ECONOMY IN LUMBER MANUFACTURE.

Any one familiar with the saw mill business can call to mind case after case where two saw mills operating practically side by side and under identical circumstances show radically different results, says the American Lumberman. One is prosperous and evidently making money, the other is struggling for life. The result of one is wealth and of the other a mere existence, even if failure does not ensue. What is the cause of this difference in results? It is easy to say that it is a matter of ability. So it is, but that is hardly more satisfactory an answer than the description of all deaths as heart failure.

More than in most businesses the success of any lumbering operation rests in attention to little things Two mill operators may have precisely the same start and the same continuing opportunities, with results in profit that will be meased by a difference of anywhere from $1 to $3 a thousand.

There are two mills each turning out about 40,000 feet of lumber a day. One has fifteen men on the mill floor, the other has thirty. Consequently the first cuts its lumber at a cost of 65 1-2 cents a thousand feet and the other at $1.31. One may effect a saving af 50 cents a thousand over its competitor in logging alone, while in the yard, dry-kilns, the planing mill, amounts proportionately as great may be made or lost.

There was once a saw mill in the south where thirty men took the logs from the skids in the woods and along the tracks, delivered them to the saw mill, put them through the saw mill, put the product through the dry-kiln and delivered it at the planing mill, at the rate of 60,000 or more feet a day. This was done not with expensive machinery, not with an elaborate provision of labor-saving appliances, but simply by an intelligent arrangement of the details with relation to the particular situation. A more modern mill might have saved two or three men or with the same number have increased the output. We venture to say that in this same general locality other mills were using 75 to 100 men to do the same work.

Take a complete lumbering operation, for example, such as one in the south which cuts its own timber, logs it by rail, finishes the product in the planing mill and distributes it in car load lots to the trade. How is a high degree of success secured?

In the first place the business is so organized that every man does the maximum amount of work, and works with the utmost effectiveness. In the next place the work in the woods is intelligently laid out so that no time is wasted. This is a matter of location of the logging railroad and of wheel roads from the stump to the tract In a large operation steam loaders may be employed, but in a small one advantage is taken of the ground so as to make loading of the cars as easy and cheap as possible. If one man can do two or three things, two or three men are not employed to do them. On the other hand, if a man be most effective at one task he is not diverted by being called upon to lend his hand to another. The logging railroad is kept in repair so that there are no accidents or delays There is a storage pond at the mill so that if by ill luck there should be a breakdown anywhere the mill will not have to close, remembering that it is not so much a big theoretical capacity as steady running that counts in the mill product, in both quantity and cost.

The mill itself will be of substantial construction with particular attention paid to the foundation of the principal machine and the lining up of the shafting. Given these conditions the machinery will be easily kept in repair, and it will be seen that they are so kept, for upon this point largely rest both the quantity and quality of the product Misent lumber means either a lower grade or an unknown amount of work in dressing it Power will be ample. The boilers should furnish more steam than is nominally required by the engine and the engine should be rated above the nominal requirements of the machinery which it runs. A successful mill will not try to economize in the wages of the foreman, the engineer, the filer, the sawyer, the edgerman or the chief grader. Not only so, but all these men must work together harmoniously. There should be no cliques among the employes and no kickers. It is a mistake to suppose that the tale-bearer, the company spy, is a profitable member of the force, unless, indeed, it be that the entire force is made up of sluggards and soldierers, in which case blame lies with the management quite as much as with the men themselves. It is a mistake to suppose that in every case a machine is cheaper than a man. The ideal mill will stick to the happy medium. Some have too much machinery and too few men. Some have too much of both, while some might well substitute machinery for human muscle.

The grading platform is an important part of the mill. It should be ample and conveniently arranged on such a system that the product can be handled and distributed with the fewest men without confusion or delay. Here is a weak point in many a mill. In distributing to yard it would not be wise to say that either tram cars, push carts or wagons hauled by horses were absolutely the best—highly successful mills can be found that employ any one of them—but whatever the system employed it should be kept in easy working order, and the yard itself should be laid out intelligently as to grades and dimensions and to accommodate both piling and taking from pile.

The dry-kiln business is one by itself, requiring special knowledge and experience, but its arrangement in relation to the rest of the plant should be such as will be convenient and its equipment such as to require a minimum amount of labor.

The planing mill gives the finishing touches to the best part of the saw mill product and therefore largely fixes the value of the commodity. The machinery must be of good type, but above all must be well installed and maintained. Here, as in the saw mill, two or three first-class men can save the business from loss. And so we come to the office and selling department of the business. This is too large a subject to be even outlined here.

NON-INFLAMMABLE WOOD.

The degree of excellence to which the fireproofing of modern buildings has been carried, is evidenced by the severe tests which have recently been made in the United States and other countries with wood treated by the electric process of fireproofing This process is the latest development in the science of rendering wood non-inflammable, and has been adopted by the British and United States naval authorities after a series of the most exhaustive comparative tests with every known method of fireproof construction in the line of material that could be utilized as wood in the building of warships. It has been endorsed by leading architects and chemists in this and other countries and has been used in some of the most modern buildings recently constructed.

When the lumber is received at the fireproofing works it is piled in conical shape on iron cars with 3-8 lath between each layer of boards. After the load has been made up 105 ft. long, it is drawn into a cylinder by a one inch cable, after which the door is closed and locked. Then a steaming process takes place inside the cylinder, thus opening the pores of the wood. The sap is extracted from the wood and drawn from the cylinder by vacuum While this is taking place inside the cylinder the chemicals in the large tanks overhead are going through a heating process. After the lumber has been softened to a certain degree and the pores thoroughly opened, the heated chemical is allowed to pass by gravity into the cylinder until it is filled, after which the pressure pumps are set to work and are kept working until the pressure has gained 1 to the square inch. The chemicals in th are then forced back into the overhead means of air pumps, the doors are o the lumber drawn out of the cylinder a ferred to dry-kilns, where the proces pleted.

This electric process of fireproofing is ent carried on by three companies in th States, one in London, Eng., and the Fireproofing Company, of Canada, Limit office and works at Cote St Paul, Mont representative of the Canadian Archit Builder recently visited the works of t pany, which are situated at Cote St. the Lachine Canal. The Grand Trunk Company have siding into the premises, every facility for shipping by water or available. The property covers an area acres, and the factory is built of solid br roof supported on steel columns and gird building is divided up into a cylinder-roo gine and pumping room, boiler room, coal chemical-room, store-room, office, two dr and transfer table. The building is so l that double the plant can be added as th ness increases. The cylinder-room is long by 32 feet wide, and contains two c 105 feet long by 7 feet in diameter, capa holding 15,000 feet B.M. of lumber each charge. Above the cylinders are three la tanks, each having a capacity of 26,330 g The tanks contain the fireproofing so which is pumped into the cylinders under sure The doors of the cylinders are faste radial steel bolts weighing about ten tons are operated by two men in a few seconds doors have to stand at times an internal pr of from 200 to 300 pounds per square inch boiler-room is 37 feet by 24 feet and co two Babcock & Wilcox high pressure 75 power boilers. These boilers supply steam cylinders, pumps, dry kilns, etc.

The engine-room is 39 feet by 37 feet, as tains a 75 horsepower Corliss engine winch, 40 horsepower, for operating ra lifting 8,000 pounds; one vacuum and pr pump, 16x20x24 in., duplex water pump, fo in., connected to canal by an 8 inch water two duplex pressure pumps, 5 1-2x3 1-2x high pressure to cylinder; one pump for se service to feed tanks, 5 1-2x3 1-2x5 ft.

The chemical mixing room is 37 feet by 3 and a storeroom above of the same size. h room is placed two setting tanks 12x8x6 in ectly above is one circular tank, 5 feet dia by 3 feet 6 inches deep, used for mixing the icals; two dry kilns two-storey high, 123 f 16 feet 6 inches wide, each heated by the "C mon-Sense" system of radiation. The storey is filled with the lumber, placed on and is fed by a fan 110 inches in diameter, nected to a condenser, 21x5 ft. 2 in. x 4 ft high; this condenser is filled with cold radiators, which purify the air as it through same into heater 12 ft. 3 in. x 5 ft ft 2 in high; this heater contains 8,000 f 1 inch steam pipe, which heats the air to a temperature, after which it is blown into th kiln at the extreme end and sucked out a rear end by means of the fan, which mai continuous circulation of air. Above th kilns is a room for storage of lumber, 125 f 33 feet The office is 32 feet by 48 feet, and cludes a test-room, in which the chemical solutions are tested for strength and impu A traverse table 35 feet wide by 10 feet tra 137 feet and is worked by a steam winch used for transferring the cars of lumber fro yard to the cylinder and from there to th kilns, this giving access to all tracks in the The railway track from the Grand Trunk way enters the grounds about midway and through the centre of the building, con with the various rooms, so that the least a of handling of lumber is avoided, ensuring omy and the smallest amount of damage t material.