

METEOROLOGY

Seeding Arizona Clouds Failed to Increase Rain

➤ SEEDING CLOUDS over Arizona to increase rainfall showed no effect, the American Meteorological Society was told in New York.

Four years of cloud seeding experiments with airborne silver iodide resulted in the same amount of rainfall on both seeded and not-seeded days, statistically.

Radar observations showed that the frequency of occurrence of large thunderstorms was also statistically the same on seeded and not-seeded days, Drs. Louis J. Battan and A. Richard Kassander Jr. of the University of Arizona's Institute of Atmospheric Physics reported.

The experiments were designed using an objective method for predicting days with clouds suitable for seeding. One of a pair of adjacent days was seeded on a random basis. Measurements on all days were made with rain gauges, radar and a pair of ground-located aerial cameras. Results were evaluated statistically.

Dr. Battan said the observations are best explained by assuming that the amount of rainfall is governed by the medium- and large-scale features of the atmosphere. Processes on a smaller scale do not appear, he said, to be as important as was once suspected.

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GEOPHYSICS

Fallout to Increase With Air Current Breakdown

➤ RADIOACTIVE FALLOUT from Russian atmospheric tests of hydrogen bombs during 1961 will be brought down to the lower part of earth's atmosphere following the breakdown of a very high-level, intense current of air.

The intense current reaches speeds of 18 miles an hour about 40 miles above the northern part of Canada during late winter, Dr. Jule G. Charney of Massachusetts Institute of Technology, Cambridge, Mass., reported. The build-up to such a high average speed starts in the fall, increasing gradually.

The breakdown of the stream, however, occurs very rapidly. Strong vertical motions, associated with the breakdown, are related to the increased radioactive fallout recorded in the spring. Because of the large number and high yield of the Russian bomb tests during 1961, radioactive fallout from the very high atmosphere, called the mesosphere, is expected to be very high this spring.

Dr. Charney said the high-speed, upper-level wind current was discovered from soundings of the earth's far atmosphere by rockets and satellites. The mesosphere is found from 30 to 50 miles above the earth's surface. That part of the atmosphere between 10 and 30 miles is called the stratosphere.

Dr. Charney discovered the vertical motions associated with the high-speed stream

while studying mathematically the large-scale motions of the earth's atmosphere.

Also by using mathematical methods, Dr. G. F. Carrier of Harvard University has found, for the first time, why the Gulf Stream meanders. By studying the net flow of water across different latitudes from the equator to the North Pole, he showed that the Gulf Stream has to branch off at certain places, one being a strong current that cuts across the middle of the Atlantic Ocean.

Dr. G. Benton of Johns Hopkins University, Baltimore, reported that he had found a solution for the structure of the vertical circulations that can occur because of frictional effects in the bottom layer of fluids.

These studies were reported at a meeting of the American Physical Society and the American Meteorological Society in New York.

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EDUCATION

Labor to Retrain To Adjust to Automation

➤ A PROPOSAL for a shortened work week to release time for educating employees unable to adjust to the impact of automation has been made at a symposium of educators in Washington, D. C.

The Educational Implications of Automation (EIA) Project of the National Education Association (NEA), under the direction of Dr. Luther H. Evans, has made a study of educational problems directly related to automation and the workers and future generations of workers who are being and will be displaced by it.

The study group recommended that the work week be reduced by 10% so that the extra time may be used for education or retraining. The problem in the past, according to some participants, is that released time meant leisure time, more time for television and recreation, instead of channeled education.

The recommendation was examined by outstanding men in several areas dealing with automation, education or their effects on mankind. A trade union official, the first to comment, said both education and a shorter work week are important goals. But to tie these together, to "capture" the released time, is nearly impossible.

A business executive approached the matter from the positive view, indicating that the idea is well founded and badly needed.

Most of the participants agreed that automation is as irreversible as it is good. The cultural storehouse from which automation was drawn is replenished many times over by its results, as one man pointed out.

But the effects of automation on the worker remain a problem that is not easily solved. Education has its role. Along with the increasing responsibilities of educating larger populations, educators must retrain workers who have been displaced due to ever-increasing automation.

The wasted man hours because of lack of education are mounting, and the burden of unemployed workers on society could be reduced through retraining.

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IN SCIEN

ASTRONOMY

Method for Detecting Hydrogen in Planets

➤ A NEW METHOD for detecting any hydrogen that may exist in the atmospheres of other planets was reported to the American Physical Society meeting in New York.

The discovery is based on the first observation of the basic band of a certain part of the spectrum of molecular hydrogen. It increases the chances of finding hydrogen in the atmospheres of the giant planets 100 times.

Dr. David H. Rank, Pennsylvania State University professor of physics, said the method might also be used to obtain a quantitative estimate of the amounts of molecular hydrogen present. The earth's atmosphere does not interfere with observations of the quadrupole spectrum of molecular hydrogen, Dr. Rank and his co-workers have found.

Molecular hydrogen is sometimes used to fill balloons. It exists in the earth's atmosphere and the atmospheres of other planets.

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MEDICINE

Smallpox Vaccination Causes Rare Reaction

➤ RARE BUT SEVERE reactions to smallpox vaccination have contributed to halting temporarily compulsory vaccination in some European countries.

Two physicians in The Netherlands report two cases in the British Medical Journal, Jan. 27, 1962, in which a type of purpura, or bleeding, followed smallpox vaccination.

The name of the disease is thrombocytopenic purpura, a condition in which the platelets (important in blood clotting) are reduced below normal.

Surgical removal of one patient's spleen cured him. In the other case, 20-milligram doses of prednisone brought about a rise in the number of platelets, and the patient was discharged in excellent condition.

An allergic phenomenon may explain the vaccination hazard, the investigators said.

Drs. T. E. Meindersma of the Central Military Hospital, Utrecht, and S. I. De Vries, Amsterdam, report the findings.

Another rare complication sometimes arising from smallpox vaccination results in serious eye infection that can be offset by injections of vaccinia immune globulin (VIG). In May, 1960, the American National Red Cross began distributing this scarce blood fraction free to doctors.

The complication usually occurs when children with eczema are vaccinated or when eye infection happens accidentally.

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CE FIELDS

METEOROLOGY

Hurricane Position Forecast Accurately

► HURRICANE POSITIONS can now be predicted within 100 miles when the tropical storm is approaching the United States mainland south of North Carolina, the weatherman who makes such forecasts during hurricane season reported at the American Meteorological Society meeting in New York.

Dr. Gordon E. Dunn, U.S. Weather Bureau, Miami, Fla., said average error in hurricane position forecasts was less than 100 miles if the storm was near the coast and south of latitude 35 degrees north. The largest errors in predicting positions of tropical storms occur on the day of detection, when the hurricane is located in the eastern or middle Atlantic Ocean, and when it is undergoing a reversal in motion and rapid acceleration.

The average error for all methods used, Dr. Dunn reported, is more than 100 miles when forecasts are for 24 to 36 hours in the future.

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NUTRITION

Teen-Agers Are Advised To Eat Starches, Not Sugar

► TO MEET the high food-energy requirements of teen-agers, starch rather than sugar was recommended at the Nutrition Education Conference in Washington, D. C.

Whole wheat and enriched breads and cereals, along with vegetables such as potatoes, should be eaten as sources of additional calories rather than sugar and fat-rich desserts.

Several research studies have indicated a probable relationship between the kind of carbohydrate in the diet and normal fat metabolism, Dr. Ruth M. Leverton of the Agricultural Research Service, U. S. Department of Agriculture, said.

"The more complex molecules of starch require more time for digestion than the simpler molecules of sugar," Dr. Leverton said, explaining that slower digestion means slower absorption, which prevents overloading the liver.

Also stressed in her evaluation of children's diets was the need for increased consumption of milk, cheese, fruits and vegetables as sources of calcium, vitamin C and vitamin A.

If children eat properly before they reach the teens, they will not suffer from inadequate nutrition when they begin changing their food selections during this adolescent period, Dr. Leverton said.

Boys of all ages tend to eat better than girls, she pointed out, warning that teen-age

girls often stop eating essential foods at a time when their growth rates demand an increase in nutritional requirements.

Dr. Leverton advised using corn, cottonseed and soybean oil in salad dressings and cooking, but said it was not common sense to apply the same diet practices to active, growing school children and mature, aging and comparatively inactive persons.

Only 10% to 30% of children in some schools are availing themselves of the School Lunch and Special Milk Program, she said, calling on the milk industry along with others to increase the use of the service.

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TECHNOLOGY

Vacation Trips in Subs Predicted for Future

► THE TIME when submarines will be used for vacationing ocean travelers is not far off.

In fact, such commercial-type submarines "are technically quite feasible today," H. E. Sheets, engineer at General Dynamics Corporation's Electric Boat Division, Groton, Conn., said in *Mechanical Engineering* magazine, Jan., 1962.

The advantage of travel beneath the sea is that it is the most vibrationless, calm and stable means of transportation. It also would open to the adventure-seeking voyager a view of "inner space," the vast and picturesque world covered by the 300,000,000 cubic miles of ocean. However, at this time the greatest commercial incentive for submarines probably would be for use on special routes where surface ships cannot go, such as under the arctic ice, according to Mr. Sheets.

Submarines also can be used commercially as tankers and may even be adapted for deep sea mining. Areas of the ocean floor are covered with millions of dollars worth of copper and manganese.

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PHARMACOLOGY

New Hormone Drug Helps Undernourished

► DRAMATIC RESULTS are claimed for a new kind of hormone drug in building up undernourished persons of all ages. Winstrol is the name of the drug, intended as part of a general program of treatment, with nutrition a major element.

Six years have gone into its development by scientists at the Sterling-Winthrop Research Institute, Rensselaer, N. Y., who say the drug is unique in the field of steroid chemistry.

The majority of 600 patients treated from several months to almost two years showed improvement, although all did not respond equally well. Most of them not only gained weight but showed increased alertness, mobility and tolerance to pain, the scientists said.

Winstrol was discovered and developed by Drs. Raymond O. Clinton, Arthur Beyler and Gordon Potts and their co-workers.

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GENERAL SCIENCE

Danger to Science in Diversion of Best Minds

► HIGHLY VALUABLE scientific minds are in constant danger of being drawn into activities that yield little contribution to our scientific and technical advance, *Chemical and Engineering News*, 40:7, 1962, warns in an editorial.

Because of a great flood of effort to solve a frightening multitude of problems in a hurry, it is argued that there is a clear danger of overtaxing and overstraining the most valuable resource which is top scientific ability.

"The possessors of these highly valuable scientific minds are in constant danger of being drawn, through either dedication or constructive ambition, into an exhaustive excess of commitment," Dr. Richard L. Kenyon, editor, writes. "There may be a natural tendency for those who call upon exhausting the intellectual resource in efforts these leaders to use them for the prestige value of their names, with the danger of that yield little."

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DERMATOLOGY

Treatment for Removing Facial Wrinkles Hit

► THE USE of strong chemicals by non-medical personnel to burn off facial wrinkles was condemned by the committee on cosmetics of the American Medical Association in Chicago.

Nevada, Connecticut and Florida operators have been arrested or fined recently for practicing the delicate technique called facial chemosurgery.

Even in the hands of competent dermatologists, the committee said, the procedure must still be regarded as experimental. Severe burns and scars have been reported among patients treated by nonmedical persons.

The committee, headed by Dr. Stephen Rothman of Chicago, also disapproved the use of phenol in chemosurgery of large areas of skin because of the risk of systemic poisoning.

Chemosurgery has been used for more than 100 years to destroy diseased tissue such as small benign tumors and chronic inflammatory patches. Other treatments are preferred by many dermatologists, however.

Only recently has the cosmetic use of chemosurgery been attempted for aged and wrinkled skin. The procedure destroys the upper-most layers of skin, which is replaced by new epidermis and superficial connective tissue.

Temporarily improved elasticity of the skin with a decrease in fine and moderate wrinkles and freckles may occur through treatment, but even the most qualified dermatologist cannot prevent reappearance of the wrinkles in the course of time, the committee warned.

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