

makes the book very impractical to use. For instance, it is nowhere stated where one can find the important Birkhoff theorem—the center piece of the whole book, in my opinion. For the interested reader, the reference is: *Proc. nat. Acad. Sci.*, Wash., 1931, 17, 656.

Dr. Gamow's own Russian background at times peeps around the corner, e.g., when the name Birkhoff is also transcribed (from the Russian transcription) as Virkoff on page 27. To call the ideal gas law Clapeyron's law (p. 121) should not have been permitted by Dr. Gamow, who must know that Clapeyron was only 3 years old when Gay-Lussac first announced his law in 1802.

Rushbrooke's book can be highly recommended as a textbook for intermediate courses in statistical mechanics. It is comparable to Mayer and Mayer's book, but is not as extensive as this widely used text. The mathematics is kept simple and a great number of exercises at the end of each chapter greatly increase its usefulness.

For the sake of simplicity, the author has given up rigor. Characteristic of the tenor of the book is the

author's statement in a footnote on p. 58: "... this naive statement is not seriously misleading, and conveys the correct idea."

It is a great pleasure to see a text on statistical mechanics which strongly advocates the use of Gibbs' grand ensembles. In this connection it is strange that on page 268 de Boer's work is not mentioned explicitly. The absence of Fowler's monograph in the list of standard treatises is rather surprising, since it is practically the only text referred to in British papers in the field. It is strange to me that the old quantum mechanical statistical mechanics is used, instead of the Fermi-Dirac and Bose-Einstein statistics, as the basis of this treatise and as a basis for the subsequent transition to classical statistics—but this is certainly a minor point, which does not affect the great value of Rushbrooke's text for those students who wish to get acquainted with the basic ideas of statistical mechanics.

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Association Affairs

The New York Meeting, December 26–31, 1949

The Science Theater

The AAAS Science Theater, now a permanent feature of the Association's annual meetings, will show recent scientific films almost continuously throughout the meeting period. Hours are: December 26, 2:00 p.m. to 6:00 p.m.; December 27, 9:00 a.m. to 1:00 p.m. and 2:00 p.m. to 10:00 p.m.; December 28, 29, and 30, 9:00 a.m. to 1:00 p.m. and 2:00 p.m. to 6:00 p.m.; December 31, 9:00 a.m. to 1:00 p.m. Seating is at any time. The schedule has been so arranged that programs given in the first half of the week are repeated in the second half, and shifted from morning to afternoon, to give registrants another chance to see films that interest them.

The Science Theater is on the 18th floor of the Hotel Statler, just back of the express elevators. The capacity of this room is limited, so that admission, although free, is restricted to registrants. Showing a registration receipt will do, but wearing a badge will save time.

The Association is greatly indebted to all those who made these pictures and lent them for showing. Special appreciation is due the First District Dental Society of New York for making available its lecture room and screen.

The schedule follows:

Program 1

Monday afternoon, December 26

2:00 p.m.–6:00 p.m.

1. *Nagana*—South African Scientific Liaison office. Sound, color, 25 minutes.

2. *Anterior Dislocations of the Shoulder*—Davis & Geck, Inc. Silent, color, 41 minutes.
3. *Meiosis*—Arthur T. Brice. Sound, black and white, 19 minutes.
4. *Safety in the Chemistry Laboratory*—Indiana University. Sound, black and white, 15 minutes.
5. *Solar Prominences*—University of Michigan. Sound, black and white, 11 minutes.
6. *Conquest of the Hudson*—Port of New York Authority. Sound, black and white, 20 minutes.
7. *Then It Happened*—U. S. Forest Service. Sound, color, 10 minutes.
8. *Avian Cecal Coccidiosis*—Ohio State University. Silent, color, 30 minutes.
9. *Bound for the Caribbean*—Royal Dutch Air Lines. Sound, color, 45 minutes.

Program 2

Tuesday morning, December 27

9:00 a.m.–1:00 p.m.

1. *Amputation Prostheses and Their Uses. I*—Medical Section Headquarters, 1st Army, Governor's Island, New York City. Sound, black and white, 34 minutes.
2. *Story of DDT*—British Information Services. Sound, black and white, 25 minutes.
3. *Radar Detection of Storms Occurring in the New England Area*—Massachusetts Institute of Technology. Silent, black and white, 20 minutes.
4. *Stepping Along with Television*—American Telephone and Telegraph Company. Sound, black and white, 11 minutes.

5. *Brownian Movement*—Army Chemical Center. Silent, black and white, 15 minutes.
6. *Story of Palomar*—California Institute of Technology. Sound, color, 40 minutes.
7. *Skin Antiseptics*—Chilean Iodine Educational Bureau. Sound, black and white, 30 minutes.
8. *Cell Division*—Arthur T. Brice. Sound, black and white, 16 minutes.
9. *Surgical Approach for Hypertension*—Garfield Memorial Hospital. Sound, color, 20 minutes.
10. *Colour*—British Information Services. Sound, color, 14 minutes.

Program 3

Tuesday afternoon, December 27

2:00 p.m.—5:00 p.m.

1. *Image Dissector Motion Pictures at Ten Million Frames per Second*—University of Rochester. Silent, black and white, 15 minutes.
2. *Amputation Prostheses and Their Uses. II*—Medical Section Headquarters, 1st Army, Governor's Island, New York City. Sound, black and white, 34 minutes.
3. *Story of Lubricating Oil*—U. S. Bureau of Mines. Sound, color, 21 minutes.
4. *Charting the Seas*—British Information Services. Sound, black and white, 24 minutes.
5. *Crystal Clear*—American Telephone and Telegraph Company. Sound, color, 20 minutes.
6. *Studies of Specificity of Nonhemolytic Streptococci in Relation to Idiopathic Epilepsy, Schizophrenia, Encephalitis and Poliomyelitis*—E. C. Rosenow. Silent, black and white, 20 minutes.
7. *Principles of Electricity*—General Electric Company. Sound, black and white, 40 minutes.
8. *On Time and Light*—Henry M. Lester. Silent, color, 20 minutes.
9. *The Hurricane Circuit*—U. S. Department of State.

Program 4

Tuesday evening, December 27

6:00 p.m.—10:00 p.m.

1. *Artificial Insemination of Rabbits and Transplantation of Rabbit Eggs*—Worcester Foundation. Silent, color, 20 minutes.
2. *Gift of Green*—Sugar Research Foundation. Sound, color, 20 minutes.
3. *Life History of the Rocky Mountain Wood Tick*—U. S. Public Health Service. Silent, color, 45 minutes.
4. *Jet Propulsion*—General Electric Company. Sound, color, 15 minutes.
5. *Wyoming and Its Resources*—U. S. Bureau of Mines. Sound, color, 30 minutes.
6. *Conquering the Jungle*—Goodyear Tire & Rubber Company. Sound, black and white, 10 minutes.
7. *Amputations for Occlusive Arterial Disease*—Davis & Geck, Inc. Silent, color, 30 minutes.

8. *Project 5-4040, High-speed Studies of Safety Glass*—Monsanto Chemical Company. Sound, color, 18 minutes.
9. *Exploring with X-Rays*—General Electric Company. Sound, black and white, 40 minutes.

Program 5

Wednesday morning, December 28

9:00 a.m.—1:00 p.m.

1. *Highway to Alaska*—Allis-Chalmers Manufacturing Company. Sound, color, 23 minutes.
2. *Millions for Safety*—Port of New York Authority. Sound, black and white, 10 minutes.
3. *This is Nylon*—E. I. du Pont de Nemours & Company. Sound, color, 29 minutes.
4. *Timber and Totem Poles*—U. S. Forest Service. Sound, color, 10 minutes.
5. *Voice Sentinel*—American Telephone and Telegraph Company. Sound, black and white, 16 minutes.
6. *Nevada and Its Resources*—U. S. Bureau of Mines. Sound, color, 31 minutes.
7. *The Story of Tin Plate*—U. S. Bureau of Mines. Sound, color, 21 minutes.
8. *They Also Serve*—American Medical Association. Sound, black and white, 15 minutes.
9. *Pacific Halibut Fishing*—U. S. Fish & Wildlife Service. Sound, color, 12 minutes.
10. *Application of Cinefluorography*—R. F. Rushmer. Silent, black and white, 10 minutes.
11. *One Second in the Life of a Hummingbird*—New York Zoological Society. Silent, color, 15 minutes.
12. *Baby from Borneo*—New York Zoological Society.
13. *This is Their Story*—Film Program Services (Unesco). Sound, black and white, 20 minutes.

Program 6

Wednesday afternoon, December 28

2:00 p.m.—6:00 p.m.

Same as Program 2.

Program 7

Thursday morning, December 29

9:00 a.m.—1:00 p.m.

Same as Program 1.

Program 8

Thursday afternoon, December 29

2:00 p.m.—6:00 p.m.

Same as Program 4.

Program 9

Friday morning, December 30

9:00 a.m.—1:00 p.m.

Same as Program 3.

Program 10

Friday afternoon, December 30

2:00 p.m.-6:00 p.m.

Same as Program 5.

Program 11

Saturday morning, December 31

9:00 a.m.-1:00 p.m.

Selections from Programs 1-5.

NEWS and Notes

Reports on Antiseptics Conference, New England Geologists' Meeting, and Optical Society Meeting

A Conference on Mechanism and Evaluation of Antiseptics was held October 28-29 under the sponsorship of the Section of Biology of The New York Academy of Sciences. A registered attendance of 518 was reported by Herbert L. Davis, of the Ethicon Suture Laboratories, conference chairman.

The purposes of the conference were: (a) to summarize and evaluate existing information on the mode and extent of antimicrobial agents *in vitro* and *in vivo*, and (b) to reveal those avenues of investigation likely to produce more active compounds and more effective application of them. Perhaps the most significant outcome of the conference was the general acceptance of the view that the action of antimicrobial agents is governed significantly, if not primarily, by the principles of colloid chemistry, whether these agents be rapidly lethal disinfectants, skin antiseptics, or chemotherapeutic drugs. Living organisms are colloid structures, and antimicrobial substances of both biological and synthetic origin must first be adsorbed on or in the organism. Although some of the mechanisms of antimicrobial action, such as protein coagulation and poisoning of essential enzyme systems, are well recognized, others are only suggested by present evidence. Of particular interest is the observation made in several separate studies that adsorbed substances alter the permeability of the cell wall, causing release of bacterial protein, other nitrogenous materials, and electrolytes. Thus, the cell is no longer in equilibrium with its environment. It became increasingly clear during the sessions that empirical testing of compounds should yield to a systemic and rational study of the mechanisms by which existing antimicrobial substances act.

The 25 papers presented at the conference dealt with a wide variety of compounds, including antibiotics, cationic, anionic, and nonionic agents of high surface activity, halogens, heavy metals, and ethyl alcohol. Several authors emphasized the frequent lack of correlation between results with antiseptics *in vitro* and *in vivo*. Because results *in*

vitro are frequently false due to inadequate test conditions, considerable discussion concerned the need and continued search for better antiseptic neutralizers with which to distinguish between bacteriostatic and bactericidal effects. It was generally agreed that once activity *in vitro* is established the crucial tests are those which simulate actual clinical use. Here toxicity to tissue is of primary importance, but there is still disagreement as to the proper type of tissue to use. One new procedure which directly measures the prevention of sepsis *in vivo* was presented at the conference and well received.

Microbial populations are heterogeneous in that the constituent cells possess varying degrees of resistance. This is not a new concept, but one too frequently ignored in the field of disinfection. One paper at the conference explored the nature of this variation and the factors influencing it; another proposed that the commonly applied all-or-none end point be replaced by a less severe criterion of antiseptic usability, the count of surviving organisms.

This report would be incomplete without mention of the fact that the value of ethyl alcohol as an antiseptic and disinfectant was reaffirmed and that the addition of antiseptics to 70 percent ethanol failed in some instances to increase activity. Another point of interest was the reported antiviral activity of several types of antiseptics.

There emerged from the conference a clear recognition that a whole panel of tests are necessary to establish the value of an antiseptic, and that the greatest emphasis should be placed upon those procedures *in vivo* which measure prevention of sepsis. It was equally apparent, however, that many fundamental problems remain almost untouched. It is not known, for example, whether the same or different mechanisms are involved when bacteria are rapidly killed by a strong concentration but merely inhibited by a weaker one. Nor was any new information presented as to how bacterial spores are destroyed.

EARLE H. SPAULDING