

## CHEMISTRY

# Sulfur Fumes Liquefied Give Chemists Useful New Solvent

Because it Works in Way Different From Water or Alcohol, it May Make Possible Entirely New Compounds

**T**HE CHOKING fumes that pour out of factory chimneys or arise when sulfur is burned become, when liquefied, a water-like solvent that makes possible new compounds and a whole new field of chemical research.

The fumes are sulfur dioxide gas,  $\text{SO}_2$ , widely used in the preparation of sulfuric acid and other chemicals. But the liquid state and its possibilities have been largely overlooked, said Dr. J. Russell Bright of Wayne University in a recent address to the American Chemical Society.

There is plenty of sulfur in this country. There is enough in Texas mines alone to supply the whole world's present needs. Sulfur fumes escape from almost every chimney. In Detroit alone, Dr. Bright states, 120,000 tons of sulfur dioxide escape each year from the chimneys of coal-burning factories and buildings. Extended use of the substance would not make any fresh demands on critical war materials.

The gas is very easily liquefied. It is only necessary to cool it to 14 degrees Fahrenheit, which could be done in an ice cream freezer, or, without reducing its temperature, to compress it to one-third or one-half its volume. For this reason it was the refrigerant used in the early household refrigerators, and this was its first extensive commercial use.

## Don't Delay

getting that **new book** you want to read. SCIENCE NEWS LETTER will gladly obtain for you any American book or magazine in print. Send check or money order covering regular retail price (\$5 if price is unknown, change to be returned) and we will pay postage in the United States. When publications are free, send 10c for handling. Address:

Book Department

SCIENCE NEWS LETTER  
1719 N St., N. W. Washington, D. C.

Liquid carbon dioxide is an even better solvent for organic substances than water or liquid ammonia. It is not so good for inorganic substances and dissolves few metals.

Chemists need solvents in which to carry out chemical reactions. Dry chemicals do not in general react on one another. They must be dissolved in a liquid that will divide and disperse their molecules and give them mobility so that they may choose new partners and form new compounds. Water, ammonia, alcohol, ether, benzene and many less

well known liquids serve this purpose.

Chemists need many solvents for many different purposes. What the solvent does not dissolve is just as important as what it does dissolve. The universal solvent, sought by alchemists, the solvent that was to dissolve everything, would have been utterly useless if found, with nothing to keep it in. If you wish to remove a grease spot from your clothing, you want a solvent that will dissolve grease. If it dissolved the cloth as well, it would be effective but utterly useless as a spot remover.

The discovery of a new solvent having a new set of properties thus opens a new field of chemical possibilities. New reactions and new compounds become possible. There are certain compounds of sulfur and cyanogen that can be produced in no other way, Dr. Bright points out, than by the use of sulfur dioxide as the solvent. Some of these compounds may become useful in the preparation of insecticides and other poisons.

*Science News Letter, February 28, 1942*

## PUBLIC HEALTH

# Air Corps Is "Safest," At Least In Peacetime

**I**N PEACETIME at least, the air corps appears one of the safest places in the Army—even the Quartermaster Corps is more dangerous, according to the annual report of the U. S. Army Surgeon General for the fiscal year July 1, 1940, to June 30, 1941.

A table listing the incidence of broken bones, for example, shows the greatest number in the Cavalry, with the Artillery, Quartermaster Corps, Engineer Corps, Infantry and Air Corps following in that order.

For all of Uncle Sam's soldiers during the fiscal year, the doctor's bill was \$73,138,251.85, a medical bill which held the Army death rate to only 2.8 per 1,000 strength, the lowest in history, excluding battle casualties.

Soldiers treated in hospitals by military medical personnel, however, increased from an average daily low of 4,753, in 1939 to 8,300 in 1940, an increase of 75%. Despite two influenza epidemics, incidence of pneumonia among 19,609 flu cases was only 0.3%.

One result of the shift from a peace to wartime basis was the organization of a subdivision of Medical Intelligence and

Tropical Medicine in the U. S. Army.

This unit is prepared for protection of soldiers' health at stations outside the United States. Surveys of such territory, the report states, have been made or are being made and the data filed for future use. The report praises the Medical Corps Reserve, "without which medical service rendered during the year would have been impossible."

In 1940 the Medical Department initiated a concentrated program of venereal disease control which has produced favorable results.

As in the past, automobile accidents continued to be the prime cause of death in the Army during the period, with air transport accidents second. Railroad accidents accounted for the fewest fatalities and tuberculosis, a minor factor now, was next to last on the list.

The report showed alcoholism to be a relatively minor health factor with fewer cases admitted during 1940 for treatment than at any time since 1916. About that time the report shows that alcohol addiction increased from practically non-existence to a fairly high rate in 1923 and remained rather constant