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The Cement Mill Edition of *Concrete*

The Cement Mill Edition of CONCRETE is edited exclusively for those interested in the manufacture of portland cement and related products.

Its pages are devoted to discussions of plant design, management, operation, production, efficiency, chemical research and control, quarry operation, progress and news of the industry.

The Cement Mill Edition also contains all the material published in the corresponding Regular Edition and so provides news of the uses and merchandising of the materials whose manufacture is discussed in the Mill Edition.

The Regular Section furnishes mill operating officials and mill executives valuable points of contact with the users of the materials they produce.

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All-Steel Crusher Unit

A new type of all-steel reduction crusher has been announced by a Wisconsin equipment manufacturer. This unit operates on the gyratory principle, but the improvement now introduced provides a higher speed than formerly. It has been designed to handle large tonnages and large sizes of stone. Even though the new unit is of all-steel construction, it is said to be of simplified design. Among other features the spider and top shell are cast in one piece, which is readily removable for the replacing of its manganese steel concave ring. Adjustments can be made for taking up the wear on the liner and on the manganese steel mantle.

Designers of cement manufacturing plants have recognized the increased importance of crushing operations—a point that may be verified when one considers some of the recently constructed or reconstructed plants.

South America and Texas

For illustration, in a large plant recently completed in Argentina, the natural deposit of limestone in the quarry is drilled with pneumatic jack-hammers and is blasted down and further broken up, if necessary, by means of auxiliary

blasting or even with sledge hammers. It is transported to a cableway terminal near the quarry and from there it is transported in cableway buckets for a distance of five miles, to the crusher at the plant. At the crushing plant the stone is dumped from the cableway buckets to a 16-in. gyratory crusher which discharges into the raw storage space. A clam-shell with a capacity of 2 cu. yd., operated by a travelling crane, carries the crushed material to the grinding mill bins, from where it is fed to the raw-grinding mills as required.

In a new cement plant recently built in Texas the raw material consists of shell and clay, which is delivered to an adjoining dock by barge. Here the nature of the shell virtually eliminates primary crushing, inasmuch as the size approximates that of the output of a primary crusher. The shell, when unloaded, is carried by means of a belt conveyor and elevators to a bin directly over a ball mill. The shell is fed to the ball mill with a vibrating feeder, and the mill operates in closed circuit with a vibrating screen. The tailings are returned to the feed end of the ball mill, and the fine, semi-finished product flows by gravity to a large storage tank from which the feed for the tube mill is taken.

A Huge Crusher Unit

Reconstruction of the Universal Atlas Cement Company plant at Leeds, Alabama (See CONCRETE, March, 1938, p. 134), involved the design of a crushing system which utilizes the most modern equipment available. The primary crusher is a huge unit described as a 42-in. gyratory crusher which has a rated capacity of about 500 tons an hour. From the primary crusher the rock is discharged on to a pan conveyor which carries the raw material to a 42 by 66-in. hammer mill. From the hammer mill the crushed stone is carried to the open storage space by means of a belt conveyor. The raw material storage space provides room, not only for the crushed rock, but for clay, sandstone and shale. The entire space is served by an electrically-operated travelling crane having a span of 100 ft. and a lifting capacity of 10 tons, and equipped with a bucket of 3 cu. yd. capacity. This electrically-operated crane delivers any of the raw materials to their respective storage bins, and proportioning feeders installed beneath the bins carefully control the proportions of the raw materials by means of a belt conveyor to the rock grinding mill.

Dr. Brown Lectures on Harmful Dusts

HARMFUL dusts constituted the subject-matter of a lecture given on April 23 by Dr. Carlton E. Brown at the University of Maryland.

Dr. Brown, who is connected with the U. S. Bureau of Mines, presented his lectures under the auspices of the University, at the College of Engineering Auditorium at College Park, Maryland. He discussed the occurrence of the numerous kinds of dusts, their effects on human beings, the scientific methods used in counting them, and measures recommended for their control.

Dusts are formed by the disintegration of solid matter by such processes as abrading, crushing and grinding, Dr. Brown explained. The presence of dust in the air may be objectionable because of its being harmful to breathe, or irritating to the skin; it may render the air explosive; may increase operating and cleaning costs; and may reduce atmospheric visibility.

The composition and concentration of such dusts as lead, arsenic, antimony, cadmium, and manganese are determined

by well-established analytical procedures. The concentration of such substances as free silica and asbestos is determined usually by the use of exceedingly ingenious counting procedures, and occasionally by gravimetric procedures. The application of petrographic, spectrographic, and X-ray procedures to the determination of the composition of these substances, difficult to determine by chemical procedures, is increasing. Microscopic measurement, air and liquid elutriation, and various indirect optical and other methods are used to obtain information on the size-properties of dust.

The harmfulness of dusts may be controlled by such measures as substitution of a non-injurious dust-forming material for the harmful or objectionable material; prevention of formation of dust; prevention of dissemination of dust into the air by the use of water, wetting agents, exhaust hoods, or good housekeeping; ventilation; removal of dust from the air by filtration, electrical precipitation or other means; and by the use of respirators.

American Chemical Exposition Scheduled for Chicago

CHEMISTRY and the chemical industry will feature the American Chemical Exposition by the Chicago Section of the American Chemical Society announced by R. C. Newton, of Swift and Company, chairman of the committee in charge, at the meeting of the Chicago Section held at Chicago on March 29.

Plans for the first Exposition, to be held December 11 to 15, 1940, at the Stevens Hotel, have been perfected by a committee of ten and approved by the Board of the Chicago Section.

Emphasis will be placed on chemical products and scientific exhibits will be included. The plan is to make this the first of a series of expositions to be held in even-numbered years to alternate with the Exposition of Chemical Industries in New York.

Approximately 32,000 sq. ft. will be available for exhibits and some 300 exhibitors are expected. Offices of the Exposition have been opened by the committee at 110 North Franklin Street, Chicago, Illinois, with M. W. Hinson in charge as manager of the Exposition.



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