



PG-650-C versatility has again been extended to include operation as a modulator or amplifier for pulse and C. W. operation. All the original features of high power, high frequency range and stability have been retained to give this unit its outstanding position as a basic requirement in research work in ultrasonics and nuclear magnetic resonance.

R. F. Output Min into 93 ohms .....0-300 v. p. to p. or  
0-600 v. special order  
Pulse Length—continuous .....1½–20 usec  
Pulse Droop .....5%  
Noise output .....Thermal noise from termination  
Harmonic Output (Mostly third) ....10%  
R. F. Leakage .....Negligible  
Calibrated delays .....120, 1100, 11000 usec  
Gate Output available for intensifying and blanking purposes.  
External Pulse modulation of r.f. oscillator with 110 KC limit.  
Special coils for coverage from .100 to 210 MC  
Operation in gated amplifier, gated modulator or, C. W. Modes

#### PREAMPLIFIER, PA-620 and PA-620-L

These preamplifiers are a general purpose device for matching ultrasonic transducers and cables with capacities as high as 100 pfd between 5 and 65 MC in the PA-620, and 0.5 to 20 MC in the PA-620-L and to provide a limited amount of gain with a good signal to noise ratio. Two of the three stages have variable bandwidth as well as center frequencies. An additional feature is a comparer stage with separate gain control.

##### Specifications—

Input impedance	93 to 3200 ohms
Bandwidths	0.5–17 MC
Low Noise cascode input	(6922 tube)

#### WIDE BAND AMPLIFIER, WA-600C



This amplifier allows coverage from 6–60 MC while performance under any conditions of pulsed operation is exceptional due to the quick recovery time. An R.F. output and pickoff point allow direct presentation of the signals and mixing with other systems.

##### Features—

Bandwidth (3db) minimum	6–60 MC
Gain	65–85 db
Video Bandwidth after full wave detector	10 MC
Recovery time from 100 volt signal	4 usec
Output Voltage Max.	10 volts positive
R. F. Output	6 volts max.

##### Modifications—

Low frequency section DC to 10 KC bandwidth for use with demodulated signals from sweep or audio modulated generators.  
Cabinet optional.  
Low frequency cut off can be extended between 1 and 10 MC.  
Cathode follower circuit for 10 volt r.f. circuit available.

FOR DETAILS AND PRICE LIST WRITE TO:

ARENBERG ULTRASONIC LABORATORY,  
INC.

94 Green St., Jamaica Plain, Mass. 02130

TEL: Jamaica 2-8640, AREA CODE-617

wave behavior of particles, and finally to present the wave function by way of the Feynman path integral.

Immediately following a capable execution of this plan is a derivation of the Schrödinger equation, which is used thereafter in discussing the standard examples of elementary quantum mechanics. The remaining four fifths of the book is quite conventional in content. However, the detail with which the customary problems and techniques, with illustrative applications, are presented is commendable, as is the abundance of physical interpretation. The last of eleven chapters designed for a one-semester undergraduate course is devoted to an excellent discussion of chemical resonance theory. There are two additional chapters, directed at prospective graduate students, which introduce spin, symmetry, parity, and vector addition, and elastic-scattering theory. It should be noted that this text employs the space representation exclusively, and that Dirac notation is withheld until the eleventh chapter.

Although the style is consistently informal, the smoothness of the prose is marred by a large number of parentheses, of which many are superfluous. The presence of at least seventy-five minor errors and misprints proved annoying to the reviewer.

#### The Quantum Theory of Many-Particle Systems.

Harry L. Morrison, ed. Vol. 2 of Internat'l Science Review Series, edited by Lewis Klein. 345 pp. Gordon & Breach, New York, 1962. \$4.95. Reviewed by Stuart A. Rice, University of Chicago.

IN the early postwar period, the Physical Society of Japan collected and reprinted papers on various subjects, i.e., statistical mechanics, diffusion in solids, etc. These inexpensive collections were extremely valuable to students and research workers because of the convenience with which they provided relevant literature in a given area of physics or chemistry. The volume edited by Morrison is in the tradition of the earlier Japanese reprint volumes. Since the volume consists of a collection of reprints, there is no need to discuss the text. I will only briefly comment that these papers provide an extremely useful supplement to the recent book on quantum statistical mechanics by Kadanoff and Baym.

In my opinion the volume could be improved in only two respects: (1) the selection from the vast literature could have been enlarged to include other papers on closely related subjects; relevant extensions would include some of Watson's work on scattering theory, some of the work on the self-consistent field formalism, etc.; (2) the value of the work would be considerably enhanced if the reprints were preceded by a set of extended notes. Such notes have been supplied in some of the reprint collections published by Benjamin.

It is clear that this book is a useful collection of papers which can be recommended to all students of the many-body problem. I hope that it will soon be followed by other collections dealing with classical theory and with applications to specific systems.

PHYSICS TODAY