

P. K. Whelpton (Scripps Foundation), with Arthur Campbell and Ronald Freedman, reported on a national probability sample of married white women, aged 18 to 39, in terms of their fecundity, sterility, use of contraceptives, and expected family size. The study was undertaken in part to provide needed understanding of the extent to which the higher postwar fertility in the United States reflects an increase in family size as opposed to a mere change in the timing of marriages and births. The latter appears to be the more important; nevertheless, family size, as measured by completed fertility, may be rising by nearly one child over prewar levels.

VINCENT H. WHITNEY,  
Program Chairman

### American Statistical Association (K5)

During the morning session of the American Statistical Association there were 25 people present. The room had very adequate facilities—in fact, two chalkboards were made available for this session. The program was very stimulating. P. E. Irick presented the material on “A statistically designed highway experiment” in an excellent manner, and the audience participated actively. The paper was 1 hour in length; the formal discussion and the audience discussion took another hour and three quarters. The whole problem of highway experimentation by means of statistical designs and techniques should be of interest to every citizen when one considers the size of the highway projects in the United States. Just this relatively small project is costing over \$15 million.

The afternoon session, on “Application of a mathematical model in plastic tooling research,” was poorly attended; this was disappointing because the Indiana Chapter of the ASA, as well as the ASQC, had indicated an interest in this subject. I suspect that the scheduling of sessions on a Saturday afternoon is not conducive to attendance, especially if people are not paid by their companies to attend sessions during this time. This conclusion is a bit disturbing but, I believe, realistic. Anyway, the session was modified a bit because only professional people were present and the paper had been written primarily for engineers, who could apply the statistical techniques to their problems.

VIRGIL L. ANDERSON,  
Program Chairman

### History and Philosophy of Science (Section L)

In 1957 Section L was greatly handicapped by the illness of its secretary, Jane Oppenheimer, who broke her hip.

# Thermodynamics of One-Component Systems

By WILLIAM N. LACEY and BRUCE H. SAGE  
California Institute of Technology, Pasadena

1957, 376 pp., illus., \$8.00

THIS BOOK WILL serve as a practical textbook for a course designed to emphasize real processes operating with real fluids. Emphasis is placed upon both mechanically and thermally irreversible processes, utilizing gases and liquids which deviate from the behavior of ideal fluids.

The text serves as a basis for a transition from the elementary thermodynamic principles of beginning courses in physics and physical chemistry to the application of thermodynamic principles to engineering problems. By concentrating upon physical processes and one-component systems, the authors have produced a book easily understandable to the engineering student, both the graduate and the advanced undergraduate.

#### CONTENTS:

Introduction

THERMODYNAMIC PRINCIPLES

General Concepts. Homogeneous Systems of Unit Weight. Behavior of Homogeneous Gases and Liquids. Heterogeneous Systems of Unit Weight. Irreversible Processes and Reactions between Systems of Constant Weight. Systems of Variable Weight.

FLOW PROCESSES

Conservation Principle in Steady Flow. Special Flow Processes in Which Kinetic En-

ergy is Important. Steady-Flow Cycles. The Turbine. The Reciprocating Engine. Compression of Gases. Refrigeration. Liquefaction of Gases at Low Temperatures.

APPENDIXES

Experimental Determination of Thermodynamic Properties. Temperature-Entropy Diagrams for Methane. Derivation of Starred Equations. Molal Enthalpies of Several Gases at Infinite Volume. Problems.

INDEX.



ACADEMIC PRESS INC., Publishers

111 Fifth Avenue, New York 3, New York

## Optical Crystals

CELL WINDOWS

LENS ELEMENTS

PRISMS

Cell Windows available for all commercial infrared spectrometers

Write for  
Technical Bulletin 157A

## Scintillation Crystals

NaI(Tl), KI(Tl), LiI(Eu), <sup>6</sup>Li(Eu), CsI(Tl), Anthracene, Stilbene, Plastic scintillators. Available unmounted or mounted and hermetically sealed.

Write for  
Technical Bulletin 257A

ISOMET CORPORATION

P.O. Box 34  
Palisades Park, N.J.

send for the most widely used  
ELECTRONIC SUPPLY GUIDE

Free!

ALLIED'S  
404-PAGE  
1958  
CATALOG



World's Largest Stocks of Electronic Supplies for Science & Industry

Order from the ALLIED Catalog for fast shipment from the world's largest stocks of electron tubes (all types), transistors, test and lab instruments, Hi-Fi audio equipment, electronic parts and specialized industrial electronic equipment. See our own exclusive KNIGHT-KITS, quality electronic equipment in money-saving kit form. Send today for your FREE 1958 ALLIED Electronic Supply Catalog.



our 37th year

ALLIED RADIO

ALLIED RADIO, Dept. 53-88  
100 N. Western Ave., Chicago 80, Ill.

Send FREE 1958 ALLIED Catalog

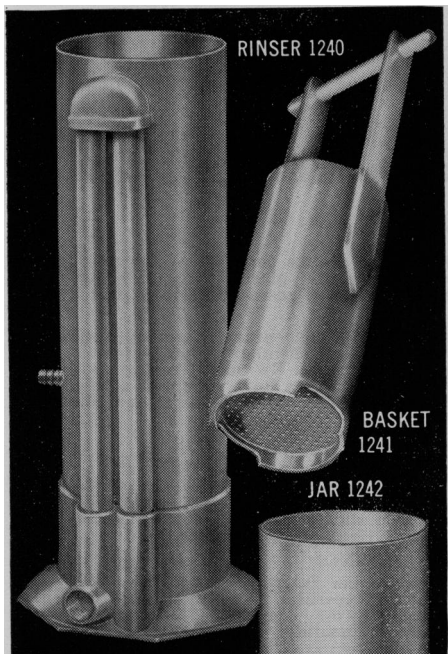
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



## NALGENE Automatic Pipet Washing



### New Model III NALGENE RINSER

does a  
faster,  
easier  
job!

New classic design lends greater stability and efficiency. Pipets are flushed clean thoroughly and rapidly. Complete syphon cycle of fresh water surges through pipets every minute, washing away all clinging particles.

#### Pipet Basket

A Nalgene screen recessed  $\frac{3}{4}$ " into the case allows complete drainage. Metal carrying handle is sealed in POLYETHYLENE. Four sizes available to fit corresponding jars.

#### Pipet Jars

Excellent for washing and soaking pipets and other glassware. Breakage is sharply reduced by resilience of NALGENE POLYETHYLENE.

RINSER 1240	for pipets up to 16" long	Size D	\$28.50
	for pipets up to 24" long	Size E	34.50
	for pipets up to 33" long	Size F	38.50
BASKET 1241	for pipets up to 16" long	Size D	16.50
	for pipets up to 24" long	Size E	22.50
	for pipets up to 33" long	Size F	26.50
JARS 1242	for pipets up to 16" long	Size D	13.50
	for pipets up to 24" long	Size E	17.50
	for pipets up to 33" long	Size F	20.50

Ask your dealer for catalog F-957

the **NALGE CO. Inc.**  
ROCHESTER 2, NEW YORK

World's largest producer of Plastic Laboratory Ware!

However, good friends of the section in the AAAS headquarters and in other sections lent support, and at the annual meeting Section L held two sessions on Sunday, cosponsored by Section Np (Pharmacy) and the Philosophy of Science Association, and one session on Monday, cosponsored by the Philosophy of Science Association.

The Sunday morning symposium, "Can Science Provide an Ethical Code?"; presided over by Hermann J. Muller, was exceptionally well attended. Because Henry Margenau was ill, his paper was read by Lewis K. Zerby. The answer to the symposium question is "yes," as was ably argued by the speakers, who included Chauncey D. Leake and Richard Rudner. The prepared papers were followed by general discussion.

Each of the three very different papers of Sunday afternoon—on Albertus Magnus' scientific method by Father William H. Kane, on pharmaceutical manufacturing by K. K. Chen, and on the thermometric scale by D. J. Lovell—was followed by questions which served to bring further elucidation from the speakers. Norwood Russell Hanson presided.

On Monday morning, a view of man-machine systems, presented by George O. Wright, was followed by a survey by Dorrit Hoffleit of astronomy's development in the 20th century and by a talk by Karel Hujer describing the emphasis on dialectical materialism in the treatment of the physical sciences behind the iron curtain. I. Bernard Cohen's vice-presidential address on "The history of science and the problems of understanding the science of today" concluded the series of papers. C. Doris Hellman presided.

At a business meeting immediately following the papers, regret at Jane Oppenheimer's illness was expressed, and the names of the new section chairman, Carl B. Boyer, and the new committee-member-at-large, Adolf Grünbaum, were announced. It was reported that a national committee for the history and philosophy of science was being formed under the auspices of the National Academy of Sciences-National Research Council and that this committee would become the adhering body for the International Union of History and Philosophy of Science.

C. DORIS HELLMAN, *Acting Secretary*

### General Systems Research (L2)

Two of the contributions to the symposium, "Organization for Humans, Cells, and Artifacts," were basically mathematical. A paper by C. Foster, A. Rapoport, and E. Trucco (presented by

A. Rapoport) was concerned with the conditions under which Prigogine's theorem of minimum entropy production could be applied to nonisolated systems of known internal structure. It was shown that, if a minimum exists, certain constraints upon the topological arrangement of the feedback loops are implied. M. Kochen presented a procedure for treating an organized system with discrete, synchronized information transfer between its parts, formalizing certain aspects of cooperative group behavior so that it is possible to describe how subunits can be selected and interconnected so as to produce a system with specified behavior.

K. E. Boulding took up the implications of such efforts in his presidential address. He suggested that four levels of systematic knowledge could already be discerned, including (i) purely empirical systems based upon constant interaction; (ii) maps, and blueprints, and plans; (iii) systems used for the design of artifacts; and (iv) theoretical models which explain and predict the "inner workings" of the other systems. General systems research aims at a fifth level—systems of theoretical systems. As these are found, it is expected that marked economies would result in work directed at the first four levels. This should have important consequences in the conduct of the affairs of national states.

As long as the possessors of scarce knowledge were restricted to physical and biological systems, the skills for operating the state could be purely empirical (for example, politics, business, and law) and scientists would perform as specialized experts. But with progress in operations research, administrative science, and other general systems approaches, a conflict may be foreseen between the "folk" culture and the scientific subculture embedded in it.

How do "the people" control the specialists? Democratic theory is based upon the assumption that the kind of knowledge required for government is not scarce or difficult. Are we doomed to another Middle Ages, with Science as the Church and the Military as the King? A growing self-consciousness of science itself as a social system may offer means for resolving such conflicts and preventing such eventualities.

RICHARD L. MEIER, *Secretary-Treasurer*

### Medical Sciences (Section N)

This program was the first symposium on the human integument that had been arranged before an AAAS meeting. The title was "The Human Integument—Normal and Abnormal." The program was organized as a symposium with four half-day sessions, jointly with the AMA

# Science

## History and Philosophy of Science (Section L)

C. DORIS HELLMAN

*Science* 127 (3295), 419-420.  
DOI: 10.1126/science.127.3295.419-a

**ARTICLE TOOLS** <http://science.sciencemag.org/content/127/3295/419.2.citation>

**PERMISSIONS** <http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

---

*Science* (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 1958 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.