to a member who has significantly contributed to the field of architectural acoustics. Sabine is the manager of the sound laboratory of Owens-Corning Fiberglas Technical Center, where he directs acoustical research and technical support activities. Sabine has contributed to measuring flow resistance and impedance, evaluating and predicting the performance of line ducts and developing testing techniques for transmission loss and reverberation chamber absorption.

John Bardeen Is Recipient of Michelson-Morley Award

The Albert A. Michelson-Edward W. Morley Award of Case Western Re-



BARDEEN

serve University
was presented to
John Bardeen, professor of physics
and electrical engineering at the University of Illinois.
Bardeen was cited
for his contributions to the theory

of solid state, especially for development of the theory of superconductivity leading to new insights into collective electronic phenomena in solids and for pioneering applications of quantum theory to surface properties of semiconductors leading to the invention of the transistor. The award consists of \$5000 and a silver plaque; it is named for the scientists who disproved the concept of an ether which permeated the universe. Bardeen was corecipient of the Nobel Prize in 1956 for his work on the transistor and is currently president of the American Physical Society.

Babcock, Glass Scientist, Joins Arizona Optical Center

Clarence L. Babcock, a glass scientist at Owens-Illinois, Inc for 34 years, has begun a new career at the age of 64. He has become research professor of optical sciences at the new University of Arizona Optical Sciences Center in Tucson. The center, unique in the US, offers master's and doctor's degrees in optical sciences in addition to research on and instruction in the development and fabrication of optical devices for space, defense, astronomy and industry.

Babcock is responsible for research

Computer Performance; Calculator Price.



WANG 380

640 Program Steps 24 Storage Registers LOG_eX, e^x , X^2 , \sqrt{x} , $\frac{1}{x}$, +, -, X, \div Performs Subroutines, Loops, Branches, Makes Decisions.

No special programming language needed. The Wang 380 learns programs directly from keyboard operations and stores them on plug-in magnetic tape cartridges.

You can tailor system capability to your exact needs with compatible accessories including:

Output Writer, CRT Display, additional Data Storage, Teletype, Trig Pack, and On-line Interface.

There is nothing comparable, anywhere.



Dept. 12AN, 836 North St., Tewksbury, Massachusetts 01876 • Tel. 617 851-7311

Call today for immediate trial:			(412) 366-1906 (415) 454-4140	(601) 982-1721 (602) 265-8747	(714) 234-5651
(201) 241-0250	(215) 642-4321	(309) 674-8931	(415) 692-0584	(608) 244-9261	(716) 381-5440
(203) 223-7588	(216) 333-6611	(312) 889-2254	(504) 729-6858	(612) 881-5324	(717) 397-3212
(203) 288-8481	(301) 588-3711	(313) 278-4744	(505) 255-9042	(615) 588-5731	(805) 962-6112
(205) 595-0694	(301) 821-8212	(314) 727-0256	(512) 454-4324	(616) 454-4212	(816) 421-0890
(206) 622-2466	(303) 364-7361	(317) 631-0909	(513) 531-2729	(617) 851-7311	(817) 834-1433
(212) 682-5921	(304) 344-9431	(402) 341-6042	(517) 835-7300	(702) 322-4692	(901) 272-7488
(213) 278-3232	(305) 564-3785	(404) 457-6441	(518) 463-8877	(703) 877-5535	(916) 489-7326
(214) 361-4351	(305) 841-3691	(405) 842-7882	(601) 234-7631	(713) 668-0275	(919) 288-1695



Yes, you can measure molecular weights up to 50,000 easily with the Perkin-Elmer Model 115 Molecular Weight Apparatus. By using a solvent with sensitivity comparable to that of benzene, you're able to determine number -average molecular weights (Mn) all the way up to 50,000 by vapor pressure osmometry (VPO).

The vertically-oriented thermistors in the Model 115 assure absolutely uniform drop size. Their patented design eliminates the need for visual observation and control of droplets while applying solutions to the thermistors.

MEASUREMENT OF SOLUTION CONCENTRATIONS (When the molecular weight of a species is known, the concentration of its

solutions can be readily determined.)

MEASUREMENT OF REACTION RATES (Kinetic studies of slow reactions by measuring \overline{M}_n as a function of time.)

One purchase price buys all this versatility. No expensive "extras" needed. Send today for Coleman Bulletin Q-307.

Write to Coleman Instruments Division, The Perkin-Elmer Corporation, 42 Madison St., Maywood, Illinois 60153

PERKIN-ELMER

in the glass and glass crystalline optical fields and will teach graduate students. At Owens-Illinois he was associate director of research and played an important role in the development of Cer-Vit materials, which are used as mirror blanks for three of the world's largest telescopes.

Other new appointments include Peter Hans Bartels as associate professor, on joint appointment with the department of microbiology, University of Arizona and the department of obstetrics and gynecology, University of Chicago. Bartels is doing research in pattern recognition and optical image analysis. Also appointed to associate professor is Allan J. Malvick on joint appointment with the civil engineering department, University of Arizona. He is doing research in deformation of large mirrors.

Jack D. Gaskill from Stanford Electronics Laboratories and William Swindell from the University of Melbourne are assistant professors.

Miami Theoretical Center Establishes Oppenheimer Award

An annual prize in memory of Robert Oppenheimer was established by the scientific council of the University of Miami Center for Theoretical Studies. Oppenheimer helped found the UM Center.

The prize will be awarded for important contributions to mathematics, theoretical physics, chemistry, biology and philosophy of science. The award is composed of a gold medal, a citation and \$1000; it will be given for the first time at the 1969 UM Conference on Symmetry Principles at High Energy.

Manfred Kaminsky Named Outstanding Citizen

Manfred S. Kaminsky, an associate physicist at Argonne National Laboratory, was named the outstanding new citizen of the year by the citizenship council of Metropolitan Chicago. Kaminsky was selected from approximately 10 000 newly naturalized citizens living in northern Illinois. The citation notes Kaminsky's contributions to science that have benefited his fellow men. He is currently studying effects of impact of very energetic particles on metal surfaces and their subsequent penetration of the metal.

We've got all the pieces for small magnets.

We choose the right system to fit your applications (teaching, applied research) from almost 100 combinations of 4", 6", 6½" magnets plus power supplies. Budget-conscious prices, versatile quality systems, field measuring accessories, and technical backup from the precision-magnet leader. Varian, Analytical Instrument Division, Palo Alto,

California 94303.



LASER COLLIMATOR LENSES



Focusable over Spectral Range 0.45-1.1µ

Monochromatic Wave-front Deformation $\leq \lambda/10$ Shelf Delivery Special Coatings on Request

Cat. No.	fl	CA	Mounting THD
1557-400	400mm	100mm	4.250-32-2B
1557-200	200mm	50mm	2.250-32-2B
1557-100	100mm	25mm	1.500x32-2A
1557- 12	12mm	3mm	.700x32-2A
1557- 6	6mm	1.5mm	.700x32-2A
1557- 12N	-12mm*	3mm	.700x32-2A
1557- 6N	- 6mm°	1.5mm	.700x32-2A

Negative lenses with no cemented surfaces are designed for use with high power lasers.

For further information contact



Designers and Manufacturers of Optical Systems and Instruments

52 WEST AVENUE, FAIRPORT, N. Y. 14450 • TEL: (716) 377-3200