

ASTRONOMY

Up Distance to Nebula

➤ A NEW distance—14 billion billion miles—to the Andromeda nebula, the nearest pinwheel-like galactic neighbor of the Milky Way, was reported to the American Astronomical Society meeting in Princeton, N. J., by two astronomers from Mt. Wilson and Palomar Observatories, California.

Miss Henrietta H. Swope and Dr. W. Baade made careful counts of the different kinds of variable stars in three regions of this galaxy, using photographs taken with the 200-inch telescope at Mt. Palomar. Based on these counts, they concluded that Andromeda is 2,300,000 light years away.

The new distance is one-half again as much as was recently thought. In 1952, astronomers revised the distance scale for the observable universe (see SNL, Jan. 10, 1953, p. 19), concluding that Andromeda was 1,500,000 light years away, double what had previously been thought.

The 1952 revision was based on a change in the brightness scale of the variable stars known as Cepheids. The new distance is based on improvements in measuring brightness of all types of variable stars, particularly the Cepheids, in Andromeda nebula itself, and affects only that galaxy. (See SNL, Jan. 1, p. 3.)

Dr. Baade also reported the discovery of planetary nebulae in Andromeda, the first such objects found outside the Milky Way galaxy. Planetary nebulae are so named because they look disc-like through a telescope, as solar system planets do.

The Palomar astronomer spotted them in Andromeda by comparing photographs using two filters, one that cuts down the green lines emitted by planetary nebulae, and another that emphasizes these lines in the spectrum.

Science News Letter, April 23, 1955

MEDICINE

Vaccine for Cold?

➤ THE TRIUMPH of the Salk vaccine over poliomyelitis leaves still a number of diseases to be conquered.

They range from cancer to the common cold. They include heart and artery and kidney ailments, mental diseases and a host of diseases of nerves and muscles that cripple. Muscular dystrophy, multiple sclerosis, Parkinson's disease better known as shaking palsy, and the hereditary bleeding disease, hemophilia, are on the list of those we have still to beat.

The success of the polio vaccine encourages hope that a vaccine or vaccines to stop the common cold might not be too far off. Colds, like polio, are caused by viruses. The tissue culture technique for growing viruses outside the body which did much to make the polio vaccine possible is being applied to study of the viruses that cause the coughs, running noses and eyes that most of us call a cold. So success in the fight against colds and other unconquered virus diseases seems a reasonable expectation.

The great killers, heart disease, cancer and leukemia, may take longer to stop. For conquest of at least one kind of heart disease, however, scientists are now fairly confident of success. This is rheumatic heart disease which in the past has been a far greater scourge of children and young adults than even polio. With sulfa drugs, penicillin and other antibiotics to halt the streptococci that seem to start rheumatic heart damage, this killer andcripler may be stopped as polio now will be.

Arthritis, the greatest crippler of all, has yet to be really conquered, although cortisone and all the newer drugs give relief to many and hope of more to come. For this disease and for the dystrophies and multiple

sclerosis and other nerve and muscle disorders, more searching is needed to learn causes and then, perhaps, cures or preventives.

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MEDICINE

Japanese Abortions and Fare Cheaper Than U. S.

➤ AT THE advertised \$966 round trip fare, an American woman could fly to Japan, "have an abortion job done, and then return home, happy, all at a cost below that often charged for the abortion operation alone in such cities as New York and Chicago."

So declares Dr. W. T. Pommerenke of the University of Rochester School of Medicine and Dentistry on the basis of observations on a mission to Japan sponsored by the Unitarian Service Committee.

The Japanese woman who has an abortion, often at less than the New York City taxi fare to a hospital, "pays with her body," however. The costs are to be reckoned, Dr. Pommerenke says, in hemorrhage, leucorrhea, pain, fever, anemia, ill-defined general impairment of health, sterility and death.

As many as a million abortions are performed annually in Japan, with one unborn baby being sacrificed for every one born alive. Under most conditions, abortions are legal in Japan and a licensing system permits physicians to engage exclusively in the practice of abortions. In addition there are numerous clandestine institutions and practitioners.

In test areas the idea of birth control, instead of abortion, to hold down the popula-

tion and to save families from more children than they can afford, has been accepted, Dr. Pommerenke reports. He urges that the Japanese government make further efforts along this line.

His report appears in the *Obstetrical and Gynecological Survey* (April).

Science News Letter, April 23, 1955

GENERAL SCIENCE

Physicists Prefer Non-Secret Research

➤ YOUNG PHYSICISTS prefer to do research not requiring governmental security clearance, Dr. M. Stanley Livingston, physics professor of Massachusetts Institute of Technology, revealed.

Security system abuses have "alienated" recent Ph.D.'s significantly, he found in a survey. Nearly half of those answering the questionnaire indicated "a distrust of security procedures and an urge to avoid" becoming involved in them.

Their answers do not mean a concern over their own clearability nor that they will not do defense work, Dr. Livingston pointed out. Results of the survey, made from May to September, 1954, are reported in *Physics Today* (April).

During this period the security clearance case of Dr. J. Robert Oppenheimer was prominent in the news, which probably affected some answers, Dr. Livingston said. He believes the results are, nevertheless, "significant," since they reveal this situation statistically for the first time.

The 61 young physicists answering the questionnaire make up about 15% of the annual crop of Ph.D.'s. They came from large academic research institutions.

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PSYCHOLOGY

Dreams, Deep Sleep Come Early in Night

➤ SHORT DREAMS and deep sleep come early in the night. The usual pattern of a night's sleep consists of periods of heavy sleeping of 60 to 80 minutes length, with deepest sleep in the first of the periods.

Brain wave and eye movement recordings showing depth of sleep and length of dreams were reported to the Federation of American Societies for Experimental Biology meeting in San Francisco by Prof. Nathaniel Kleitman, University of Chicago physiologist, and William Dement, medical student.

Eye movements, associated with dreaming as previous experiments had shown, increased as the night wore on in tests on 16 males over a period of 43 nights.

Early in the night the dream periods were eight minutes long. They progressively increased to 16, then 22 and finally 24 minute periods.

In between the deep sleep periods, the brain wave patterns tend to resemble those found during waking moments.

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