

Physical Sciences Notes

ATOMIC WEAPONS

Congress Eyes Red China's Bombs

The Joint Atomic Energy Committee of the Senate and House, concerned with Communist China's obvious possession of nuclear weapons and possible possession of thermonuclear weapons (see SN Jan. 14), will conduct an exhaustive study of the world's current balance of power this session.

ASTRONOMY

More Matter in Space

Interstellar space may actually contain seven times as much matter as astronomers have previously thought, according to a theory presented to the Texas Symposium on Relativistic Astrophysics (held in New York) last week.

Purely theoretical research on the composition of the Milky Way has produced strong evidence that space within the galaxy contains from three to seven atoms per cubic centimeter. The best figure up to now has been a density of only one atom per cc.

Dr. Eugene N. Parker, the University of Chicago physicist who presented the study to the symposium, said he based his calculations on the known structure of the Milky Way—the fact that it is a spiral, disc-shaped galaxy with a magnetic field and containing cosmic rays.

Using magnetohydrodynamic equations, he concluded that space in the galaxy must contain a minimum of three atoms per cc. But the theoretical situation would be much cleaner, he observed, if there were seven.

METEOROLOGY

Reactor Could End Smog

Heat from a 60 megawatt nuclear reactor would be sufficient to raise the inversion layer over Los Angeles and eliminate smog there, a General Electric Company executive pointed out at a recent symposium in San Diego.

Hilliard W. Paige, vice president and general manager of GE's Missile and Space Division, noted that the power reactor's waste heat would be enough to raise the inversion layer to 19,000 feet.

He was participating in a program on man's future at the Scripps Institution of Oceanography.

SPECTROMETRY

Air Pollution Detector

An infrared interference spectrometer, a telescope and a computer have added up to a uniquely versatile method of remote identification and analysis of sources of air pollution.

Qualitative analysis of gases in smoke plumes can easily be made with the spectrometer, according to Dr. M. J. D. Low of Rutgers University and F. K. Clancy of Block Engineering, Incorporated, Cambridge, Mass.

They describe the method in the January 24 issue of Environmental Science and Technology magazine, a new publication of the American Chemical Society.

ASTRONOMY

Chlorophyll in Space

Spectroscopic examination of dust in interstellar space indicates that it may be chlorophyll and not ice or graphite as commonly thought.

Dr. Fred M. Johnson, of Electro-Optical Systems, Incorporated, Pasadena, Calif., announced the discovery at a symposium at the University of California, Berkeley.

He said the dust's absorption patterns are those of chlorophyll—the basis of photosynthesis on earth.

If verified, his discovery would indicate there is a good possibility that some form of earth-style life exists elsewhere in the universe.

SELENOLOGY

Lunar Volcanism

Scientific speculation that the occasional glowing spots observed on the moon may be the remnants of volcanoes has been strengthened by a report of a survey of 400 observations in the January 27 Science magazine.

Analysis of the reports, which go back more than 400 years, yielded 90 separate sites at which the "lunar transient phenomena" were reliably observed.

Authors Barbara M. Middlehurst of the University of Arizona and Patrick A. Moore of the Armagh Planetarium in Northern Ireland found that, when plotted on a lunar map, the sites concentrated on the borders of maria Imbrium, Serenitatis, Crisium and Humorum.

This, they reported, "supports the conclusion that most lunar transient events result from internal phenomena—possibly of volcanic nature."

METEOROLOGY

GHOSTs Aid Forecasters

GHOST—Global Horizontal Sounding Techniques—balloons, flying at constant pressure altitudes, could provide an operational weather data collecting system in the Southern Hemisphere within a year.

A greatly expanded system involving thousands of the long-lived balloons could make reliable two-week weather forecasts possible, Vincent E. Lally of the National Center for Atmospheric Research reports in the Jan. 27 Science.

In tests, three of the superpressure balloons have flown for more than six months at the 200 millibar level (roughly 39,670 feet).

METEOROLOGY

Weather Satellite Data Analysis

A numerical model that can be used to deduce lower atmospheric conditions from weather satellite radiation data has been developed at the National Environmental Satellite Center, Suitland, Md.

Dr. William L. Smith told the American Meteorological Society meeting in New York City last week that he was able to devise a model that would permit deduction of surface temperature and moisture with reasonable accuracy from the satellite data.