

Measure Radioactivity

► EXPERIMENTS WITH photographic methods of measuring radioactivity in uranium ores and in minerals of unknown composition formed the scientific project of 17-year-old Virgil Everett Barnes, Jr., senior at Austin High School, Tex.

Grinding up his rock samples, the young scientist used them, along with samples of known radioactivity obtained from the Atomic Energy Commission, to make exposures on special photographic emulsions made for nuclear studies. He rigged a toy motor to stir the developing solution during the seven hours necessary to develop these scientific pictures of the radioactive rays given off by the rocks.

Improvements in handling the powdered rock samples suggested themselves to Mr. Barnes in the course of his experiments, and he is now carrying on his plans for better chemical separation of the radioactive material from the ores. He expects to continue his college research in pure physics.

Mouse Bone Formation

► THE FORMATION of bones in unborn mice was studied by Robert Avery Shore, 16, who began his study of mice embryos at the Jackson Memorial Laboratory in Bar Harbor, Me., during summer vacation from Midwood High School, Brooklyn, N. Y.

In order to carry out his study, he had to devise special techniques for a Caesarean operation so he could deliver the premature mice while keeping the mothers alive for other studies. This specialized operation, he says, was completely of his own devising.

He divided the embryos into two groups for the study of the two successive processes of bone formation. These are, first, the formation of cartilage, and then, from the cartilage, the formation of the mouse skeleton.

He now has two parallel series of embryos representing the two stages from the age of 14 and one-half days after conception to birth. It was possible for him to observe the different rates of development of bone in different parts of the body.

Radio Background Noise

► ELIMINATION OF background noise in very high frequency radio receivers was the aim of 18-year-old Dennis Richard Clark, University High School senior, Los Angeles.

One of the limiting factors in very high frequency receiving equipment, he points out, is the noise produced by the first one or two tubes of the receiver.

He conducted experiments with several specialized tube types and circuits to see how well they would perform under actual conditions. The noise was measured with each of the experimental circuits.

The young electronics expert discovered ways of modifying the circuit so as to achieve the least noise possible with his

equipment. He also found that antenna noise is a considerable factor which has to be taken into account.

He concluded that the choice of tubes is seemingly more important than the circuits in which they are used. The tubes, he said, should be triodes because they have low inherent noise. Mr. Clark's low noise receiving equipment, he said, will be used in further experiments with distant stations.

Soil Analyzed

► ANALYZING THE soil in a farming township in Indiana with the hope of getting better yields was the project accomplished by a 16-year-old girl who came here recently from Germany.

She is Barbara Erika Hopf, University High School, Bloomington, Ind., who states: "Living in southern Bavaria, Germany, for a good part of my life, I have been used to the conservation and extreme patience taken by the mountain farmer with his little plot of poor, rocky ground. Yet many hill farmers of southern Indiana, planting corn year after year, get discouraged with poor yields, let their soil erode and finally abandon their farms."

She believes that there should be a better understanding of the material Indiana farmers work with: the soil. She took soil samples, chosen according to vegetative covering and topographic location. About 125 samples were collected and analyzed. Miss Hopf was able to map the concentration and location of organic matter, of calcium and other factors.

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MEDICINE

Worst of Flu Over

► THE WORST is over so far as the current influenza epidemic is concerned, even though latest reports (Jan. 31-Feb. 7) show an increase in 'flu-pneumonia deaths.

Some communities, particularly on the Pacific Coast and in New England, may have localized outbreaks for a short time to come, but that is all that can be seen from reports—and lack of them—to the U. S. Public Health Service.

The first hint that the epidemic was coming (see SNL, Jan. 17, p. 35) came from reports of outbreaks two and three weeks earlier in Army installations. Now the Army, Navy and Air Force all report that influenza is declining in nearly all military establishments.

The epidemic among civilians seems to be following the same course, with perhaps a two-week lag. Reports from six state health officers, South Carolina, Arkansas, Colorado, Louisiana, Montana and Kansas, state either that the disease has reached its peak or that no increase in cases has occurred.

Considered equally significant is the dearth of reports from middle western

METEOROLOGY

Inversion Blankets North Pacific Ocean

► INVERSION, THE blanket of warm air aloft that causes Los Angeles' famous smog, also extends over much of the eastern North Pacific Ocean and influences the weather as far west as Hawaii.

Dr. Morris Neiburger, University of California at Los Angeles meteorologist, has just completed analysis of all available upper air meteorological data for the area, including that gathered in recent Scripps Institution of Oceanography cruises.

The study, which was supported by the Office of Naval Research, has shown how the height and intensity of the layer determine weather typical of particular regions in the large area.

A layer in which the temperature increases with height is called an inversion because it was regarded as a reversal of the normal condition. However, over subtropical oceans the inversion is normal, particularly during the summer season when it is present every day.

Along the coast the inversion is low, with only a shallow layer of cool, moist air below, thus causing fog or low stratus clouds.

The inversion becomes progressively higher farther west. Clouds of greater vertical extent (cumulus) occur, and still farther west become thick enough for occasional showers. The occurrence and intensity of rain in the Hawaiian Islands is partly dependent upon the inversion being raised above its normal position there.

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states. The assumption is that no reports mean the disease is no longer a problem and the epidemic is waning.

The part played by influenza vaccine in checking the epidemic is hard to determine. It is unlikely to have accounted for the decline of cases in military establishments since vaccination of service personnel in this country was largely limited to those at ports of embarkation.

Vaccination of civilians by private physicians probably was not done in time to have much effect. It takes the vaccine at least two weeks to give immunity and the epidemic developed so rapidly that it is doubtful whether many persons got any vaccine two weeks before the 'flu hit their communities.

Hope of preventing influenza completely by vaccination, enthusiastically suggested in some quarters, would depend on everyone getting vaccinated every year, because the protection from the vaccine lasts only about a year. It seems unlikely that an entire population would keep on being vaccinated every year to avoid the chance of an attack.

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