Shipping of Plants on Cars.—I will briefly explain the orders given to our instructors when it is necessary to ship a plant on cars. The first thing to do is to order the cars in advance, generally three flat cars. While waiting for the cars, all the machines, spare parts, etc., are taken to the station. When the time has come to load the machinery, the wheels of each car must be blocked very carefully, after which a strong platform is built long enough to facilitate the loading of the heavy machines. Too much care cannot be taken in the construction of this platform, which will have to carry loads varying from 6,000 to 25,000 lbs.

Excepting the roller, which goes onto the platform under its own power, the machinery is hauled onto the car by means of a tackle solidly attached to the car and to the machinery, the cable being drawn by horses. While loading the machinery, two men must follow the hind wheels of each machine with good blocks which they slide behind the wheels all the time that the machinery is going up the platform. This precaution has certainly avoided serious accidents, both to men and to machinery. If the cable should break when a machine weighing 6,000 or 8,000 lbs. is at the top of the inclined platform, what would happen if we did not take the necessary means to prevent its coming down?

When all the parts are loaded, every wheel of all machines must be blocked. The best way is to place good blocks, solidly nailed on the floor of the car, in front, behind and on each side of the wheels; special care must be taken in regard to the bin, on account of its great height and the excess of weight at top.

The same instructions apply to the unloading of the machinery.

Installation.—First look over the ground where the plant is to be placed, choose the driest spot, and see to it that water is abundant and not too far away. Do not place the crusher too far from the stone piles, but quite a distance from buildings in order to prevent danger from fire and the inconvenience from the dust and the noise of the machinery.

To set the machinery in place, we have spruce deals from 10 ins. to 12 ins. square, which belong to the plant and are used for supporting the plant. These deals are much preferable to planks placed on top of each other.

The ground must be levelled, then the deals must be set down and the portable engine and boiler placed on top of them. The machinery is all set plumb with a level, and in a straight line by means of a rope. The wheels must be blocked. In order to avoid all trouble, it is wise to see to it frequently that the machines are plumb. When the machines are out of plumb, this can easily be remedied by means of wooden wedges.

Care of Boilers.—For the care of the boiler and of the roller, we give the men special illustrated instructions. As this is the most important part of the machinery, we insist upon having these instructions carried out to the letter, and the results obtained since we have inaugurated this system are surprising, so far as fuel saving and repairs are concerned. It is the instructor's duty to watch and also to help when the boilers are cleaned each week. He must also be familiar with the working of the machines, he must help to cast babbitt bearings if necessary, help to tighten the bolts of the boiler, and to block all leaks through which steam is escaping. While the work is going on, he must be able to know if the machines are in good order by the noise they make. He must be familiar with the working of the pumps, injectors, etc.

The boiler and roller engineers must have a certificate of competence. They must carry out to the letter written instructions, given them by the department, with reference to the most economical way of heating. (Heating a boiler full of cold water too quickly would be sure to cause its early destruction.) They must see to it that they have sufficient water and that the supply is regular and constant; they must take care of monometers, test the safety valves at least once a day, know how to put out the fire should the water become low in the boiler, and know how to empty the boiler properly.

The boiler and engine are always under shelter of a portable shed, which is large enough to be able to hold oil, straps, belts, spare parts, etc. This shed is also used as shelter for the men during showers, but it is required especially to keep the machines free from the dust coming from the stone-crusher. This dust would rapidly damage the bearings and the shafts.

Road Roller.—To keep a roller in good order its boiler requires more attention than does the portable boiler, because the roller is always moving. The driver must especially look after the tubes of the boiler; if they leak, he has a tube expander which enables him to repair them very quickly. He must clean his machine every morning, and while making steam, clean all the mechanical parts such as the oilers, the grease cups, etc.; see that the bolts are tightened; see that there is no part worn out, and see that the exhaust is working well. The exhaust is sometimes blocked by rust, and trouble results.

The roller driver must look after the eccentrics, pistons and packings. When scarifiers are attached, the instructor must not forget to remove the scrapers from the wheels. This is very often overlooked, and then the scrapers are broken. The boiler tubes must be cleaned every day. A roller should never be placed in the hands of an inexperienced operator. Speeds should not be changed roughly, but only when the roller is stopped. This will prevent the slide of the eccentric from spreading.

Stone-crusher.—After ground has been levelled, deals are set in exactly the same manner as for the boiler. The crusher is placed perfectly level. Owing to the vibration, it should be set down solidly and should be levelled very often. Under the bottom part of the elevator, a hole must be dug large enough to facilitate the removal of the stones which fall out of the buckets. It is preferable to surround this hole with wood so as to prevent the earth from sliding.

The crusher requires particular attention, especially so far as oiling and greasing are concerned. The grease cups must be cleansed with gasoline, as this machine is always working in a cloud of dust, which makes the grease cups and oil-cans dirty very quickly, and prevents the oil and grease from reaching the bearings. The bearings of the connecting rod must be well connected with the crank and must be renewed properly. The department gives written instructions, with plans and sketches.

When the crusher is in operation, the instructor must prevent the men from using sledge-hammers on stones which are a little too big to go between the jaws. It sometimes happens that by using these hammers the jaws are broken. Sometimes the hammer drops in, thus breaking the jaws or the deals on which the crusher is set.

Elevator, Screen and Bin.—The elevator chain which holds the buckets must be greased often. If this is neglected it will wear out quickly and cut the teeth of the sprockets. The grease cups of the bearings of the revolving screen must be cleaned and filled with oil every day, as well as the teeth of the gears. The bin, like the other machines, must be set plumb, on deals. The screen sorts out the different sizes of stone, according to the specifications. During that time all the stone and dust in the