

ENGINEERING

St. Louis Cuts Smoke Density Over 11 Per Cent in Drive

Smoking Stacks Spotted From Watch Towers in Tall Buildings; Public Opinion Roused for Cooperation

THROUGH continual spotting of smokestacks in St. Louis, St. Louis has been able to reduce the density of smoke by over 11 per cent. from some sources, it was reported to the American Society of Mechanical Engineers meeting in that city.

Continual enforcement, plus a sustained and aroused public opinion to lessen smoke in the city, is the only way a community can free itself of air pollution, said R. R. Tucker, commissioner of smoke regulation of St. Louis.

Citing the lessons of 73 years of smoke troubles in St. Louis, Mr. Tucker said:

"As we glance over these records, we find they reek with ordinances. The fundamental fallacy in all smoke programs is that air can be purified by legislation. No administration or public officials can wave a wand and clear the skies. The public must come to a full realization of its responsibilities."

All coal and solid fuel dealers in St. Louis, Mr. Tucker indicated, are licensed and receive their permit only after they supply information as to the type of coal they are to sell, its origin and so on. Thus a check is made to see that coal with very high ash or sulphur content, or both, is not sold.

A corps of smoke inspectors also watches the blackest smoke stacks in

the city and reports on the smoke densities measured. Ten tall buildings in the city are the spotting towers for these smoke abatement inspectors. Observations last four hours each day with readings every minute.

Due to this surveillance there has been a marked reduction in St. Louis' smoke density, with the biggest improvement coming from the commercial group. Here an 11.65 per cent. decrease was reported. The smallest reduction was in institutional cases. Residential cases showed an average decrease of almost four per cent.

The final solution of St. Louis' smoke problem, Mr. Tucker indicated, can only come when an essentially smokeless fuel is provided for the large group of domestic consumers.

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ject to permit the construction of these panels on a production basis utilizing more mechanical equipment than has heretofore been possible."

Special three-hinged barrel arches, never used before anywhere, will span the basins and support their sheltering roof.

So exacting will be the work conducted in the new basin and its associated

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laboratories that artificial lighting will be used entirely, for artificial lighting is not subject to the variations of sunlight.

Not only that but the giant towing cranes, which will haul the models not equipped to travel under their own power, will run on rails curved with the curvature of the earth. The deflection is slight in the 1,050 feet of the high-speed tank; it is less in the shorter basins, but it is enough to throw delicate calculations out if due allowance isn't made in the construction of the rails themselves.

A force of 150 will man the new basin, around which is expected to grow a new community. Since model construction and testing is a highly specialized craft, most of the men will come from the testing basin at the Washington Navy Yard.

Number One man in the little wooden hut which serves as the headquarters of the officer in charge today is Lt. Comdr. Hugo Carl Fischer, Civil Engineering Corps of the U. S. Navy. But Lt. Comdr. Fischer, when you mention the subject of what naval officers are responsible for the development, reminds his listeners that Admirals William G. Du Bose and Emory S. Land, the latter now head of the Maritime Commission, were among those who had a hand in initiating the project. The work is being carried out under the supervision of Rear Admiral Ben Moreell, chief of the Bureau of Yards and Docks.

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CHEMISTRY

Tear Gas Used To Fight Weeds

BACK DURING the World War, tear gas was one of the weapons of military offense. Many a crucial objective was gained while its defenders were weeping, helplessly, like small boys.

Today, when strikes and riots pre-

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vail, tear gas is the weapon used by police to reduce crowds, temporarily, to non-resistance.

But next year, perhaps, tear gas will find a new use and one far removed from violence. It will help produce weed-free putting greens for the nation's golfers!

J. A. DeFrance, of the Rhode Island Experiment Station, traces the use of tear gas to kill weeds back to the shell-battered No Man's Land of France. The gas squads of wartime contained men trained in chemistry. One of them noticed that where the tear gas liquid spread on the ground, weeds were quickly killed.

Out of this remembrance has come soil sterilization by tear gas which renders the future soil of golf greens free of weeds.

In the present practice the soil destined for the green is placed in a large box and several holes drilled in the earth. Down each hole are poured a few drops of liquid tear gas, a canvas cover applied and left for about two days.

The soil is then removed and placed directly on the golf green and seeded. All the weeds in the soil are killed and the grass takes root without competition from its fast-growing rivals. The putting green is thus free from weed contamination until wind-blown weed seeds alight on it and take root, something which is not too easy when a thick, velvety coat of grass is already there first in husky growth.

Commonest sterilization method for greenhouse soils is the application of live steam while heat, applied by flame, is often used in outdoors locations such as highway roadsides and railroad rights-of-way.

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ARCHAEOLOGY

Robbers Evaded Curse, Looting Noble's Tomb

A RCHAEOLOGISTS in Egypt have unearthed a nobleman's tomb guarded by an extraordinary curse—and found it already plundered.

It was curious, the faith ancient Egyptians put in tomb curses. The most ingenious malediction apparently frightened none of the daring racketeers who kept track of rich tombs and lost little time plundering them. Either Egypt's tomb crackers could not read, or they were not superstitious.

An interesting point about this discovery, however, is that the robbers did plaster the facade of the tomb after ex-

tracting the valuables. They left the nobleman, whose name was Ny-ankh-Pepy, undisturbed in his big sarcophagus. Painted eyes on the coffin stared at them, and according to Egyptian belief, the dead man could see with those painted eyes. But even that failed to shake the robbers' nerve—unless that was why they made the gesture of leaving the place plastered and superficially "undisturbed."

The curse they risked was this: if any one disturbed the tomb, the owner would expose him in the Judgment Hall of the Great God, and his head would be twisted off like a goose.

Prof. Selim bey Hassan, of the Egyp-

tian Antiquities Department, is the discoverer of this and other tombs of ancient nobles at Sakkara, where the Step Pyramid stands.

Tombs he has recently entered there date from the fifth and sixth dynasties. Built and used about 2600 B. C., the tombs show how Egyptians of rank were then beginning to assume the advantages of royalty in their preparations for future life. Earlier Egypt strove to provide gloriously for the king's godlike future. Now, about 2600 B. C., nobles adorned their tombs, also, with the pictures and writings considered so magically real and useful in the world to come.

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PHYSICS

New 100-Ton Cyclotron Is To Be Built By M. I. T.

AN ATOM-SMASHING cyclotron to be devoted exclusively to medical and biological research, will be constructed at the Massachusetts Institute of Technology during the coming year, Dr. Karl T. Compton, president, has announced.

The machine, to weigh more than a hundred tons, will be of the most approved type and of the same general size as the largest yet built, with the exception of the giant one now under construction at the University of California by its inventor, Prof. Ernest Lawrence.

In announcing plans for the cyclotron, enabled by a grant from the John and Mary R. Markle Foundation of New York, Dr. Compton said:

"The Institute is in a fortunate position to undertake this work for two reasons. First, because Prof. Robley D. Evans, under whose direction the cyclotron will be built and operated, has developed an unusually successful technique for the detection, measurement and handling of radioactive chemical elements of the type which can be produced in large quantities by a cyclotron. It was for this technique as applied specifically to radium poisoning that he was awarded the Theobald Smith prize of the American Association for the Advancement of Science a year ago.

"Working up to the present with a relatively very feeble source of radioactive materials, Prof. Evans has nevertheless done some very interesting exploratory work regarding the medical

possibilities in the use of particular radioactive elements, in collaboration with several members of the Harvard Medical School and local hospitals, and also in collaboration with members of the department of biology and public health at Technology.

"The new cyclotron will permit work of this type to be greatly extended in power and scope and the program may be considered as a joint program between Prof. Evans' group of physicists together with biologists at M.I.T. and medical research men in neighboring institutions.

"The second fortunate element in the situation at M.I.T. is the parallel program of the high voltage electrostatic generator of Prof. Van de Graaff, who with his colleagues is engaged in a very comprehensive program of atomic physics. This program comprises not only the very important medical X-ray applications, which a cyclotron is inherently unable to handle, but includes also a comprehensive program of investigation in atomic physics which will parallel the investigations which can be made with the cyclotron."

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Scientists are finding it hard to raise apple maggot flies in captivity, in order to learn how to destroy them.

A waterfall is hotter at the bottom than at the top, because of the heat generated as the water strikes ground.