

Machines will be applied to the retrieval of information without the need of elaborate, time-taking classification procedures, and one of the first applications which may begin in 1956 will be to the Patent Office files and to scientific literature.

Expect a concentrated attack on hurricane and tornado forecasting problems by the U. S. Weather Bureau in the coming year. There will also be an expansion of both surface and upper air observations over the seas on merchant ships, ocean buoys, civil aircraft, and offshore commercial and military installations. Techniques will be improved for the reporting and forecasting of flash floods.

The man-made satellite that is due to be launched by rocket in 1957 will undergo promising development and there may even be some preliminary trials of early versions.

To the continuing problems of the mechanism of photosynthesis, the nature of life, and structure of amino acids important to living things, there probably will be no definite conclusions, but research will continue.

As in the case of the nature and treatment of cancer, heart disease, and other great, unconquered diseases, there may be "break-through" but this may be too much to expect. There is hope that there will be further steps toward the early detection and diagnosis of cancer.

With the mass use of the Salk vaccine for polio, the coming year will bring continued and more extensive use of this measure with further evidence of its safety and effectiveness. There should also be progress toward the use of similar vaccines in other virus diseases.

Tuberculosis is being fought chemically through the use of isoniazid and such progress will continue in the coming months.

The spread of the disease, infectious hepatitis, through the serum plasma of blood transfusions, will be prevented by methods of processing pooled bloods to be developed in the coming year.

The immense drain of mental illness upon our civilization will be lessened through the continued application of tranquilizing drugs to mental patients. You can expect the promising developments of the past few years to continue. The most promising of

these drugs are chlorpromazine and reserpine, but it may well be that we shall see further drugs developed in the coming year which will be useful in treatment, not as panaceas, but in making the patient more comfortable and accessible to psychotherapy.

Personality development research will be undertaken with greater intensity because of the prospect that it will give aid in handling the troublesome problems of juvenile delinquency.

The exploration of the past, particularly the early history of the human race, holds fascination for scientists and laymen alike. The bones of the earliest Americans, whose ancestors are believed to have come over from Asia, may in the near future be unearthed in Arctic America. In Africa the focus is upon the remains of early man and his ape-man ancestors, and there is hope that in the not too distant future they can be dated.

Impressive progress will be made toward the supplying of scientists, engineers and technologists for the future through about a hundred science fairs throughout the country in which some 70,000 high school youth will participate, with the National Science Fair as a culmination.

## Postmortem on 1955 Forecast

The science forecast for 1955 issued a year ago shows a good degree of fulfillment.

There were more atomic test explosions by both the United States and Soviet Russia and there was rising fear of the consequences of the increasing numbers of tests, as predicted.

There was an atoms-for-peace meeting, held outside the United States, and it was chiefly important because atomic rivals talked to each other for the first time.

America's first atomic submarine did make a record sea voyage.

There was progress in understanding the evolution of the stars and the structure of the universe. The expanding universe did take on new dimensions due to a revision of astronomical constants.

A giant electronic computer did go to work making numerical forecasts of the weather.

A vaccine for measles, made by the same methods as the polio vaccine, did not come to the testing stage as was expected.

While research continued on photosynthesis, as was expected, discovery of the mechanism of capturing sun's energy was not achieved.

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# Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

THE BIOCHEMISTRY OF VITAMIN B<sub>12</sub>: A Symposium Held at the London School of Hygiene and Tropical Medicine on 19 February 1955—R. T. Williams, Ed.—*Cambridge University Press*, Biochemical Society Symposia No. 13, 123 p., \$3.75.

CAT GENETICS—A. C. Jude—*All-Pets*, 126 p., illus., \$4.50. A non-technical discussion for the cat owner.

A CENTURY OF PROGRESS IN THE NATURAL SCIENCES 1853-1953—Edward L. Kessel, Ed.—*California Academy of Sciences*, 807 p., illus., paper, \$10.00. A collection of essays reviewing the accomplishments of the past hundred years.

INDUSTRIAL SOCIETY: The Emergence of the Human Problems of Automation—Georges Friedmann, introduction by Harold L. Shepard, Ed.—*Free Press*, 436 p., \$6.00. To help scientists to climb out of the grooves of their particular specialties.

MASS TRANSFER OPERATIONS—Robert E. Treybal—*McGraw-Hill*, 666 p., illus., \$9.50. The physical operations described here have come to be the responsibility solely of the chemical engineer. For graduate students.

MINERAL RESOURCES NAVAJO-HOPI RESERVATIONS, ARIZONA-UTAH: Volume III, Construction Materials—Geology, Evaluation, and Uses—George A. Kiersch and others—*University of Arizona Press*, 81 p., illus., paper, free upon request to U. S. Bureau of Indian Affairs, Window Rock, Ariz. The Navajo country is the site of many natural construction materials.

PINYON RESOURCES: Distribution of Pinon (*pinus edulis*) Yield and Resin Potentialities, Navajo-Hopi Reservations, Arizona-Utah—Chester R. Deaver and Horace S. Haskell—*University of Arizona Press*, 37 p., illus., paper, free upon request direct to U. S. Bureau of In-

dian Affairs, Window Rock, Ariz. Report of a study made under contract with the Bureau of Indian Affairs.

USE AND CONSERVATION OF WATER RESOURCES IN EASTERN STATES—Richard D. Hoak—*Mellon Institute*, 8 p., paper, free upon request direct to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. The humid eastern states which have long enjoyed an abundant water supply are now beginning to feel the pinch of water shortage.

WHAT I HAVE LEARNED BY LIVING—Henry J. Burt—*Bruce Humphries*, 147 p., \$3.00. Results of fifty years, not only of a scientist's living, but of his pondering and teaching.

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## PLANT PATHOLOGY

### New Plant Disease Discovered in U. S.

➤ A NEW agricultural fungus disease, previously unknown in the United States, has been discovered in Mississippi, scientists with the U. S. Department of Agriculture and Mississippi Agricultural Experiment Station report.

The disease, a downy-mildew of crimson clover, is caused by a fungus, *Peronospora viciae*, which does considerable damage to crimson clover in sections of Europe. The disease has not yet become damaging in the United States.

Leaves of infected crimson clover appear yellowish gray to purple from above and are often curled.

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## The Right Way to Play CHESS

A Chess Manual for All, from Beginner to Club Player, by Chess Pundit D. BRINE PRITCHARD, with Introduction and Annotations by International Chess Master IMRE KONIG.

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