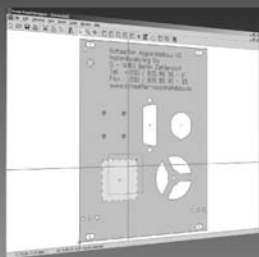


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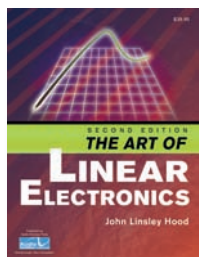
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## Book Review

### The Art of Linear Electronics

by John Linsley Hood

Audio Amateur Press., 339 pages, \$39.95

Reviewed by Dennis Colin

This book is highly recommended for all who are interested in highly detailed (but clearly explained) descriptions of analog components, circuits, and systems. Particular emphasis is focused on audio systems, but RF circuits are also covered.

All that is required is a basic understanding of math relationships used in analog circuits; i.e., Ohm's law, reactive impedance concepts, dB (log/exponential) versus linear, and so on. But this is *not* a design "cookbook." While a wealth of practical circuits are shown (power supplies, audio preamps and power amps, both tube and solid-state; radio receivers, audio and RF oscillators, and more), the emphasis is on *understanding the role of analog components* (linear and nonlinear, contrary to the title) *in providing the desired function*.

Chapter 1 is titled "Electronic Component Symbols and Circuit Drawing," while Chapter 2 discusses "Passive Components." After this introductory material, Chapters 3-5 explain, in great and well-illustrated detail, the internal workings and applications of tube and transistor devices and circuits.

Following are chapters 6-8 on DC and low-frequency (LF) amplifiers, feedback, and passive and active filters.

### INSIGHTFUL CHAPTER

Chapter 9, "Audio Amplifiers," begins with the basic requirements of power, bandwidth, response flatness, influence of acoustics and music type, and distortion audibility and its subjective effects. Circuits described begin with classic antique radio valve (British for "tube") amps, the (D.T.N.) Williamson amp, triode/pentode/UL and Class A or AB configurations, and so on.

Then follows a discussion of the evolution of solid-state power amps, with a comprehensive description of how (especially the earlier) transistor amps can produce

"listener fatigue" due to low-level nonlinearities (not just crossover distortion).

While the failure of *rigorous* comparisons between *very good* power amps to show conclusive sonic differences is mentioned, the author states, "For myself, I think that there are still some small remaining differences in sound quality between different power amp circuit designs. . ."

I personally believe this to be the most balanced, observant, and common-sense attitude to the highly-charged "golden ear versus meter reader" debate.

This chapter (of greatest interest to *aX* readers) concludes with descriptions of preamps, EQ/tone controls, and low-noise circuitry for phono preamps (five circuits shown). The 34 comprehensive pages of this chapter are, I would say, of greater value to the serious audio enthusiast than some complete books on amp design that I've read! I consider myself a very proficient audio designer, yet I've learned some valuable insights from this material.

The remaining chapters (10-17) cover non-audio material, except for Chapter 15 (Power Supplies), 16 (Noise and Hum), and 17 (Test Equipment). However, the material is presented with the same clarity, comprehensiveness, and illustration as in the audio material. The topics are oscillators (audio and RF), radio receivers, tuned circuits, waveform generators, and noise sources. Also included are two appendices, "Component Manufacturing Conventions" and "Circuit Impedance and Phase Angle Calculations."

If you are getting the impression that *The Art of Linear Electronics* is an absolutely first-rate book that superbly fills the present "digital age" vacuum of needed analog circuit coverage, you would be correct! *aX*

(Available from Old Colony Sound Lab, PO Box 876, Peterborough, NH 03458, 888-924-9465, [custserv@audioXpress.com](mailto:custserv@audioXpress.com))