

to have a theory at one's tongue's end beforehand, and to have some system outlined to follow, but the real education of the timber estimator can only be obtained by actual work in the woods. Such education can be obtained without the aid of an instructor, but probably at the expense of many mistakes in regard to the quality of the timber, and at the expense of many wild guesses as to quantity.

I would say further that anyone intending to purchase any considerable tract of timber, unless well conversant with land looking and timber estimating himself, had better pay a practical estimator for his services than to undertake to estimate the timber for himself, even after carefully reading and digesting the rules I have here laid down. More purchasers have been fooled by confidence in their own ability to make an estimate of timber than would fill a page of this paper if their names were printed in the finest solid type. I am out of the business, and have no interest in it whatever, but I would say to any prospective investor in timber land, who proposes to take these rules, or any other estimator's rules (and these I affirm are as good as can be drawn up) don't do it, but hire some well known, trustworthy landlooker or estimator to do the work for you. It will be money in your pocket in the end.

#### QUESTIONING THE SPRUCES.

AUSTIN Cary, forestry specialist for the United States Department of Agriculture, believes that spruces, growing under average conditions, make an annual increase of 2.3 to 3 per cent. It is evident that, in reaching this conclusion, Mr. Cary has left nothing to guesswork. He has spent nearly two years in the woods of New Hampshire and Maine, during which time he and his assistants measured more than 10,000 individual spruce logs and trees, says "Popular Science News."

While the figures thus obtained are not encouraging to men who have bought townships of young spruce for permanent investments, they afford a most potent argument in favor of scientific forest culture. During the first twenty years in the life of a young tree the growth is rapid; but as soon as the stems get big enough to be of value as poles or pulp wood, and long before they are worth cutting for timber, the per cent. of increase drops to a low figure, and holds there during the life of the forest. In dense growths, where the trees run up tall and slim in order to push their tops to the light and air, fully seventy-five per cent. perish in the struggle for existence, and stand there, while they undergo a slow decay, greatly impeding the development of living trees.

Under the present system of management, which is simply nature's way of doing things, the Northern spruces are not big enough to make mill logs until they are 100 to 120 years of age. During the time of growth ninety-five per cent. of the original seedlings have been killed from suffocation or inadequate nutrition, and about seventy-five per cent. of the wood counted in board or cubic measure has gone to waste from decay. In choppings that were culled for the best logs twenty and thirty years ago Mr. Cary found that the surviving trees had grown four, six, and sometimes ten per cent. a year, owing to the thinning.

Hence it is argued that if the landowners who are now stripping off their young spruces for pulp wood were to thin out the growths, leaving the tallest and best to grow for logs, they would get nearly as much as they do now for pulp, and still have their timber land in better condition for logs than it was before the weeding out was made. Owing to the danger from winds, no lot should be entirely thinned in one season; but the work must be done gradually, so as to enable the surviving trees to withstand the gales.

Now that spruce is gone from all the waterways and the lumbermen are pushing private railroads among the mountains to reach what still remains, the owners have learned that, by following Mr. Cary's advice they may make their townships yield good incomes from pulp wood and at the same time enhance the coming values of the trees that are left to stand. It is a case where a man may eat his cake and still keep it to eat at some future time. When it is remembered that nearly all the white paper now used is made from spruce pulp, and that about three-fourths of spruce growth in New England has been swept away during the past fifteen years, it would seem that it was time for the landowners to show some interest in what concerns them so much.

#### PRICES AND TERMS OF FOREIGN MARKETS.

A LUMBERMAN correspondent states that he has been quoted offers on American lumber to be delivered in European ports, at so many francs per cubic meter, and he wishes to know how to find out the value of this offer in English, in other words, in Yankee board measure and Yankee dollars and cents, says the *Hardwood Record*.

The French meter is 39.37 inches in length. This cubed, or multiplied into itself twice equals 61,023.37 inches, which divided by 1728, the number of cubic inches in a cubic foot English measure, gives 35.51 cubic feet, or 35.3, which is near enough for all practical purposes. Multiply this by 12 and it gives 423.75 feet board measure in a cubic meter, or 424 feet in round numbers, which is the amount used in ordinary commercial transactions of American exporters. They use this as an equivalent of the French cubic meter.

To reach the number of feet, board measure, in any number of cubic meters, therefore, simply multiply the number of cubic meters by 424, which is near enough for accuracy except in very large amounts, when 423 $\frac{3}{4}$  feet is almost the exact equivalent, the fraction lost being infinitesimal.

The French franc equals 19 cents and a very small fraction. It is ordinarily computed roughly at 20 cents, American money, although 19 cents is usually the nearer. The value of the franc is fixed periodically by the Treasury Department at Washington, but its fluctuations are in very small fractions of a cent, seldom reaching quite as high as 20 cents under any ordinary circumstances.

There are various terms used in connection with the shipment of lumber to Europe, which are somewhat enigmatical to the average shipper. For instance, the correspondent mentioned states that he has the offer of so many francs per cubic meter for cottonwood, delivered C. I. F. These calibilistic letters C. I. F. are

somewhat of the nature of our letters F. O. B., and mean simply cost, insurance and freight, or, in other words, that the lumber is to be delivered at the European port for so many francs per cubic foot, including original cost, insurance and all freight charges. Shippers are advised to be careful about signing contracts including anything more than the letters C. F., as the question of insurance is not always a readily known quantity and certain restrictions should be placed upon the scope of the word freight, as, for instance, whether it should include freight from the mill to the seaboard and the straight ocean freight only, or whether it should include charges that might occur from moving the lumber from really the exterior port of delivery to some exterior point, as through the Kiel or Manchester canals. These minor things ought to be well understood by the shipper before signing a contract with all these calibilistic letters and provisos.

To reduce any number of feet, board measure, to cubic meters, divide the amount by 424, number of feet, board measure, in a cubic meter, and vice versa. To reduce American money to francs reduce it to cents and divide by 19 $\frac{1}{2}$ , which will be near enough for practical purposes.

Another correspondent inquires with regard to certain English measurements which have been explained several times in the *Record* and other lumber papers, but it will do no harm to explain them briefly again. In English measurement a "load" is 50 cubic feet, or 600 feet board measure. This is a term quite commonly used in the English timber trade. The term "standard" is probably used more often, and it means what is commonly termed the St. Petersburg standard, which is equal to 1,980 feet, board measure. The Irish standard is sometimes used, but not often, and it is equivalent to 3,240 feet, board measure. When this latter is used it is sufficiently designated, and there is seldom any chance for a mistake as to which is which, for unless otherwise specified the term "standard" means St. Petersburg standard of 1,980 feet.

The whole timber and lumber business in England is carried on in a regular old pedauger fashion, and it is a wonder the English people do not rebel and adopt some more common-sense system of measuring lumber, and in connection with it, some more common-sense coinage, or rather, a more common-sense money system. Both systems, the measurement of timber or lumber, and the denominations of currency, are cumbersome, inconvenient and provincial. The only common-sense system for either is a decimal one, and many of the English people are already of that opinion. There is no reason why a decimal money system should not have been adopted years ago, as well as the decimal system for the measurement of timber, except the one reason which the Englishman usually gives, a dislike to change, and perhaps a dislike also to concede anything to the notions or wishes of other nations with whom the English people do business.

The Winnipeg branch of the Waterous Engine Works Co. have supplied a saw-mill and shingle mill plant to the Indian Department, to be set up at the Edmonton Indian Agency. The Shuswap Milling Co., of Kamloops, B.C., have purchased a new boiler for their saw mill from the same company.