

PUBLIC HEALTH

Dangers of Dust in Industry Described at Safety Congress

Foods Were Exploded and Counts Given of Millions of Particles Per Cubic Foot of Air Breathed by Workers

DUST HAD an important place on the program of the National Safety Council which met in Washington.

The explosive possibilities of the dusts of foods were demonstrated with a convincing bang, and results of studies of dusty atmospheres in which men must work were given, so that their health may be better protected.

Corn starch, baking powder, powdered milk and other grocery store goods are harmless enough once they land on the shelf. But back in the factory where these foods are prepared, the air may grow heavy with particles of dust from the food products. And, in those circumstances, certain food dusts are highly explosive, government engineers have discovered.

Dr. David J. Price, principal engineer of the Chemical Engineering Division, Department of Agriculture, planned twelve experimental explosions to show how dust explosions occur, how to fight them, and, what is most important, how to take protective steps in advance against them.

The experiments were staged at the government testing station, where the engineers have built a miniature factory which reproduces actual conditions. Dr. Price demonstrated how factories can be protected against structural damage by the placing of properly proportioned vents. These vents release dust explosion pressures.

Besides a number of food dusts, explosions of soap powder, cork dust, and wood dust were set off for the congress.

Dusty Trades Studied

A report on the dust content of the air in talc mines, coal mines, granite quarries, and various other dusty trades was presented by Dr. J. J. Bloomfield of the U. S. Public Health Service, who not only summed up the findings of his own research, but recalled to the Council the work of other investigators on this dust hazard problem.

It has long been recognized that workers who breathe some kinds of

dust, day after day, are exceptionally prone to develop a lung condition known as fibrosis. Tuberculosis is sometimes associated with this condition.

Scientists have been working to find out how much dust and what kinds constitute this health hazard.

Dr. Bloomfield told of measuring dust grains as small as one fifty-thousandth of an inch in diameter. Grains smaller than that, he reported, are negligible in damaging the lungs.

2,160,000,000 Particles

The number of grains of dust that hang in the air of mines and shops have been counted. The greatest number of grains were breathed by jack-hammer drillers in talc mines. In every cubic foot of air around these men, there were 2,160,000,000 particles of dust. Anthracite coal miners breathed 232,000,000 particles of dust to a cubic foot of air. Cotton cloth weavers breathed 5,000,000 particles to the cubic foot.

The straight dustiness of the air, however, is not a guide to its degree of un-

healthfulness. The dusty atmospheres that lead to lung troubles are especially those that are laden with particles of quartz. In the heavy air of the talc mine there is no quartz. The anthracite miner breathes one and one half per cent. of quartz in the dust around him. The cotton cloth weaver breathes none.

On the other hand, the laborers and mill operators in a quartz grinding plant breathe in air that is not nearly so heavy with dust as the coal mine or the talc mine, but it is 99 per cent. quartz. The tool finishers and drillers in a granite quarry breathe 35 per cent. of quartz.

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GEOGRAPHY

Copy of Columbus' Map Found in Constantinople

A COPY of a map made by Columbus in 1498, the original of which vanished long ago, has been found in a Constantinople museum. It is described by Prof. Paul Kahle of the University of Bonn, in the German scientific journal *Forschungen und Fortschritte*.

The copy appears as part of a large world map made by the Turkish geographer and navigator Piri Re'is, dated March, 1513. The lands of the Old World are derived from other early maps, but when it came to the newly discovered land across the Atlantic the Turkish cartographer depended entirely on Columbus. The islands are located as he described them, and the names on the towns and physiographic features are



SAFETY FIRST

This explosion of grain dust in the Government's miniature factory went off with noise, flames, and smoke. But there was no flying glass from shattered windows, no damage to the little shop, the gallery or the tower. The plant had been adequately provided with safety vents which opened to carry out the flames and release pressure.

those used by Columbus. This part of the map, moreover, is specifically ascribed by its maker to "Colombo," which is a variant by only one letter from his original Italian name, "Colombo," the one-letter shift being due, perhaps, to the Spanish rendition, "Colon."

In an endeavor to account for a copy of Columbus' 1498 map being in the hands of the Turks, who were of course enemies of all Christendom at that time, Prof. Kahle has traced in Turkish records the fact that an uncle of Piri Re'is had owned a Spanish slave, captured with some Spanish ships in the western Mediterranean. This Spaniard claimed to have made several voyages with Columbus. Prof. Kahle thinks it not improbable that the Turks may have taken a copy of the 1498 map from the captured ship, and that this copy was in turn copied by Piri Re'is on his map of 1513.

One feature of the Re'is map may throw a little additional light on the still-disputed matter of Columbus' nationality. A group of islands is designated as "the islands of the eleven virgins"; and "eleven" is given in Italian, "undici," not in Spanish, "once."

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PSYCHIATRY

Suicide Increase Not All Due to Depression

THE INCREASE in the number of suicides in the United States cannot all be blamed on the depression, in the opinion of statisticians of the Metropolitan Life Insurance Co. While admitting that the depression has undoubtedly had its effect, they point out that the rise in the suicide rate started as early as 1925 and continued through the prosperous time in 1927, 1928, and part of 1929.

The most pronounced increase came between 1929 and 1930. The figures for the industrial policy holders of the company are still below what they were before the World War. During the war years there was a declining suicide rate, due to the fact that people were finding life a great adventure and had less desire to leave it.

The personality of the individual rather than external and environmental factors is considered important in leading to suicide. Therefore those who are concerned with reducing the number of suicides should train such individuals to become more stable. This is declared to be a community responsibility.

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PUBLIC HEALTH

Three-Fourths of Cancer Group Succumb in First Five Years

A SURVEY of 1,802 cancer patients treated in seven Philadelphia hospitals in 1923 found slightly more than one-tenth of the group alive six years later. If the patient is alive and well five years after treatment for cancer, the treatment is considered successful by cancer specialists.

Results of the Philadelphia survey, which was made by Dr. Arthur H. Estabrook of the American Society for the Control of Cancer, are made public by the *American Journal of Cancer*. Dr. Estabrook was able to secure information about approximately nine-tenths of the cases treated in seven general hospitals of Philadelphia in 1923. His survey showed these additional facts:

Nearly one-fifth of all patients admitted to the hospitals died in the hospital within a few months after treatment.

Of the 1,802 patients treated for cancer in 1923, 191 were alive six years later. Of these, in turn, 170 were in good condition, while 21 were in poor condition.

The group of patients suffering from skin cancer showed the highest proportion alive at the end of five years. The bone cancer group showed the next highest proportion of five-year survivors, and the other types of cancers showed the following order: cancer of the mouth, cancer of the breast and cancer of the womb.

Three-fourths of the entire group were known to be dead six years after treatment. A little over half of the total group, 957, died of cancer, within one year following treatment.

Nearly one-half of the group delayed one year before seeking treatment. Only a small number, 3.5 per cent. of the total, went for treatment within one month after noticing that something was wrong.

"The period of delay, without consideration of other factors in the life history of the cancer, seems to have little correlation with the end-result of treatment," Dr. Estabrook found.

Nearly a third of those alive delayed more than one year before receiving treatment. About one-fifth of those who died received the first treatment within three months of first noticing the condi-

tion. More than a third of those who died received treatment within six months following the first symptoms.

Treatment by X-ray or radium was used in 810 cases. Radiation combined with surgery was used in 653 cases, and surgery alone was used in 336 cases.

Conclusions could not be drawn as to the effectiveness of the methods of treatment, Dr. Estabrook pointed out, because of insufficient data.

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METALLURGY

Indium Output May Soon Reach Ten Pounds a Year

INDIUM, metal so extremely rare that its price at present is ten times that of platinum, is becoming available in larger quantity. New ore sources have been discovered in America, and these, together with older known deposits in Germany, yield enough raw material to encourage expectations that the annual output of the finished metal, of 99.9 per cent. purity, will soon reach five kilograms, or a little over ten pounds.

Because it has hitherto been scarce almost to the point of unobtainability, the possible uses of indium are still practically unknown. But with ten pounds a year in sight, chemists are looking forward to researches on it.

One thing is known about indium at present: its salts are not poisonous to human beings. In this it differs from almost all of the other heavier metals. For this reason it may find important uses in medicine.

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BOTANY

Rare Plant Rediscovered In Western Texas Creek

ONE OF THE RAREST plant species in the world has been rediscovered in Madera Creek, in the Davis Mountains of western Texas, by Dr. R. A. Studhalter of Texas Technological College at Lubbock. Dr. Studhalter has reported his find to the *Scientific Monthly*.

The plant is known as *Riella*, and has