

# engineering sciences

## AIR POLLUTION

### Low lead content in plants

Tests conducted by Ethyl Corporation Research Laboratories show that atmospheric lead does not appreciably accumulate in most types of crops. Dr. Gary Ter Haar has found that, in crops ranging from wheat to carrots to rice, hardly any lead absorption takes place in the edible portions of vegetables and grains comprising a major part of the American diet. Some lead absorption was detected in inedible parts of plants.

Dr. Richard Dedolph of Argonne National Laboratory, Argonne, Ill., found the same results in his work with radishes and rye grass, and he concludes that there must be a discriminatory mechanism at work in plants that keeps the lead out of edible parts. If true, then modern man and the caveman must have ingested about the same amount of lead unless the caveman avoided eating plants entirely, he says.

## TELEVISION

### Trouble-shooting on the telly

The British Broadcasting Corporation has found a way to overcome the poor quality of its television sound. In Britain, sound is produced separately from the video and sent out over ordinary telephone cable, whose low quality results in poor sound.

To remedy the situation, the British have combined sound and picture in one at the studio by compressing the sound into short pulses and fitting it in at the beginning of the lines that comprise a TV picture. At the transmitting station, the compressed sound pulses are extracted from the picture, expanded to give a normal sound signal, and transmitted in the usual way.

The problem doesn't arise in the U.S., where TV sound is sent over specially designed cable.

## ATOMIC ENERGY

### Gas mining test delayed

Project Rulison, the joint Government-industry experiment to investigate underground nuclear explosions as a method for mining natural gas (SN: 4/19, p. 376), has been postponed until September. The U.S. Atomic Energy Commission decided to delay the shot originally scheduled for May 22 because preparations were not moving fast enough. Work will continue through the summer, and the final date will be announced well in advance of the detonation. The blast site is the Rulison gas fields, 150 miles west of Denver, Colo.

## PLASTICS

### Cornstarch in urethane

A stronger plastic has been developed by adding 60 percent cornstarch to urethane plastic. F. H. Otey of the U.S. Department of Agriculture's Northern Utilization Research and Development Division in Peoria, Ill., was able to increase the hardness, strength and flexibility of urethane plastics. The plastics showed high resistance to attack by acids, moisture and alkalis.

Otey hopes that the use of cornstarch as a cheap extender will provide the necessary cost reduction to allow more widespread use of urethane plastics, which are derived from agricultural products.

## PHOTOGRAPHY

### Slow motion sound

Prof. Joachim Rieck of the Institute for Scientific Film in Göttingen, Germany, has made slow motion sound to go with slow motion film. As described in the magazine *UMSCHAU*, he took a speeded-up tape recording and combined it with a fast-moving movie camera. Just as the camera uses more frames per second to catch visual action, the recorder picked up more sound waves per second. When both camera and recorder are played back at normal speeds the result is synchronized sound and picture.

Prof. Rieck's first films showed a dog responding to a dog whistle and bats detecting obstacles by the sound waves they bounce off them. The slow motion sound made the signals intelligible to humans.

## CONSTRUCTION

### Quick-curing method for concrete

Concrete gets stronger with age. The secret of curing concrete for maximum strength is to get a proper balance of water and cement. Too little water means brittleness; too much, a weak concrete.

The British now have developed an overnight concrete-curing process. Robinson Building Techniques of Bristol, in a demonstration, poured concrete between two formers, and used a low-voltage heating foil to supply heat for the curing process. Current was applied for eight hours, and the next day the concrete was cured. Normally, it takes 28 days for concrete to attain 90 percent of its strength. Since heat is necessary for curing, an advantage of the method is that curing can be speeded up despite near freezing temperatures.

## CHLORINE

### New commercial process

A hundred-year-old search to make chlorine cheaply from hydrogen chloride is over, announces Dr. Alex G. Oblad, vice president of research and engineering development of the M. W. Kellogg Company in New York.

For years, chemists have been trying to commercially make chlorine by using the oxygen in the air to convert hydrogen chloride gas, a common by-product of many industrial processes, to chlorine. The drawback was that nitrogen in the air coupled with the water produced in the reaction reduced the yield of chlorine, making the process uneconomical.

But the availability of cheap, pure oxygen and the addition of a dehydrating agent (sulfuric acid) eliminates these two problems. Also of extreme importance to the reaction is the use of nitrogen oxide as a catalyst. The present method of making chlorine is by electrolyzing salt. The new method is seen as a potential rival to this process.

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