should also be held directly responsible for everything in connection with wrecking work and the proper up-keep of the auxiliary equipment, and himself and crew be available day or night. One man should be assigned to the duty of factotum of the dining and sleeping car, and be able to satisfy the inner-man; his duties would also be that of commissary, which is no small part of the wrecking equipment.

The auxiliary equipment should consist of a serviceable dining and sleeping car (an old coach makes a good car) for this purpose, a tool car, heavy wrecking steam crane, block, tie and rail car, truck and wheel car. Tool car should be equipped with a first aid cabinet complete, with supplies and a modern equipment, quick lifting, traversing and other jacks, a plentiful supply of cables, tail ropes, chains and tools, and one man should be held responsible for their proper up-keep.

In arranging work for efficient handling on the repair tracks a set of rules governing proper marking of cars by inspectors in the traffic yards would aid repair yard men, and the rules of marking of cars should be respected by switchmen in placing cars on the repair tracks. Defects should be classed in A, B and C, or 1, 2 and 3 classes. Heavy work (three days) such as sills, roofs, etc., show A or "1" class; sill splices, ends, draught timbers, trucks, etc., medium work (two days) as class B or "2"; light, such as light patching, draught timber and gear bolts, brakes, side doors or any light work that can be handled in one day, show class C or "3." Tracks should be designated by the symbol or figure and cars placed as marked.

The foreman should place with yardmaster a switch list showing cars O.K. and location, listing cars he requires changed to other tracks to arrange his repairs, but the whole secret of success lies in co-operation with operating department in providing a proper and efficient system of switching.

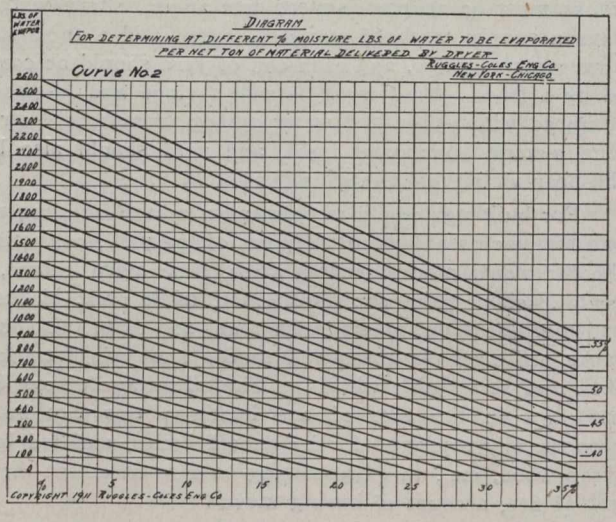
THE IMPORTANCE OF PERSONALLY STUDYING MIXER SPEED.

A great many contractors take the word of the operating engineer of the mixing plant as to results derived by increasing or decreasing the speed of the mixer drum, while for some unaccountable reason the latter seem unable to grasp the fundamental principles underlying the operation of a mixer for maximum capacity. A personal investigation by the contractor will often pay, as evidenced by the experience of Mr. A. W. Ransome, the well-known manufacturer of concrete mixers, who in a recent discussion stated that he visited a plant in which one of their 1-yd. mixers was being driven at eleven revolutions, and it required, at this speed, something over a minute and a half to discharge the bath. By speeding up to 19 r.p.m. the batch was discharged in less than 15 seconds.

Mr. Ransome stated that their machines are ordinarily sent out with the engine adjusted to give a mixer speed running from 16 to 20 r.p.m., depending on the size of the mixer involved. The speed for which the various machines are adjusted is that which will give the best results for the average material. The speed, however, is more or less subject to variation, according as the materials to be mixed vary and as the amount of water used in the mixing may vary. In other words, if the material flows very freely, the speed of the drum should be higher than if the material flows less readily, and, similarly, where a very wet mixture is used, the drum should be driven at higer speed than where the drier and more sticky mixture is handled. The real governing factor is to be found by looking in the drum opening and so adjusting the mixer speed as to get the maximum discharge into the discharge chute, instead of falling short thereof, or carrying over.

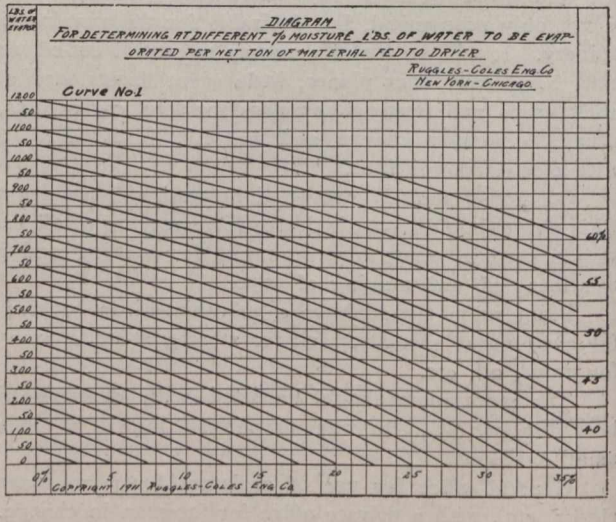
USEFUL CURVES IN DRYING CEMENT ROCK, CLAY, AND SIMILAR MATERIALS.

Cement companies use dryers for treating cement rock, clay, and other argillaceous materials as well as for drying the coal so that it may be pulverized and made ready for the kilns. The amount of water to be evaporated in reducing a given ton of material from one percentage of moisture to another is often desired to be known quickly. The curves



prepared by the engineering staff of the Ruggles-Coles Engineering Company fill this need and are reproduced here.

To make the use of these curves clear take a specific case of reducing cement rock from 6 per cent. moisture to 1 per cent. Referring to curve No. 2 follow the diagonal opposite to 6 per cent. at the bottom until it intersects the ordinate of 1 per cent. Then follow across to left and the figure 140 lbs. is the amount of water to be evaporated per



net ton of the cement rock delivered by dryer. Curve No. 1 is used in the same way and from it can be determined the lbs. of water to be evaporated per net ton of material fed to dryer.

A considerable saving of time can be effected by the use of these curves, and the Ruggles-Coles Engineering Co., 50 Church Street, New York, will send blue prints of them on request.