a look into the future of the programmer.

OFFICE AUTOMATION, 4th Edition, and **OFFICE AUTOMATION APPLICATION** 2nd Edition, by R. Hunt Brown, Automation Consultants, Inc., 1958, \$37.50 each.

Office Automation is a reference work on equipment in the fields of EDP and IDP. The format and style are essentially the same as the three prior editions but this edition has, of course, been revised and updated. The contents have been enclosed in a restyled three-prong binder which enables easy updating of the book if one subscribes to the companion updating service which is available at extra cost.

The companion work, *Office Automation Applications*, is again basically the same in format and style but has incorporated revisions and additions which occurred since the publication of the first edition. This book contains actual case study applications of EDP and IDP by the companies involved. These studies include pertinent remarks as to the ease or difficulty of commencing computer applications, as well as evaluations of their success. As with the *Office Automation* book, an updating service is available on a subscription basis at extra cost.

OFFICE IN TRANSITION — MEETING THE PROBLEMS OF AUTOMATION by Esther R. Becker and Eugene F. Murphy, Harper & Bros., 1956, 190 pages, \$4.00.

By utilizing a dual approach to the impact of automation in the office, the authors present a total look at this highly volatile and ever changing situation. Mr. Murphy covers the technical aspects of the automatic office and Miss Becker presents the effects of automation on the people involved. This double aspect highlights the fundamental conflict — man vs. machine. That this conflict can be resolved and very often has been and is, is the essential worth of this volume. It involves a continuing process of education by suppliers and users. Of special note are the appendices which list the manufacturers, associations, publications and educational institutions which are operative in this field.

OFFICE WORK AND AUTOMATION by Howard S. Levin, John Wiley & Sons, Inc., 1956, 203 pages, \$5.50.

A salient theme of this volume is the emphasis on changes taking place in the contemporary office. To be sure, the concepts so commonly recognized and utilized today were not so common or generally accepted at the time this book was published. This point alone highlights the dynamic aspects of automation. Nonetheless, many of the principles discussed in this work are still applicable and probably always will be. *Office Work and Automation* remains a good primer for the neophyte entering the field, especially the member of management who is or will very shortly become involved in automated information handling techniques in the office.

OPERATIONS RESEARCH, METHODS AND PROBLEMS by M. Sasieni, A. Yaspan and L. Friedman, John Wiley & Sons, Inc., 1959, 11 + 316 pages, \$10.25.

The format of this book is to devote a chapter to each of several problem areas. Each chapter contains an exposition of theory and techniques, a set of completely solved problems and a set of thoughtful problems for the reader, many with hints for solution or actual answers.

Following chapters on probability and sampling are individual chapters on inventory, replacement, waiting lines, competitive strategies, allocation, sequencing, and dynamic programming. Three short appendices are devoted to finite differences, differentiation of integrals and row operations.

The authors set forth to provide an introductory textbook on operations research containing illustrative problems and exercises. Prerequisites are limited to a working knowledge of the calculus.

PRACTICAL MANUAL ON THE MONTE CARLO METHOD FOR RANDOM WALK PROBLEMS by E. D. Cashwell and C. J. Everett, Pergamon Press, 1959, 9 + 153 pages, \$6.00.

This book is the first in a series of International Tracts in Computer Science and Technology to make quickly available government and industrial reports heretofore having only a limited distribution.

The title of the book being reviewed is somewhat misleading in that it is a report on applications of the Monte Carlo method to problems involving nuclear particles in bulk matter in complex geometries. Individual chapters are included which are devoted to source routines, various collision routines, and direction and mean free path considerations. An appendix summarizes some typical unclassified problems run on the Los Alamos MANIAC I. Thus the possible appeal is limited.

Within this slim volume are various nuggets of wisdom lying about for the watchful prospector. This is true both in the specialized chapter indicated above and in the chapters on general principles, computation, and statistics.

The mid-square method has been used to generate random numbers in spite of its many limitations. A curious remark attests to the frequent cases in which results agree *more* closely with expectations than might be expected from true random numbers. This reviewer questions the desirability of such occurrences.

The typography is generally clear with the possible exception of some displayed equations, such as those on page 75, in which radical signs extend too far; they cover brackets which are not part of the radical. The book is illustrated by line drawings and flow charts. Reproduction of the flow charts is uneven in that different degrees of photographic reduction were used. As a consequence some flow charts, such as figure 27a, have type that is too small for easy reading. (Reviewed by Jack Moshman.)

PROBABILITY: AN INTRODUCTION by Samuel Goldberg, Prentice-Hall, Inc., 1960, 350 pages, \$7.95.

This book deals with the fundamental mathematics of probability and provides background material for all applications of probability. The entire first chapter is devoted to the elementary mathematics of sets and additional material on sets is presented throughout the text as the need for this information arises. Theory is presented for finite sample spaces only. This approach facilitates a careful, logical treatment of the essentials needed by all who use probability concepts—especially in statistics—and makes further study easier and more meaningful for students in mathematics as well as for those in other fields.

PROCEEDINGS OF THE LIFE AUTOMATION FORUM, Life Office Management Association, 1959, 404 pages, \$5.25 to members, \$8.25 to non-members.

Included in this book are the talks of more than 50 speakers who addressed 18 sessions at the conference held in Chicago, April 13-15, 1959. Among these speakers were A. E. DuPlessis, J. E. Moore, Stevens L. Shea, A. M. Bayly and E. D. Dwyer. The topics covered ranged the gamut. Among the titles are: "Comparison of Operational Costs of the Old and New Systems," "Flow Charting," "Program Development — Coding," "Computers Can Pay" and "Accounting Controls in an Electronic System."

The lecturers and topics are of vital interest to all data processing people and especially to those in the insurance industry.

PROCEEDINGS OF THE NATIONAL MICROFILM ASSOCIATION NINTH ANNUAL MEETING, edited by Vernon D. Tate, National Microfilm Association, 250 pages.

This is a collection of papers presented during three days of panel discussions by representatives of industry, government and libraries.

Industry members introduce and give specifications and functions of improved products developed to con-

tribute to work simplification and record recall. Also presented are discussions of miniaturization developments and systems. Much of the equipment is already available or will be soon.

Included are reprints of panel discussions by eight Department of Defense representatives who told how microfilm works for national security, how microfilm is speeding the development and production of new weapons by compressing the time and space for engineering data.

Other sections:

Microfilm — Secret Agent is a description of the part microfilm played in the war.

Municipal Arteriosclerosis — and Hardening of the Records — Dr. Morris M. Cohn, Editorial Director, New York Water Works Engineering and Wastes Engineering, advocates the use of microfilm for water and sewer records instead of bulky full-scale drawings of systems, to be carried in emergency trucks.

A discussion of microfilm activities in the government of Nassau County in connection with tax records, estates administration, hospital records, and recording of deeds.

Connecticut Medical Services, Inc. of New Haven, Connecticut, uses a microtape system to solve storage and high reference frequency problems.

Librarians discuss the development of microfilm, special needs, and how to set up a photoduplication department.

The meetings of NMA offer an annual opportunity for members of industry, government and other special fields to exchange technology and experience in order to meet the challenge of modern day needs for reduction, dissemination, retrieval and reproduction of records, drawings, and documents.

PRODUCTION CONTROL by Nyles V. Reinfeld, Prentice-Hall, Inc., 1960.

Although written by one man, the actual contributors to this volume are 500 companies whose methods and results were surveyed by the author. Production control methods spring out of the nature and necessities of each business. The methods vary from company to company, and as a result there is no such thing as a standard system to fit all businesses. But there are common denominators among the thousands of techniques from which every company selects the components for its control system. These methods and the author's observations concerning them have been brought together in this book.

PROFESSIONAL PRACTICES IN MANAGEMENT CONSULTING by Association of Consulting Management Engineers, Inc., 1959, 96 pages, \$2.75.

This almost pocket-sized book lists and explains in detail exactly how professional management consultants should conduct themselves as well as direct their operations. More than anything else perhaps, users of such professional services or those considering availing themselves of these services should read this book as a primer to investigating this highly specialized field. The authors are themselves partners or members of management consulting firms. They are experienced in this field and their firms are among the most renowned of all businesses. This book will explain exactly what a qualified management consultant should or should not do.

PROGRAMMING BUSINESS COMPUTERS by Daniel D. McCracken, Harold Weiss and Tsai-Hwa Lee, John Wiley & Sons, Inc., 1959, 510 pages, \$10.25.

The authors, eminently qualified, have written this volume for the average reader who is in daily contact with electronic data processing yet does not possess a mathematical and/or technical background. It is for the business executive whose main interest and background are in management. It ranges the field from survey analysis to coding for electronic processing. The authors incorporated basic features of the various

available computers into a hypothetical computer called DATAC. Once the reader grasps the principles of DATAC, he can then easily understand his own particular computer. A special feature are the exercises which follow each chapter. These enable the reader to test his validity of comprehension as he progresses. Lastly, of importance to men of finance, is a series of explanations of controls and audit checks in a computerized application.

PROGRAMMING FOR DIGITAL COMPUTERS by Joachim Jeenel, McGraw-Hill Book Co., Inc., 1959, 517 pages, \$12.00.

This reviewer holds that programming is a simple art whose fundamentals can be taught in a couple of hours to anyone who needs computers. But to authors in this fashionable field, computer fundamentals are often an awesome subject, an attitude of which this book is a particularly ponderous example. The author has indeed attempted to give the feel for problem organization that is so necessary to the preparation of large-scale programs.

PROGRAMMING THE IBM 650 MAGNETIC DRUM COMPUTER AND DATA PROCESSING MACHINE by Richard V. Andree, Henry Holt and Co., Inc., 1958, vi + 109 pages, \$2.95 in paper cover.

Manuals for computing machines are just that, and they make very little attempt to give a neophyte any insight into what is involved in actual programming. While this book is an introduction to the programming of the IBM 650 computer, the principles and the philosophy which the author sets forth are applicable to programming in general.

In the first chapter the author explains what a computer is and describes the physical aspects of the 650 which are pertinent to programming. He gives the basic operations of the 650 and how they are used. In the second chapter input and output operations are explained and one could actually run a simple program with the information given up to this point. This chapter contains instructions for loading a program and for using the console that are so good that they should be posted over the console for ready reference and thus save an installation considerable machine time. The problems at the end of this chapter are also excellent, for they anticipate the many pitfalls of putting a program on the 650. Chapter Three deals with looping, indexing, scaling, and simple optimum programming. While the title of Chapter Four is "Easy Programming via Subroutines," it also includes some very telling remarks about the accuracy of computing results and much needed advice to those who have others write their programs. Chapters, Five, Seven and Eight explain a particular example of each. An understanding of these is basic knowledge for every programmer, and the author explains them simply and clearly. Chapter Six deals with some of the more sophisticated aspects of programming and the all important subject of debugging. The last chapter is primarily for the managers of 650 installations, but it also has a section on common courtesy which should be required reading for everyone using a computing machine.

PROGRAMS FOR AN ELECTRONIC DIGITAL COMPUTER by M. V. Wilkes, D. J. Wheeler and S. Gill, Second Edition, Addison-Wesley Publishing Co., Inc., 1957, 238 pages, \$7.50.

Originally published in 1951, this book dealt with the EDSAC, one of the first stored program computers, and was intended to serve as a programming primer for the EDSAC. In its revised edition, the book has added the later entries into the computer field. However, the principles of programming the EDSAC apply to at least half of the newer machines either in address format or internal machine processing (binary system). This volume is excellent background for the comprehension of programming. It covers virtually all areas of the subject including many functions that are now an automatic process because of circuitry, such as floating point arithmetic.

RECORDS RETENTION, A PRACTICAL GUIDE by William Mitchell, Ellsworth Publishing Co., 1959, 48 pages, \$5.00.

The author, a systems analyst in the Univac data processing center of Sylvania Electric Products, has researched his subject thoroughly and has written a guide for businesses. Its aim is to enable business to dispose of the huge amounts of files unnecessarily retained. The reason for this retention is that business is afraid of running afoul of Federal and State Regulations for file maintenance. Mr. Mitchell claims that a business, really interested in eliminating retention of records, can effectively dispose of 80 per cent of its records within three years. Contained in the book are schedules and interpretations of the various statutes affecting records retention. The author also presents common-sense ideas on how long to retain records either not governed by statute or retained safely beyond statutory requirements.

RESEARCH REVOLUTION, THE, by Leonard S. Silk, McGraw-Hill Book Co., Inc., 1960, 232 pages, \$4.95.

The author, senior editor and economics editor for *Business Week*, tackles the problem of how to achieve a good rate of economic growth in the United States. He discusses the impact on our economic growth of systematic technological innovation through scientific advance.

The book gives an account of the fundamental changes taking place in our economy, explaining the present and future implications for national economic policy and for business policy. Stressed is the investment that industry is making in knowledge, and its importance as a key to continuous economic growth.

The author takes electronics as an example of growth encouraged by research, the new products made possible by the appearance of transistors.

He suggests a new way to grow, and in the appendix includes an outlook for expenditures on research and development during the next decade by three other authors.

SECOND SURVEY OF DOMESTIC DIGITAL COMPUTING SYSTEMS by M. H. Weik, Ballistic Research Laboratories, Report No. 1010, OTS, United States Dept. of Commerce, 1958, 437 pages, \$7.00.

This report supersedes BRL Report No. 971 and is a handy reference book providing the results of a survey of the engineering and programming characteristics of 103 different digital computing systems.

Data presented on each system comprise the application, performance characteristics, construction and checking features, personnel requirements, installations, sale and lease policy. Included in this volume are a discussion of trends, comparative table of operation time, word length, access time for various systems, and an invaluable glossary of computer engineering and programming terminology.

STATISTICAL FORECASTING FOR INVENTORY CONTROL by R. G. Brown, McGraw-Hill Book Co., Inc., 1959, 249 pages, \$7.75.

How to design an inventory control system through better routine short-range forecasting is explained in this book. The author lists practical methods for computing average demand and the maximum reasonable demand during a lead time. He also relates of techniques for measuring uncertainty in a forecast. The beginning of each chapter develops the ideas in terms understandable by the non-technical reader. The major part of this book presents the methods with a minimum of mathematics but in sufficient detail to be effectively useful to the professional.

SUPPLEMENT TO CUTTING THE COST OF YOUR EDP INSTALLATION, Canning, Sisson and Associates, Inc., 1960, 25 pages, free to all purchasers of the Report, otherwise \$10.00.

The Supplement goes into the findings of the Pentagon fire and tells of the recommendations made by the Factory Insurance Association for protection of computer installations, tapes, and punched cards. There are recommendations for the design of a computing

facility which would prevent the errors at the Pentagon. The Supplement covers six areas: *Lessons Learned from the Pentagon Fire, Equipment Fire Protection and Tape Combustion Factors, Installation Requirements of Transistor Machines, Seven Studies of Organizations with Transistor Machine Installations, Comparisons of Installations in Organizations Surveyed, and Basic Air Conditioning Requirements for Installed Transistor Machines.*

SYSTEM ENGINEERING — An Introduction to the Design of Large Scale Systems, by Harry H. Goode and Robert E. Machol, McGraw-Hill Book Co., Inc., 1957, 551 pages, \$10.00.

For the most part, this volume is too technical for the non-scientifically trained individual. There are, however, several good chapters for the non-scientist in the very beginning of the book. Beyond this point, the authors go into techniques and formulae used to develop a computing system. Many of the tentative designs are first developed, tested, etc., on an existing computer. In this way, many of the engineering principles can be used to optimize function, control, design and cost of the eventual finished product. To systems engineers, involved in the design of computing systems, the book has a wealth of information and examples throughout.

SYSTEMS AND PROCEDURES — A Handbook for Business and Industry, edited by Victor Lazzaro with 19 contributing experts, Prentice-Hall, Inc., 1959, 464 pages, \$10.00.

This book discusses the review, analysis, and improvement of procedures in terms of money saved, improved employee morale and customer satisfaction. The four major areas of this study are: concept of the department, organizing and administering the department, program and project planning — each written to guide in planning the organization or reorganization of a systems and procedures department. It covers in great detail the systems study, systems charting, the management audit, work simplification, work measurement, forms design and control, records management, company manuals, tabulating equipment in business, electronics in business, work sampling in the office, management research, and selecting and training systems men.

SYSTEMS AND PROCEDURES RESPONSIBILITY by Philip H. Thurston, Div. of Research, Graduate School of Business Administration, Harvard University, 1959, 110 pages, \$2.50.

This volume is the result of the author's research into systems concerned with electronic data processing installations. The first chapter outlines the scope of the study and provides basic definitions. Chapters Two to Four are concerned with systems planned and installed by specialists, operating people, planned by specialists and installed by operating people respectively. Chapter Five deals exclusively with shared responsibility for planning and installation. Chapter Six, conclusion, assays the results of the findings of the prior chapters.

TRANSISTOR MANUAL, General Electric Co., 168 pages, \$1.00.

Now in its third edition, this manual is a complete reference guide to transistors and their use. In addition to theory, specifications are given for the use of transistors in a variety of applications and circuits.

USE OF ELECTRONIC DATA PROCESSING EQUIPMENT — Hearing before the Subcommittee on Census and Government Statistics of the Committee on Post Office and Civil Service. House of Representatives Eighty-Sixth Congress, First Session, June 5, 1959, United States Government Printing Office, Washington, D. C.

The proceedings of this hearing are a most worthwhile reference for anyone concerned with data processing. The testimony of many responsible government officials comprises the bulk of the hearing. However, the three appendices A, B, and C, are the interpretations and conclusions reached. A letter from the Secretary of the Treasury regarding man-power utilization comprises Appendix A. Appendix B renders an early history of electronic systems and cites several needs still unfulfilled, such as experimentation, and research and development. Appendix C is divided into two sections, the first concerned with the nature of the study and the second with what the study showed. Two chapters are omitted in this section. These are: Chapter II, Job Standards and Job Engineering, and Chapter IV, Turnover.

WORK SIMPLIFICATION by Gerald Nadler, McGraw-Hill Book Co., Inc., 1957, 292 pages, \$6.50.

Dr. Nadler has written a "do-it-yourself" of manual work methods. Much of the material is from the author's *Motion and Time Study* book plus additional material from a television course he presented. The book deals almost exclusively with *what* and *why* and is very rarely concerned with *how* theory. In applying these methods, the role of the individual as a person and his reaction to these concepts as they are applied in his particular situation are covered. Also featured are a finer analysis of new Therbligs as well as UNOPAR which is an electronic device for measuring an operator's motions.

WORK SIMPLIFICATION — CREATIVE THINKING ABOUT WORK PROBLEMS by Robert N. Lehrer, Prentice-Hall, Inc., 1957, 394 pages, \$9.25.

The author, a professor and consultant of industrial engineering, has both the theoretical and practical know-how to present his material. Mr. Lehrer covers every phase of work simplification in both the office and the factory. He explains the methods and why they were developed. He also goes to great lengths to explain the need to keep cognizant of the personnel in any work simplification program. There is adequate treatment of automation techniques in the office which are of particular interest to data processing personnel. If nothing else, the book gives guides to creative thinking about work simplification and why problems exist in that area.



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