

BOTANY

Desert's Pioneer Shrubs Flourish in Ghost Town

► A STUDY of plant life on the streets of a Nevada ghost town has shown that the same "pioneer plants" common to naturally disturbed desert sites, such as dry washes, will also appear and thrive on sites disturbed by man.

This finding by Dr. Philip V. Wells of the biology department at New Mexico Highlands University, Las Vegas, N. M., differs from previous theories that there is no definite order of succession in desert vegetation, and that the first plants to reappear when such vegetation is destroyed will be the same plants that were formerly dominant.

Dr. Wells studied vegetation on 13 streets in Wahmonie, Nev., a townsite on a long outwash slope at the base of a mountain range. Wahmonie was completely deserted after a short-lived silver boom spawned it in 1928.

The plants in the denuded streets, he states, showed "pronounced changes" in comparison to vegetation on a less disturbed area adjoining the town. Desert shrubs were partially replaced by an open stand of bunch-grass, Dr. Wells reports in *Science*, 134:670, 1961.

His conclusion is that plants found in dry washes have a "pioneer or weedy character," marked by efficient seed dispersal, rapid growth and early maturity, that helps them become established in arid upland desert regions when the competition of the usually dominant upland shrubs is removed.

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CHEMISTRY

Bombs Test Radioactivity Useful for Dating Wood

► THE INCREASED amount of radioactivity thrown into the atmosphere by atomic bombs since 1945 has been found useful in providing a short-term dating method.

Prof. A. T. Wilson of the chemistry department of Victoria University of Wellington, New Zealand, has been using the increased amount of atmospheric radioactive carbon isotope 14 to determine the mechanism of heartwood formation in pine trees. He found that most of the heartwood is converted from sapwood, formed before the year of formation of the heartwood, since the increased radioactive carbon content was not present.

Prof. Wilson suggested the possibility of artificially inducing the formation of heartwood, which is economically more valuable than sapwood.

He urges biologists to take advantage of the increased carbon-14 in the atmosphere to determine other information that is time-linked, since this unique situation will not last more than a few years. The renewed atmospheric testing by the Russians will not greatly disturb this possibility if it is not long continued.

The carbon-14 in the air from nuclear tests is additional to that formed in the

upper atmosphere continuously by the bombardment of nitrogen by cosmic rays from outer space and conversion of nitrogen into the carbon isotope that decays at a known rate and therefore can be used to date once-living matter into which the carbon-14 finds its way through being swept to earth by rains. The research report appears in *Nature*, 191:714, 1961.

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MEDICINE

Can Overcome Baldness By Surgical Transplant

► BALD MEN with hairy chests can get a new hair covering grafted onto their heads.

Dr. Albert M. Kligman of the University of Pennsylvania Hospital, Philadelphia, says surgical treatment of baldness by replacement with chest hair is hardly warranted but that it will result in a permanent graft. The surrounding baldness will have no effect on the graft from the chest, and new hair will continue to grow from the transplanted area.

The scars, pain and expense of the transplant will probably keep most bald men from availing themselves of the operation.

Dr. Kligman, a Philadelphia dermatologist and syphilologist, was called upon to answer the question in the *Journal of the American Medical Association*, 177:737, 1961, about a bald patient.

Another question puzzling physicians is whether a railroad gang laborer, recovered from a heart attack, should return to a job that involves lifting 100 pounds or more. Although many patients "can get away with" such heavy work, the questioner is told to discourage it, by Dr. Arthur M. Master, associate editor of the *New York State Journal of Medicine and Diseases of the Chest* (p. 736).

• *Science News Letter*, 80:208 September 23, 1961

MEDICINE

First Photographs Of Hepatitis Virus**See Front Cover**

► A LENGTHY REPORT with the first photograph of hepatitis viruses and an accompanying editorial appear in the *Journal of the American Medical Association*, 177:671, 1961. The report is from the research laboratories of Parke, Davis and Company of Detroit and from Drs. Joseph D. Boggs of the Northwestern University Medical School, Richard B. Capps, University of Illinois Medical School, Chicago, and Charles F. Weiss, Ann Arbor, Mich. The viruses, photographed with an electron microscope, are 12 to 18 millimicrons in diameter (a millimicron is equal to one 25-millionth of an inch) and are shown on the cover of this week's *SCIENCE NEWS LETTER*.

Much remains to be done before a vaccine can be perfected for hepatitis, but the *AMA* says editorially that the report "represents the first substantial evidence that the hepatitis virus has been successfully cultivated."

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IN SCIENCE

PSYCHOLOGY

Four Percent Alcohol Preferred by Rats

► IN STUDYING the reactions of laboratory animals to alcohol the commonly used alcoholic concentration of ten percent is unreliable, two New York State psychologists report in *Science*, 134:470, 1961.

In self-selection experimental procedures, normal rats showed no clear-cut preference for alcohol until the concentration dropped to four percent.

Factors to be considered, Drs. Robert D. Myers of Colgate University, Hamilton, N. Y., and Robert Carey of Syracuse University, Syracuse, N. Y., said, include prior exposure of animals to the liquids, the specific genetic strain, the nutritional and metabolic states of the animal organisms, cage position of the liquid and possible stress conditions.

Neglect of any or all of these factors could seriously affect the validity of the research.

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MEDICINE

Blindness Attack Linked To St. Vitus' Dance

► A RARE CASE of sudden blindness was reported in a 20-year-old patient who developed St. Vitus' dance within a few weeks following the attack.

This has revived the disputed problem of what causes St. Vitus' dance, still unsolved.

Two British physicians, Drs. G. W. Hearn and M. J. Roper-Hall of the Birmingham and Midland Eye Hospital, report in the *British Medical Journal*, Sept. 9, 1961, that a fibrin embolus (blood clot) could have been the cause both of the blindness and later attack of chorea.

First described in 1685 by the English physician Sydenham, St. Vitus' dance, or chorea, has rarely been accompanied by retinal artery stoppage. Only one other report of such a case has occurred since 1925, and it, too, revived the formerly held but discarded "embolic" theory of the cause.

Drs. Hearn and Roper-Hall conclude that cases of chorea vary as to cause and procedure. In cases where eyes are affected by embolism, they believe that the old theory should not be ruled out.

Another *British Medical Journal* report by a flight lieutenant, Dr. G. S. Willetts, advanced the theory that chorea after disturbance of vision was possibly associated with local arterial disease rather than with blood clots. Recovery of the vision between attacks of obstruction of the central retinal artery was achieved by the patient, a 21-year-old married woman who was advanced in pregnancy.

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E FIELDS

SURGERY

Uncommon Lung Disease Healed by Operation

► THE ONLY KNOWN surgical operation for sporotrichosis, an uncommon fungus-type lung disease, has been reported at the Veterans Administration Hospital, Oteen, N. C.

Drs. Stewart M. Scott, E. D. Peasley and Thomas P. Crymes describe in *The New England Journal of Medicine*, 265:453, 1961, the case of a 42-year-old Negro florist whose X-ray showed a cavity in the left upper lung. Tests showed *Sporotrichum schenckii*, the type of fungus that causes sporotrichosis.

After giving the patient the usual treatment of potassium iodide for two months with no significant change on X-ray examination, the left upper lobe was removed.

Although the operation was successful, the surgeons continued treatment with potassium iodide for six months.

Since 1912, 20 cases of pulmonary sporotrichosis have been reported, but only six have been "adequately documented," the surgeons report.

The dramatic results of treatment with potassium iodide have prevented thorough bacteriologic confirmation by animal inoculation, they point out.

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GENERAL SCIENCE

Scientists' Income Up: Median Salary Is \$9,000

► MOST UNITED STATES scientists were better paid during 1959 and 1960 than they were during the years from 1956 through 1958, the National Science Foundation reports.

Questionnaires returned by 112,432 full-time employed scientists to the Foundation's National Register of Scientific and Technical Personnel showed a 1960 median annual salary rate of \$9,000. This is a \$1,100 increase over the \$7,900 median reported for the 1956-58 period.

The same group reported a median gross income of \$10,000 for 1959. The additional income (above salaries) comes from such sources as supplementary employment, royalties and consulting fees.

The highest median gross income for 1959, \$14,000, was reported for those in medical sciences. Physics and chemical engineering, each with \$11,000, were second. Agricultural scientists ranked lowest with \$7,000 as both 1959 median income and 1960 median salary.

Rated by work activities, the 27% engaged in management and administration made up the best paid group, with a median income of \$12,000 in all fields. For managers and administrators in research and development, the median income rose

to \$13,000. Teachers, with a median 1960 salary of \$8,000, were among the lowest paid work groups, although full professors attained a median of \$19,000 in medical sciences and \$13,000 in engineering.

The median age was 38. The largest age group, 43%, was 30 to 39, with 40 to 49 next at 27% of the total. Thirteen percent were in their fifties and another 13% were under 30. The general pattern in earnings was a steady increase from \$6,000 at the youngest age group to \$12,000 at the oldest, the Foundation said.

Fifteen years of experience are necessary before income exceeds basic salary in most fields.

The scientists included 47% who were employed in private industry or self-employed, 27% by educational institutions, 13% by the Federal Government, six percent by other government activities, five percent by non-profit organizations, and about two percent on active duty with the Armed Forces or the U.S. Public Health Service.

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NOMENCLATURE

Numbers Seen Replacing Latin Names of Plants

► AS ELECTRONIC computers take over the tough job of sorting out members of the animal and plant kingdoms, Latin names will be replaced by numbers, a zoologist predicts.

Machines should help take some of the many kinks out of the present system of classifying living things, which is known as taxonomy, Dr. Theodore L. Jahn of the University of California at Los Angeles believes. This would necessitate devising a numbers code that would denote the features of an organism useful in classifying it as to kingdom, phylum, class, order, family and species.

The ultimate in such a system would be to use the same code that the genetic mechanism employs to insure that an organism passes on the same set of characteristics to succeeding generations. This code is contained in the DNA (deoxyribonucleic acid) of each chromosome.

This poses quite a problem, Dr. Jahn admits. It has been estimated, he points out, that the code of the 46 chromosomes of man, if set in type, would fill a thousand books. It may be a long time before man can design a code as compact as DNA.

Cracking the DNA code, regardless of whether it can be incorporated practically into a computer system, would be a boon to taxonomy, Dr. Jahn notes. For example, it might tell us whether a virus is some fragment of a chromosome or the leftover of a primordial organic soup that preceded the existence of cellular organisms.

In order to convert the present system for use with a computer it will be necessary to improve it through increased knowledge of the organisms. Progress might be greatly enhanced if there were an International Taxonomic Year, similar to the International Geophysical Year, devoted to a study of classification of organisms.

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BIOCHEMISTRY

Some Mental Diseases Linked With Chemical

► SOME MENTAL diseases are probably caused by a chemical derived from a nerve hormone in the brain.

Experiments conducted on rats have shown that the chemical, 10-methoxyharmalan, if produced in the body, can cause abnormal behavior. The chemical is derived from serotonin, a nerve hormone found in the brain and intestines.

Small doses of 10-methoxyharmalan fed to well-trained rats caused the animals to make mistakes each time they were used in an experimental "shuttlebox." Larger doses produced tremors that lasted nearly one hour.

The chemical is formed by removing a molecule of water from melatonin, a substance isolated from brain tissue. Melatonin, in turn, definitely forms from serotonin, Drs. William M. McIsaac, Philip A. Khairallah, and Irvine H. Page of Cleveland Clinic Foundation, Cleveland, report in *Science*, 134:674, 1961.

Definite evidence of the production of 10-methoxyharmalan in the body is still lacking, the scientists note. However, the present experiments plus the fact that "the highest concentration of serotonin has been found in brain tissue of mental patients," tends to support the hypothesis that "some psychotic states could be due to the chemical, 10-methoxyharmalan," the scientists conclude.

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PUBLIC HEALTH

Cesium-137 in Diet Determined by Urine Test

► CESIUM-137, a radioactive fission product present in fallout, can be measured in urine samples by a new radiochemical method that forms a simple and reliable basis for determining the amount of the isotope present in a person's current diet.

A. Morgan and Gloria M. Arkell of the Atomic Energy Research Establishment, Harwell, England, analyzed samples obtained from subjects with no known exposure to cesium-137 other than dietary fallout levels, gauging both cesium and potassium content. Cesium closely resembles potassium and travels with it through animal tissue.

They point out in *Nature*, 191:1100, 1961, that the ratio of cesium-137 to potassium in urine is equal to that in the diet and, under normal or near-normal conditions, is about one-third of that in the entire body. If the cesium-137 intake increases, urine analysis therefore will show it.

The researchers also note that the technique could be used to determine strontium-90 consumption as well as cesium-137 consumption. The ratio of strontium-90 to calcium in the diet is known to be about twice that found in urine samples. Strontium-90, which gets into bone and milk, is more widespread than cesium-137 and has been studied more extensively.

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