



## CONTENTS, VOLUME 2

CONTRIBUTORS TO VOLUME 2 . . . . .	v
FORWARD . . . . .	vii
<b>1. Evaluation of Measurement</b>	
by SIDNEY REED	
1.1. General Rules	1
1.2. Errors	2
1.3. Statistical Methods.	3
1.4. Direct Measurements	5
1.5. Indirect Measurement	8
1.6. Preliminary Estimation	13
1.7. Errors of Computation	13
<b>2. Passive Circuit Elements and Networks</b>	
by R. M. SCARLETT	
2.1. Basic Network Principles and Terminology	17
2.2. Network Theory	24
2.3. Two-Terminal-Pair Networks; Filters	28
2.4. Distributed Constant Networks	37
2.5. Components	41
2.6. Construction and Wiring Techniques	45
<b>3. Vacuum Tubes</b>	
by EDWARD J. CRAIG	
3.1. Thermionic Emission	47
3.2. Diodes	52
3.3. Triodes	57
3.4. Multielement Tubes	62
3.5. Selection of Tubes	66
<b>4. Gas Tubes</b>	
by W. J. KEARNS and R. P. WELLINGER	
4.1. Gaseous Electronics and Devices	71
4.2. DC Breakdown	71

4.3. Plasma Characteristics . . . . .	80
4.4. Practical Gas Tubes . . . . .	98
4.5. Tube Ratings: Definitions. . . . .	110
<b>5. Semiconductor Circuit Elements</b>	
by I. A. LESK	
5.1. Introduction. . . . .	113
5.2. Devices Employing Bulk Semiconductor Properties. . . . .	121
5.3. Single-Junction Rectifiers and Diodes. . . . .	127
5.4. Transistors (Bipolar). . . . .	142
5.5. Multiregion Devices . . . . .	160
5.6. Other Transistors . . . . .	167
5.7. Semiconductor Integrated Circuits. . . . .	171
Bibliography . . . . .	175
<b>6. Rectifiers, Amplifiers, and Oscillators</b>	
6.1. Rectifier Circuits. . . . .	177
by R. P. FEATHERSTONE	
6.2. Vacuum-Tube Amplifiers . . . . .	211
by R. P. FEATHERSTONE	
6.3. Vacuum Tube Oscillators . . . . .	266
by R. P. FEATHERSTONE	
6.4. Gas-Tube Circuits . . . . .	298
by W. J. KEARNS and R. P. WELLINGER	
6.5. Linear Transistor Circuits. . . . .	307
by F. H. SCHLERETH and H. N. PUTSCHI	
<b>7. Nonlinear Circuits</b>	
7.1. General Discussion. . . . .	327
by G. G. KELLEY	
7.2. Nonregenerative Circuits . . . . .	328
by G. G. KELLEY	
7.3. Regenerative Circuits. . . . .	357
by G. G. KELLEY	
7.4. Sweep Circuits. . . . .	394
by D. MAEDER	
7.5. Transistor Switching Circuits . . . . .	412
by H. N. PUTSCHI and F. H. SCHLERETH	

**8. Servomechanisms, Regulation and Feedback**

- 8.1. General Principles . . . . . 453  
by L. A. GOULD
- 8.2. Electronic Regulation. . . . . 488  
by E. F. BUCKLEY
- 8.3. Servomechanisms. . . . . 511  
by L. A. GOULD

**9. Measurements**

- 9.1. Counting . . . . . 519  
by G. G. KELLEY
- 9.2. Frequency Measurements. . . . . 535  
by E. A. GOLDBERG
- 9.3. Time Measurement. . . . . 543  
by E. A. GOLDBERG
- 9.4. Phase Measurements. . . . . 549  
by T. F. HAGGAI
- 9.5. Voltage, Current, and Charge . . . . . 558  
by J. A. STROTHER
- 9.6. Pulse Amplitude Measurements . . . . . 583  
by D. MAEDER
- 9.7. Magnetic Resonance . . . . . 624  
by J. TOWNSEND
- 9.8. Computers . . . . . 637  
by P. E. RUSSELL
- 9.9. Equipment Testing. . . . . 647  
by D. MAEDER
- 9.10. Telemetry . . . . . 674  
by J. F. KOUKOL
- 9.11. Information-Theoretical Methods Applied to Telemetry 686  
by E. SHOTLAND

**10. Microwaves**

- 10.1. Definition of Microwaves . . . . . 705  
by R. B. MUCHMORE
- 10.2. Microwave Circuits. . . . . 705  
by R. B. MUCHMORE

10.3. Microwave Tubes by M. CHODOROW	716
10.4. Detectors and Receivers for Microwaves by R. B. MUCHMORE	728
10.5. Microwave Measurements by R. B. MUCHMORE	732
<b>11. Miscellaneous Electronic Devices</b>	
11.1. Photoelectric Devices by R. W. ENGSTROM	743
11.2. Cathode-Ray Devices	765
11.2.1. Electron-Ray Indicator Tubes ("Magic Eye" Tubes) by R. P. STONE	765
11.2.2. Cathode-Ray Tubes by R. P. STONE	766
11.2.3. Camera Tubes by R. G. NEUHAUSER	773
11.2.4. Storage Tubes by R. P. STONE	782
11.3. Magnetic Amplifiers by F. J. FRIEDLAENDER	785
<b>12. Noise In Electronic Devices</b> by K. M. VAN VLIET	
12.1. Introduction	795
12.2. Thermal Noise	798
12.3. Shot Noise and Generation-Recombination Noise	801
12.4. Modulation Noise	806
12.5. Noise in Amplifiers	808
<b>AUTHOR INDEX</b>	<b>819</b>
<b>SUBJECT INDEX</b>	<b>829</b>

