

ENGINEERING

Cheap Coals, Reduced to Powder, Make Superior Fuel

Tests Show That Economies of Big Power Plants Can Be Brought to Locomotives and Steamships

DIRTY, cheap coals so useless that they can almost be had for the asking, become the source of hotter fires than costly anthracite can make, if they are ground up to dust and blown into the firebox with air enough to make them burn. How such coals have been used to save money for railroad and steamship companies was told at the Carnegie Institute of Technology by engineers attending the Third International Conference on Bituminous Coal.

The hard-pressed railroads may expect their coal bills to be much lower if they will burn their fuel in pulverized form, John C. Chapple, consulting engineer of St. Louis, said before the conference.

"There is no reason," Mr. Chapple declared, "why higher boiler pressures and superheat, multiple expansion, and pulverized fuel will not at least double the over-all efficiency of the locomotive during the next few years."

He described the use of pulverized coal on test locomotives of the Missouri-Kansas-Texas railroad, and reported a saving of from 20 to 25 per cent. In the most satisfactory installation the coal was ground in a pulverizer on the tender just before it was mixed with a stream of air and fed into the firebox. Powdered coal makes possible a hotter fire in a smaller firebox than can be obtained with hand firing.

The chief disadvantage in its use lies in the fact that most of the ash goes up the smokestack as very fine, sharp particles, which when breathed in sufficient quantity may be injurious to health. On shipboard, however, there is little objection to the ash, because it is lost over the water. The use of powdered coal afloat was reported by C. M. Stein of Paris and by R. J. McKechnie of Boston. Both described experiences of the few pulverized coal burning vessels already in operation, stating that great savings were being effected. A disadvantage of powdered coal when it has to be stored is the ease with which it takes fire; this has been put to good use in the coal-dust motor.

If coal is powdered finely enough, sprinkled lightly over a piece of paper and left in the air for a few minutes, it will slowly change into a white ash. It is not necessary to touch a match to it. So the danger of stored powdered fuel igniting from spontaneous combustion is great.

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PUBLIC HEALTH

Study Shows Cancer Varies With Nationality

CANCER DEATHS are more frequent and the disease probably more malignant in some countries than others, it has been learned from one of the many studies of the Health Organization of the League of Nations, Dr. Victor G. Heiser of the Rockefeller Foundation said in describing the work of this organization at the De Lamar lecture of the Johns Hopkins School of Hygiene.

This cancer inquiry of the League's Health Organization showed that the differences in the number of cancer deaths in different countries are real and not necessarily due to better diagnosis in one country than another. The rates of cancer mortality are lower in the Netherlands and in Italy than in England, is another fact brought out by the study. Furthermore, cancer is more prevalent in the United States among families of British origin than those of Italian origin. Again, cancer of certain types is much more prevalent in some countries than in others. Facts like these, discovered by study of data made available through international cooperation, may eventually lead to the key of the cause of cancer, Dr. Heiser pointed out.

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