

EDUCATION

National Parks Called Largest Summer School

► THE WORLD'S largest summer school had an enrollment of 19,000,000 students in 1953, a faculty of more than 400 and a campus of 25,000,000 acres.

This unique educational institution consists of the national parks and the national monuments of the United States, Dorr G. Yeager, regional chief of interpretation of the National Park Service, told the American Association for the Advancement of Science meeting in Berkeley, Calif.

The campus is made up of the 180 federal areas administered by the National Park Service. The faculty is composed of mostly professional teachers who are able to spend their summers as ranger-naturalists and ranger-historians.

The student body are those Americans and foreign visitors who take advantage of the free services offered by the National Park Service each summer.

"The educational work in the national parks grew out of a demand by the visitors to know something about the wonders they had come to see," the government naturalist reported.

To interpret the scenic wonders and beauty of the system, there is a permanent staff of 127, augmented by some 300 seasonal employees. These interpreters maintain 107 museums, as well as numerous trails and roadside exhibits.

Science News Letter, January 15, 1955

GENETICS

Sex Cell Constitution Differs in Monkey, Man

► MONKEYS AND men have significant differences in the constitution of the sex cells through which life is passed on from generation to generation.

Although older research has sometimes found that some monkeys have the same number of chromosomes, 48, as man, a new and better technique by two University of Oxford scientists shows that while man has 48 heredity particles in the sex cells, three kinds of monkeys tested have 42.

Drs. C. D. Darlington and Ashrafal Haque of Oxford's botany department find that the chromosomes of man and monkeys are generally not unlike, although some of the chromosomes found in man are missing in the monkeys. The Y chromosome, which is present only in the male, is much smaller in the monkeys than in man.

Any hope that a hybrid between man and the apes might be produced in daring interbreeding experiments seems to be dashed by the difference in chromosome numbers. The similarity between the monkeys should be seen in their capacity for hybridization, the scientists state in *Nature* (Jan. 1).

In fact, they report, a cross has been made between a baboon and the Rhesus

macaque. The offspring have been raised in captivity.

The chromosomes of the great apes should be studied before these species die out altogether, the scientists warn. Dr. Haque, who is returning to his professorship at the University of Dacca, East Pakistan, has offered to cooperate in studying any specimens of the great apes that anyone obtains.

Due to the new methods developed, Drs. Darlington and Haque can now count the numbers and describe the forms of mammalian chromosomes with the same ease and accuracy as has been long possible for grasshoppers and newts.

Science News Letter, January 15, 1955

ENTOMOLOGY

Chemical May End War On Pink Bollworm

► A POWERFUL new organic phosphorus compound now being tested against the pink bollworm, scourge of the South's cotton fields, shows promising results.

The compound is being tested by entomologists at Texas A. and M. College.

Test applications were made by J. R. Brazzel, graduate assistant and Dr. D. F. Martin, professor of entomology, through auspices of the Texas Agricultural Experiment Station.

Average tabulations of damaged cotton bolls and bollworms were:

Check plots, no treatment, 31.1 damaged bolls, 50.9 worms; DDT treated plots, 1.5 pounds per acre, 20.5 damaged bolls, 31.7 worms; DDT plots, 3 pounds per acre, 23.8 bolls, 50.9 worms; DDT treated plots, 1.5 new chemical, 5.16 damaged bolls, and 6.2 worms.

Organic phosphorus compounds attack the insect's nervous system, Dr. J. C. Gaines, head of the college's department of entomology, explained, destroying its muscular coordination.

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PUBLIC SAFETY

Punish Workers Who Fail On Eye Safety Rules

► DISCIPLINARY MEASURES for factory workers who fail to follow eye-safety rules is urged in a blindness-fighting statement issued in New York by the Public Affairs Committee in cooperation with the National Society for the Prevention of Blindness.

At least 90% of the annual 300,000 industrial eye accidents could be prevented by wearing some form of eye protective equipment, the committee reports in its new pamphlet, "Save Your Sight" (see p. 44).

School age youngsters also run up a large total of eye injuries—90,000—every year. But one-half of the nation's total sightless persons might be able to see if they or their parents had taken proper precautions.

Science News Letter, January 15, 1955

IN SCIEN

EPIDEMIOLOGY

Predict 'Flu Epidemic This Winter or Next

► OUTBREAKS OF influenza A "may occur in some sections of the United States this coming winter or the following winter," Dr. Dorland J. Davis of the National Institutes of Health, Bethesda, Md., predicts in a report to the *Journal of the American Medical Association* (Jan. 1).

The journal gives the report the unusual prominence of being published as a signed editorial.

Whether the 'flu outbreak comes this winter or next depends, Dr. Davis says, on whether influenza continues to recur in a two- or three-year cycle as it seems to have been doing in years past. (See SNL, Oct. 9 1954, p. 227.)

In the 1951, 1953 and other recent epidemics, death rates for influenza and pneumonia rose, but not as greatly as in the epidemics of 20 to 30 years ago, Dr. Davis points out.

Whether the declining fatality rate continues in future outbreaks cannot be predicted but, says Dr. Davis, "certainly the means for observing and assessing the behavior of the disease have been greatly augmented by recent research."

Science News Letter, January 15, 1955

FOREST PATHOLOGY

Infected White Pines Saved by Tree Surgery

► WHITE PINES infected with blister rust can be saved by tree surgery.

The sharp rise in the value of white pine lumber and the cost required to replace it as an ornamental tree makes tree surgery increasingly important, J. F. Martin of the U. S. Forest Service and G. F. Gravatt of the U. S. Agricultural Research Service have reported.

Heretofore, the spread of the deadly blister rust was arrested through the eradication of gooseberry and currant bushes, which produce the spores that transmit the infection to the trees.

Now, the scientists said, trees already infected can be saved from destruction by using the little practiced art of tree surgery on the valuable white pines.

Especially in dense stands, tree landowners can frequently remove blister rust cankers from the forest trees through normal pruning and thinning out, they reported. Tree surgery is justified, the scientists said, when it is not too difficult or costly. Saving the trees through surgery also means saving the time required to grow other timber trees.

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CE FIELDS

PHYSICS

Proton Polarized In Atom Smashers

► AN ACHIEVEMENT equivalent to the discovery of polarization of light in optics is exciting interest in the field of atomic physics. The proton has been polarized.

This means that hearts of hydrogen atoms have been produced that all spin the same, much as visible light that vibrates in the same direction is said to be polarized.

A new push of research using proton polarization is under way at the University of California at Berkeley, the University of Chicago, the University of Rochester and Carnegie Institute of Technology.

What happens when proton meets proton is being explored. Results were reported to the American Physical Society, meeting jointly with the American Association for the Advancement of Science in Berkeley, Calif.

A team from the University of California, consisting of Drs. Emilio Segre, Thomas Ypsilantis, Owen Chamberlain, C. Wiegand and R. Tripp, flung hydrogen under a 310,000,000-electron-volt impulse against beryllium metal to polarize the protons. The way the protons act is measured by further scattering from targets.

Experiments on proton polarization were reported also by Dr. R. B. Sutton of Carnegie Institute of Technology and Mrs. Leona Marshall of the University of Chicago. The proton is one of the most fundamental of the atomic particles.

Science News Letter, January 15, 1955

SPELEOLOGY

Save the Cave Life Is Conservation Theme

► SAVE THE cave life was the theme of a new conservation plea made at the meeting of the American Association for the Advancement of Science in Berkeley, Calif.

Expressing concern over the increasing danger to animals and plants dwelling in caves, Brother G. Nicholas, F.S.C., of La Salle High School, Cumberland, Md., reported that as human interest in caves increases, cave conservation must increase too.

The Maryland naturalist pointed out that the most common threat to cave flora and fauna today is in those caves that are well known and easily accessible. Most cave dwelling life depends on a delicate balance of temperature.

People walking constantly through the caves have a marked effect on the temperature and, hence, on the metabolic rate, which involves a balance of the food required and the food available.

Another threat, Brother Nicholas stated,

is the practice of dumping used carbide into pools and other places where it will contaminate the water supply.

"The uniqueness of cave life presents a third threat to its very existence," he reported. "Since such specimens as blind fish, blind crayfish, colorless salamanders and other non-pigmented blind organisms are so rare, there is a tendency for persons to catch these even if they are not planning some scientific investigation of them."

Colonies of rare salamanders have been decimated already by this curiosity-seeking process, Brother Nicholas added.

"Before any progress can be expected in the matter of protection of cave species," he stated, "speleologists, naturalists and the general public have to be educated in the fact that animals living under the ground are just as much a part of nature as those living above the ground."

Science News Letter, January 15, 1955

ANIMAL PSYCHOLOGY

Chicks Use Both Eyes Without Having to Learn

► BABY CHICKS wearing goggles showed they can use both eyes at once to see, without having to learn how.

The experiment was reported by the University of Chicago psychologist, Dr. Eckhard H. Hess, at the American Association for the Advancement of Science meeting in Berkeley, Calif.

The chicks used in the experiment were hatched in a dark incubator. When the little birds were taken out of the incubator, and while they were still in darkness, small rubber hoods were fitted over their heads.

The hoods contained goggles with flat prisms designed to make objects appear closer than they actually were if both eyes were used in vision. If only one eye at a time was used, the object looked to be at the correct distance, but appeared over toward the left or toward the right, depending on which eye was used.

The goggle-wearing chicks, when first brought into the light and given something to peck at, pecked in the right direction but closer than the object really was. This showed that the baby chicks were making correct use of both eyes.

They also use both eyes in binocular vision, even when they have been trained to use only one eye at a time. For this experiment, the chicks were put into hoods the moment they came out of the shell.

This time the hood prevented the chick from seeing out of one of his eyes. One day the chick could see with his right eye and the next day with his left and so on, until the chicks were two months old.

Then the chicks were tested with the same prisms used in the first experiment. Again, all the chicks pecked in the right direction but too close, showing that, at the first opportunity, they were making use of both eyes, although previously they had had experience with only one eye at a time.

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ANTHROPOLOGY

Peking Man "Bones" In China May Be Casts

► THE "BONES" of the famous 500,000-year-old Peking Man that Peiping radio has announced are being exhibited in Peiping to celebrate the 25th anniversary of their discovery may actually be expert casts of the bones.

The historic bones were lost during World War II in an attempt to get them out of China to a place of safety in the United States.

It is not known whether they had been seized by the Japanese or accidentally sunk with a lost boat, or whether they had been ground up for use as medicine. In China, fossils, which are sold as "dragon's bones," are believed to have great medicinal value.

In 1952, a Chinese Communist anthropologist charged that the United States Government had stolen the bones and brought them to New York for exhibit at the American Museum of Natural History. The charge was denied by American scientists.

After the war ended, an American Occupation Forces anthropologist searched for the Peking Man bones in Tokyo, but found that the Japanese had not seized them.

American anthropologists will be glad if the historic fossil bones are actually safe in China. Their loss was not, however, considered a serious handicap because of the numerous excellent casts of the fossil bones that could be used for future scientific study.

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TECHNOLOGY

Roses Red, Violets Blue In Flavor of Tomato Goo

► TOMATO FLAVOR is a blend of three odors described as "typical," "raw" and "green," plus dozens of secondary flavors ranging from "sweet, flowery and minty" to "rubbery" and "slightly musty."

Odors that contribute to the tomato's flavor were described by scientists making the analysis as those of rose, violet, lemon, peppermint, caramel, vanilla, carrots, citronella and sulfur. They were studying ways to help preserve the best taste in tomato paste preparations.

By drawing off vapors at different points in the commercial processing machinery producing tomato juice, Mary S. Spencer of the University of California and William L. Stanley of the U. S. Department of Agriculture's Western Utilization Research Branch at Albany, Calif., obtained, concentrated in a thimbleful of a yellow oil, the flavors from two to ten tons of tomato juice.

By separating the flavor concentrates using chromatography and by applying chemical tests, the researchers spotted the unsaturated compounds that are probably to blame when tomato products develop "off flavors." The study is reported in the *Journal of Agricultural and Food Chemistry* (Oct. 27).

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