

Charcoal from the famous Lascaux cave in the Dordogne, France, which has remarkable paintings made by early man in Europe is dated as about 15,000 years old. All of Dr. Libby's dates are given in

detail with the findings of individual samples and their averages, each with a probable error that runs several hundred years in most cases.

Science News Letter, October 14, 1950

## CHEMISTRY

## Cheaper Sulfuric Acid

► AN EASIER, cheaper way of making sulfuric acid, extensively used in vast quantities for many industrial processes, is promised by a new method revealed in New York by the Chemical Construction Corporation.

Some 10,000,000 tons of the acid are used each year in the United States. The fertilizer industry is the largest consumer but hundreds of other manufacturing processes are dependent upon it. Sulfuric acid is a very active chemical compound composed of sulfur, hydrogen and oxygen.

The new way to make this acid is said by the developers to eliminate seven major items of equipment used in present processes. The new design is much simpler than the conventional contact process and represents a saving of about 25% of the present capital cost of an erected, medium-sized acid plant in this country.

In the manufacture of sulfuric acid, sulfur dioxide, obtained by the combustion of sulfur or roasting a sulfide, is converted into sulfur trioxide. A catalyst is used to aid the chemical reaction. The catalytic oxidation in the new process is carried out in four successive stages. Temperature control is effected by admitting cold air between these stages.

Sulfur trioxide absorbed in and chemically united with water becomes sulfuric acid. At one stage in the new process the sulfur compound is in the form of a fine mist. This is used to enrich weak acid in a venturi tube. Turbulent currents in the mist mix the materials and hurry their combination. Large amounts of heat given

off by the combining chemicals evaporate the excess water. Acid up to 95% strength can be achieved economically by the new method.

Science News Letter, October 14, 1950

## CHEMISTRY

## Collector Determines Air Pollution

► DANGEROUS substances in the air, such as those sometimes found near certain manufacturing plants, can be easily collected for analysis with a new device developed in Pittsburgh by Mine Safety Appliances Company. It is usable also in mines and highway tunnels where air pollution often exists.

It is a timely development now that the public is awakened to the dangers that may come from air pollution from modern manufacturing methods. The smog tragedy at Donora, Pa., which took 21 lives, greatly hurried this awakening. Among the first users of this new sampling equipment were the men of the U. S. Public Health Service who reported their investigations of the Donora air conditions a year ago.

This device utilizes what scientists know as electrostatic precipitation. Air passing through a sampling tube is bombarded by electrons from an ionizing electrode. All particles in the air are given a negative electric charge by the electrons. Then they are attracted to a positively grounded aluminum collecting tube. In the laboratory the particles are removed and analyzed.

The sampling head of this equipment, weighing only four pounds, is self-contained and resembles a small hair-dryer. In the head is a blower that provides a constant flow of three cubic feet of air per minute. The head also contains the ionizing electrode and the aluminum collecting tube which fits around the electrode. Power is by cable from an electric outlet or portable generator. The current is rectified through a voltage doubling circuit using two electronic tubes.

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