

that capacity should be kept far enough ahead of production to meet all demands which may be placed upon the manufacturer.

The tendency to apply machinery to all cement processes has considerably reduced the man-power required to produce America's cement, but regardless of this fact, 37,000 wage earners were gainfully employed in making cement during 1928. To these men, and to salaried officials, the industry paid \$67,000,000 during the year. A further financial index of the business may be gained from the fact that materials and supplies cost the companies a total of \$168,000,000 and that the factory value of the output, on a basis of \$1.57 a barrel, was listed by the government at \$276,626,150.

Besides the fact that Uncle Sam is the world's largest producer of cement, he is also the world's largest user of cement and in 1928 a total of 1.45 barrels per capita was consumed.

But cement itself is, after all, only a raw material, not usable in itself except as a constituent in the manufacture of concrete. Studies being made may eventually develop desirable changes in cement but the principal problem is application of knowledge now known in the manufacture of concrete.

Self-Extinguishing Cigarette and Fireproof Match Invented. At the request of Representative Edith Nourse Rogers of Massachusetts, scientists at the Bureau of Standards, in a six-month test of nine popular brands, have evolved a "safety cigarette." Its fire-protection factor lies in an inch-long cork tip, lined with water-glass, air-excluding sodium silicate. The scientists also have developed a fireproof match, coated with water-glass within a half-inch of its head. Tossed aside as a fag-end, the self-extinguishing cigarette was found in tests to go out quickly enough to reduce the fire hazard some 90 per cent, as compared with the untreated cigarette. Possibility of accidental fires was reduced approximately one-third by the fireproofed matches.

An annual fire loss of approximately \$90,000,000 from carelessness of smokers prompted Representative Rogers to ask scientific aid. P. D. Sale and F. M. Hoffheins, under the supervision of S. H. Ingberg, chief of the fire-resistance laboratory, attacked the problem.

They studied discarded cigarette stubs in highways, by-ways, and building corridors. By scientific measurements, they learned that a one and one-quarter inch cigarette stub is the one most frequently discarded, and that two-thirds of the smokers will toss aside a stub between one and one and one-half inches long. Laboratory experiments showed that cigarettes had a 40-to-1 fire hazard as compared to cigars.

It was learned that five seconds is the time most frequently taken for lighting cigarettes, ten seconds for cigars and pipes. The scientists then computed the percentage of water-glassing with the greatest safety factor while retaining the fiery usefulness of the match.—*Ind. Eng. Chem.*, 21, 853 (Sept., 1929).

The radium deposits of North Portugal are, according to American statements, to be worked by a British company which will be formed for the purpose, and it is hoped to reach an annual production of 20 grams.—*Chem. Age*