

CHEMISTRY—EDUCATION

Chemistry Can be Made As Cultural as the Classics

"CHEMISTRY can be made as definitely cultural as the classics, and in addition it is intensely practical," Prof. B. S. Hopkins of the University of Illinois said at a meeting of the American Association for the Advancement of Science. Prof. Hopkins spoke at a symposium on The Role of Chemistry in Education.

Chemistry's possibilities as a cultural influence arise in large part from its many close applications to human interests, Prof. Hopkins said. Its study can be at once a means of building up a sympathetic appreciation of the problems of human interest, and a preparation for making a livelihood.

One of the problems in presenting chemistry as a cultural subject, however, arises from this dual nature. Chemistry courses easily resolve themselves into strictly professional affairs, either for preparing students to be professional chemists or laying the foundation for their education in other callings in which a knowledge of chemistry is a necessary tool. Thus chemistry

courses may lose interest for students not undergoing such professional or pre-professional training.

Prof. Hopkins suggests: "In giving such students the sort of training which they need, a completely non-professional attitude should be assumed. If such students can be put in a group by themselves it is possible to avoid the professional attitude as well as the idea that the study of chemistry is a preparation for some other work. . . This plan makes it possible to emphasize the cultural side of chemistry in a broad general course and at the same time it insures better trained chemists, who are essential for continued progress in the science."

At the same meeting, Prof. J. H. Simons of Pennsylvania State College pointed to chemistry as a valuable subject to be included in a well-rounded general education because it "sharpens the wits" and teaches habits of orderly thinking.

Science News Letter, January 5, 1935



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PHYSIOLOGY

Fingertips Chilled After Smoking Cigarettes

SMOKING cigarettes actually chills the tips of fingers and toes about a half hour after the puffing is done, microscopic bloodflow tests by Dr. A. Wilbur Duryee and associates of New York Post-Graduate Hospital and Medical School demonstrated publicly.

Standard, mentholated and so-called denicotined cigarettes were used. All dropped the temperature five degrees on the average as measured by an accurate thermocouple thermometer placed at the base of the fingernail and the effect came faster in the so-called denicotined cigarettes. A non-tobacco cigarette made of paper sometimes produced the same chilliness but on the average gave a half degree rise. No changes in temperature of chest and forehead could be detected however. The cause of the

temperature decrease is contraction of walls of the smallest arteries of outer tips of fingers and toes.

The tests might have been expected to have resulted otherwise but inveterate smokers often get the largest temperature drop from cigarette smoking. For ordinary cigarettes the fingertip drop in temperature translated into the familiar degrees of the physician's thermometer was from 92 to 76 degrees in the most extreme case. In another case there was actually a half degree rise but on the average the drop was from 90 degrees to 85 degrees. For mentholated cigarettes the temperature in the most extreme case from 90 degrees to 80 degrees and on the average drop in fifty minutes after smoking was from 89 to 84 degrees. The ex-



treme case for so-called denicotined cigarettes was from 90 to 78 degrees in 25 minutes with an average of 88 to 83 degrees.

Science News Letter, January 5, 1935

BACTERIOLOGY

Fruit Juice Treated With Silver and Electricity

A STUDY of a combination of silver and electricity to preserve fruit juices such as cider and grape juice is being made by Lawrence H. James and E. A. Beavens of the U. S. Bureau of Chemistry and Soils and was reported to the Society of American Bacteriologists.

The method is similar to the sterilization of water in swimming pools by the use of colloidal silver. A small electric current is passed through the solution which forces the silver into the juice so that when enough silver is present, it delays fermentation of the fruit juices.

Science News Letter, January 5, 1935

ASTRONOMY

Moon Distances— A Correction

IN THE article "1935 Brings Seven Eclipses" (*SNL*, Dec. 29, p. 407) the author, James Stokley, makes the following correction:

Column 2, paragraph 3 should read as follows, "On January 6, the earth is nearest the moon (at 'perigee') with 223,450 miles separating us. 'Apogee,' the time that we are farthest, comes on January 20, when the two bodies are 252,400 miles apart."

Science News Letter, January 5, 1935

The Great Smokies, the highest mountains in the East, are about 300,000,000 years old in their present form.



We Fight For Grass

GRASS, the basic cause of some of the toughest fighting American troops ever had to do, may in a remote part of the world give the soldiers of another growing empire their share of trouble.

Recently an observer in the Far East, commenting on Japan's apparent intention to extend her Manchurian conquests by annexing the adjacent province of Outer Mongolia, stated that one cause of friction between the newcomers and the natives is reported to be "the tilling of the land, which to a nomadic Mongol amounts almost to blasphemy."

Should such a conflict develop, veterans of the Indian fighting days of our own West may see history repeating itself, at least in part. To be sure, there are differences. The Plains Indians were hunters, not herdsmen as the Mongols are. Their concern was meat, not milk. But back of that, there is a common uniting background. The Plains Indians depended principally on the buffalo or bison, which was a grazing animal, so that when settlers began to break the sod with their plows, the belief quickly rose among the Indians, that "that iron-on-a-stick will bury the buffalo."

So they rose up and fought, and the United States Regulars had on their hands a veritable Thirty Years' War—from the Sixties to the Nineties, when the buffalo were almost completely wiped out and the Indians' commissary was gone.

The Indians fought for grass. They lost. The plow broke sod farther and farther westward, until in the mad, wheat-hungry years of the World War grasslands that never should have been turned over at all were broken and put

into grain. Then came drought, grasshoppers, dust storms; the Indians were in part avenged. Now we seek to replace the vanished grass.

If the Japanese and the Mongol tribesmen do come to blows, we do not need to expect too close a parallel in the course of the fighting. The Mongols are better organized than our Indians were, and probably man for man at least as tough and able fighters. It was possible to cut the Indians' supplies on by slaughtering the buffalo herds; but the Mongols keep their domestic animals closely tended, so that an attack on their commissary would undoubtedly involve the raiding party in a death-fight with every man, woman and child in a tribe. Mongols are well mounted and ride like Centaurs; Japanese cavalry is rated by military men as not exactly the world's best.

To be sure, there is the airplane. But Japan has not found planes an all-answering argument against insurgents in Manchuria; and some years ago Spain had even worse luck with planes in the Riff. An airplane wants a concentrated, not a scattering target.

But if the Mongols finally lose and are pushed out, what then? Our defeated Indians, with nothing but mountains and desert at their backs, had no choice but surrender or annihilation. Behind the Mongols lies the friendly boundary of Soviet Russia, which probably would not mind at all the accretion of a large group of colonists with a permanent anti-Japanese grudge.

It is not impossible that the tinder of the expected flare-up between Russia and Japan may be the curled gray grass of Mongolia.

Science News Letter, January 5, 1935

Commercially canned orange juice contains practically the same amount of Vitamin C as fresh orange juice, according to tests at the University of California.

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Tuesday, January 8, 4:30 p. m.
STELLAR GUESTS, by Dr. Fritz Zwicky,
of the California Institute of Technology.

Tuesday, January 15, 4:30 p. m.
WHAT COSMIC RAYS TELL US, by
Dr. H. Victor Neher, California Institute of Technology.

In the Science Service series of radio addresses given by eminent scientists over the Columbia Broadcasting System.