to answer as you might think. Cutting is the process most generally used, and, taking all things into consideration, it is probably the best, generally speaking, but what you want is not a general idea, but a specific idea of what is best in your individual case.

WHAT 1,000 FEET OF LUMBER WILL MAKE.

It is generally conceded that 1,000 feet of timber, board measure, will make, on an average, 4,000 hoops if cut, and about 3,000 if sawed. With such an estimate as this, one may wonder what excuse there can be for ever making hoops by the sawing process when it involves a waste of 25 per cent. of timber as compared to cutting hoops, but the system can and does exist. In the first place, it is cheaper to equip a factory for making sawed hoops, and then the hoops are better, and are supposed to bring a better price, though this is not always a fact. Probably the deciding factor that puts in most of the sawing systems comes from the fact that a system of this kind is particularly adaptable for operation in connection with a sawmill, where it is not the desire to make hoops on a large scale. One can equip a complete system for sawing hoops with a capacity of from 10,000 to 20,000 hoops a day, while if you buy a good hoop cutting machine it has a capacity of near 60,000 a day, and it would look like a waste of time and money to hire a skilled operator to operate such a machine if local conditions only called for an output of from 10,000 to 20,000. There are a number of other points here and there to be taken into consideration, together with local conditions, in deciding on what system to use, but the object here is to point out how to equip and operate a plant, rather than present arguments to and for the different systems, so, as the cutting system is the one most generally used, it is in order to outline briefly the equipment of a plant of this kind.

EQUIPPING A CUT-HOOP PLANT.

The average hoop plant on the cut system is built to manufacture something like an average of 40,000 hoops a day. Some of the machines have a higher capacity than this, and some plants are so equipped as to turn out more than that amount, but this is the figure that is usually taken as the basis for equipping a plant of this kind.

The first step in the manufacture of hoops by this system is to produce planks of the thickness to make the width of the hoops desired and the cross cut of the length desired. This work may be done as a part of the work in any sawmill, or a special short-log mill for this purpose can be provided. The plank is not necessarily edged down to the square edge, but cut with a view of getting as many good hoops as possible out of the log.

THE CUTTING MACHINE.

The next step is the boiling in vats for a few hours, depending much on the timber and the heat supplied from the vat. The first step proper in manufacturing is when you start to make these boiled planks into hoop strips with a cutting or slicing machine, which is usually so located as to cut from the edge of the plank hoops with alternate thick and thin edges automatically. The capacity of a good machine of this kind is usually given by manufacturers as 60,000 hoops in ten hours, but, for general purposes, it is only called on to make about 40,000 good hoops a day, for that represents, in fact, a fraction above the average output, as will be seen further along. It may be well to mention here, however, that the limit of capacity usually comes from other machines than the cutters.

PLACING THE PLANERS.

The next step is to get the hoops to the planers and finish them up smoothly to exact specified sizes. There is a variety of machines of this kind, which carry from one to three cutter heads, and of course their capacity is governed accordingly.

The usual practice is to have two planers with two or three heads, which should handle the output of one cutter. In setting these planers in the factory, they should be set up with two points in view to get the hoops to the planer from the cutter, and to get them from the planer to the pointer and lapper with the least possible amount of handling. Probably the best arrangement that can be made, ordinarily, is to set them with the feeding-in end toward the back of the cutter and just far enough away so that the men taking away from the cutter and the planer feeders will not interfere with each other in their work.

THE POINTER AND LAPPER.

From the planer the next step is to the pointer and lapper, and the same idea of getting there with the least possible amount of handling should be kept in mind. Usually the pointer and lapper is made to handle as many hoops as the cutter will make, so while they generally have two planers we come back to one machine again to do the lapping.

In placing this machine one must be guided somewhat by local conditions, and take into consideration that the material goes from the lapper to the coilers, with the steam box intervening, and as the coiler is the last step in the process, it is necessarily placed so as to discharge into the storage sheds or yard.

Where it can be done a good arrangement is to have the material go sidewise from the discharge end of the planers to the pointer and lapper, and from it direct into the steam box to prepare it for coiling. Local conditions may determine which side to work from, and may even call for the material being worked straight along instead of sidewise at this point.

A POINT OF IMPORTANCE—THE COILERS.

The wind up of the process is at the coiler, and, strange as it may seem, this machine and its operator frequently make up the most important part of the work. In the first place, it is a general practice to have two of these machines to a plant built for approximately 40,000 hoops a day, and as the machines are only rated at a capacity of 15,000 to 18,000 hoops, it is obvious that they may either have to be worked overtime or else they are likely to limit the capacity of the plant.

It is at this point that the final grading of the hoops is done; they are graded to a certain extent as they are put into the steam box, but the final culling out depends on the coiler. The careless man may not only break the hoops in coiling, but may be so careless in selecting or throwing out poor stock that the cooper using the hoops will have just cause for complaint. There is not much chance to examine the hoops thoroughly after they are once in the coil, and it involves trouble and expense to get one out when found and reconstruct the coil. It is, therefore, very important to give close attention to the selecting and coiling of hoops, and there should be a good man at this point of the factory, even if you have but indifferent help at all other points, if you expect to make a success of the hoop business.

It seems that it would be advisable to have more coiling machines; say, for example, three machines for a hoop plant of 40,000 capacity, so that there would be no unusual rush to furnish an excuse for not properly grading the stock. This may seem like adding expense to the process of manufacture, as it also calls for another man to operate the extra machine, but this good care is what counts in getting a price for hoops, and sometimes a little additional expense here will bring more than its equivalent in the better price you will be able to obtain for your product.

A chute is usually made from the coiler to the storing shed with an incline to it, so that the hoops will roll down this way with being touched by the operator.—Barrel and Box.

REGARDING A LOGGING CONTRACT.

In the case of Royle vs. Musser-Sauntry Land, Logging and Manufacturing Company, decided by the Supreme Court of Minnesota, it appeared that a logging contract provided that the contractor should have the option of adopting the official scale at Lake St. Croix as the final basis for settlement instead of the scale where the logs were banked—a place distant more than 100 miles up the St. Croix river and its tributaries. For the first three years' operations the contractor accepted the bank scale as the basis of settlement, and during those years the bank scale exceeded the official scale by 1,760,000 feet. During operations for each of the subsequent years the contractor adopted the official scale. The court held that the option provided for should be exercised each year with reference to the work annually accomplished; that from the terms of the contract, in view of the nature of the business, the parties contemplated not only that some of the logs cut and banked each year would fail to arrive in time for the annual official scaling, and would come in during subsequent drives, but also that some of them might be lost, stolen or detained and never reach their destination; that the annual official scale established prima facie the number of feet cut per annum and was the proper basis upon which to estimate compensation, and that the contract provided for annual settlement and interest upon unpaid balances, to be computed from the date fixed in each year for final settlement.