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Lumber Manufacturing Accounts

BY

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Third Printing

NEW YORK
THE RONALD PRESS COMPANY

1921

COYPRIGHT, 1914,
BY
THE RONALD PRESS COMPANY

PREFACE

The following treatise on lumber accounting applies primarily to what may be termed commercial lumber; such as is produced from the vast forest areas in the South, Middlewest, and Northwest of the United States, and in Western Canada. Any system devised for "hard" or "precious" woods would be somewhat more elaborate; for, in proportion as the commodity becomes more valuable, it must be more carefully guarded. This applies, however, more particularly to statistical records as distinguished from accounting.

A system of accounting should be flexible enough for either a large or a small business, although in the case of a small manufacturer, some of the forms and methods suggested will undoubtedly be superfluous—or, if not actually superfluous, inadvisable on the ground of economy.

The operations of the sash and door factory, bending works, veneer works, and other subsidiary plants, except as they affect the general operations of the sawmill, have not been dealt with. These involve more or less elaborate systems of cost accounting, and therefore merit separate treatment.

Lumber accounting has been hampered by the fact that there is no uniformity of opinion among lumber men or accountants with regard to certain essential features of the business. Reference here is more particularly made to such questions as the treatment of interest and taxes on temporarily unproductive forest areas, the price at which a

lumber inventory should be valued, and the definition of true lumber cost. The author feels that some of the methods suggested in the body of the book are matters of opinion, and may not be in accordance with the reader's views; but the treatment of the subject necessitated the adoption of a definite basis. A special chapter has, however, been devoted to these debatable points in lumber accounting, in which an endeavor has been made to discuss the various questions from all sides. The principle of "cost" has been maintained throughout, irrespective of the author's views on the subject, as being more in accordance with custom and accounting practice than any other.

The use of technical terms has been avoided as far as possible, and those which appear in the text are either immediately explained or placed in the glossary.

The author desires to acknowledge with thanks the assistance received from Mr. G. I. Hodges in the preparation of this work; also the assistance received from Mr. Charles Neville in the preparation of the glossary in Chapter IX.

ARTHUR F. JONES.

Milwaukee, Wisconsin,
March 2nd, 1914.

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**LUMBER MANUFACTURING
ACCOUNTS**

LUMBER MANUFACTURING ACCOUNTS

Part I—Lumber Manufacturing and Its Records

CHAPTER I

FIXED ASSETS; TIMBER BONDS

Standing Timber

The standing timber, or timber rights, are the principal assets of a lumber manufacturing concern. They form the security for its bond issue (if any), and upon the length of the cut depends the life of the plant; for, as soon as the timber resources are exhausted, the plant and machinery are, in the majority of cases, worth only salvage value. The estimated quantity of the timber and its value per thousand feet form the basis for one of the principal charges to operations; and from these figures, the depreciation on the mill as a whole is calculated.

To take a specific instance, let it be assumed that the price paid for certain timber or timber rights is \$2,135,000,

and that the cruise on which the price is based shows the following results :

Description	Quantity	Value per 1,000 ft.	Amount
White Pine.....	400,000,000	\$3.50	\$1,400,000
Western Pine.....	160,000,000	2.50	400,000
Spruce and Cedar..	110,000,000	2.00	220,000
Fir, Tamarack, etc..	160,000,000	.50	80,000
Cedar Poles (70,000)		.50 each	35,000
		<hr/>	<hr/>
Total.....	830,000,000		\$2,135,000
		<hr/>	<hr/>

The prices paid for particular tracts naturally vary; but it is usually impracticable, from a bookkeeping standpoint, to segregate the products of different areas, and the standing timber must therefore be considered as a whole.

The cedar poles, being based on number and not on measurement, must be first eliminated and set up in a separate account, the credits to that account being the value of poles cut at the basic price of fifty cents each. A similar amount is charged to operations under the heading of Poles (Manufacturing) account when the poles are cut.

Stumpage

This leaves the asset of "Standing Timber" at \$2,100,000, represented by 830,000,000 board feet at log scale, or an average price of \$2.53 per thousand feet. Theoretically, this average price forms the basis of the logging cost in respect of stumpage, but in practice it is usual to add to this figure an estimated amount per thousand feet as a matter of conservatism, and in this particular instance the officials have decided that \$3 per thousand shall be the basis for the charge to logging cost under "Stumpage."

As a rule, it is quite unnecessary to include this additional amount, for the actual yield usually overruns the cruise; it is, however, a custom which will be generally approved by accountants as being safe and conservative.

Life of Plant—Depreciation

Assuming that the capacity of the mill is 40,000,000 feet per annum, it is obvious that, at a rate of \$3 per 1,000 feet, the whole of the book value of the timber will be eliminated in about $17\frac{2}{3}$ years, whereas the timber resources provide for continuous capacity operations for a period of approximately $20\frac{3}{4}$ years. This figure constitutes the life of the plant, and is arrived at by dividing the annual output into the total available board feet.

The period of $20\frac{3}{4}$ years forms the basis for depreciation, if the sawmill runs at capacity output for the entire period, as the whole of the value of the plant and equipment must be written off during that time, its salvage value being ignored. For the purpose of equalizing depreciation charges, however, the annual charge is usually based on the monthly or annual mill cut, instead of on the life of the plant, as it would be manifestly unfair to charge the same amount to operation when the mill is running at capacity as when it is not. In this particular instance, assuming the mill and equipment cost \$830,000, the charge to operations in respect of depreciation would be \$1 per thousand feet at log scale. Special depreciation is necessary in regard to certain items, but these are not sufficiently important to call for discussion here.

In considering the question of depreciation, it must be borne in mind that the charge need not, of necessity, be based on the timber actually owned, but on the available supply. That is to say, if there is additional timber which can be purchased, this factor can be taken into consideration

in arriving at the annual charge. If the depreciation charge, however, is based on the available supply, the facts of the case must warrant this method of treatment. The supply should be available for the use of that particular mill *only*, and there must be a very reasonable assumption that these timber resources will eventually be purchased. As a general rule, this method of computing depreciation charges is undesirable, but instances arise in practice where the factor of the available supply may be legitimately taken into consideration. For the sake of simplicity, it is assumed, in the example dealt with, that the whole of the available supply is owned.

Classification of Timber

It is often desirable to segregate the various classes of timber. When this is done the general accounting procedure is the same, but, instead of carrying one asset entitled "Lands and Timber," having a book value of \$2,100,000, separate accounts will be carried as follows:

White Pine.....	\$1,400,000
Western Pine.....	400,000
Spruce and Cedar.....	220,000
Fir, Tamarack, etc....	80,000
	<hr/>
Total.....	\$2,100,000
	<hr/> <hr/>

The basic prices for the stumpage cost will be White Pine, \$3.50; Western Pine, \$2.50; Spruce and Cedar, \$2; Fir, Tamarack, etc., 50 cents—with the addition of such amount per thousand feet as the management may consider to be necessary or desirable. In operation, the only difference under a classification of timber is that the various logs must be scaled into the sawmill in classes instead of as a whole, and that the product must be similarly segregated.

Purchases of Timber

Subsequent purchases of timber and the addition of interest, taxes, and similar items, affect the logging cost and the life of the plant; but the basic principles are the same as when the original cost alone is dealt with, and the results are arrived at in the same manner. If additional purchases are made at enhanced figures, the cost of the stumpage per thousand feet naturally increases in proportion, and care must be taken to ascertain that the price at which the stumpage is included in the logging cost is never less per thousand feet than the result obtained by dividing the footage remaining uncut, into the book value.

Purchases made for immediate logging should be charged to Logging account at the price per thousand feet actually paid, and not at the average price of the total holdings. The reason for this course is obvious, as a white pine area might be purchased at \$5 per thousand feet and immediately logged, whereas the average price of the total holdings had been agreed upon as \$3 per thousand. Under such circumstances, if the \$3 rate were adhered to, there would be an undercharge to logging cost of \$2 per thousand feet. Where, however, no segregation is made into classes of timber, and where subsequent purchases are not immediately logged off, the "average" rule must necessarily be applied.

Purchases of Real Estate

In addition to the timber lands, purchases of real estate are occasionally made for mill and town sites. The method of entering these upon the books differs in no way from ordinary commercial practice. A special department usually handles the townsite proposition. The operation of this department and the effect of its transactions on the general books of the company are dealt with in Chapter V.

Cutover Lands

The land underlying the timber is not usually considered as being of any actual value from an operating standpoint, and the purchase price is based on the value of the standing timber alone, the land values being ignored. Should any value, however, be placed upon the uncut lands at the time of purchase, the value of the timber itself must be reduced, and the charge to logging operations be consequently less. A special account, "Uncut Lands," will be opened, and transfers made from this account to "Cutover Lands" at the original acre price as the areas are logged off. The Uncut Lands account will thus be automatically wiped out when logging operations come to an end; and the profit or loss from the sales of real estate will be shown in the Cutover Lands account, such profit being transferred to Surplus account from time to time.

Usually the entire profit on each sale of cutover lands is transferred to Surplus account, but a risk is involved in this course which must not be lost sight of. Take, for instance, a case where the uncut lands have been valued at \$20 per acre—a figure which presumably is under the average price at which the lands will be sold. The best lands will naturally be sold first, and may realize \$100 per acre, or a profit of \$80 which is transferred to Surplus. This process is continued with diminishing prices until eventually the remaining lands are practically unsalable, being perhaps situated on the tops of mountains or very remote from transportation. This real estate has no realizable value, but it still stands on the books at \$20 per acre—a manifest overvaluation. No definite rule, however, can be laid down as to the amount which may properly constitute divisible profit in such cases, as the method of treatment will vary in accordance with the particular circumstances. Transactions in the sale of cutover lands are handled in the land department.

Value of Uncut Lands

Although the value of uncut lands is generally ignored in arriving at the purchase price and for the purpose of a bond issue, the actual value of such lands is often considerable. This value depends on location, climate, proximity to transportation facilities, etc. Usually the question of the value of lands not cut over comes up sooner or later, especially when the lumber market is unfavorable and profits small or non-existent, and when the land is actually selling at good prices for agricultural purposes. Under such circumstances, the uncut land is a convenient method of building up a surplus, but it cannot be maintained that such a surplus is available for distribution.

Timber Bonds

Most timber propositions are bonded; and timber bonds are becoming more and more popular with the investing public. They will undoubtedly be still more eagerly taken up when the popular misconception regarding fire risk is removed. Timber nowadays is carefully guarded; and the fire risk, except in certain localities, is not so great as the danger arising from natural causes, such as storms, insects, fungi, etc.

Timber bonds are usually serial in character, as in this form they are attractive to banks and insurance companies, and to others who desire to invest funds for specific periods, as they can purchase such serials as will mature at the required dates. The retirement of the bonds at the specified dates is provided for by means of a sinking fund based on the conditions of the mortgage.

Two methods are in common use, the first providing that, before cutting timber from a specified tract, the operator shall pay to the sinking fund the actual value of the timber thereon contained as recited in the schedule termed

the "releasing list" attached to the mortgage. The second is based on so much per thousand feet on the logs cut (log scale) or on the board measure produced (lumber scale). Both methods call for a minimum amount to be deposited sufficient to retire the maturing bonds, and one method is probably as good as the other. The second, however, is preferable, inasmuch as it is not so likely as the first to hamper the operator financially. In the first case the operator must provide the money before cutting and, in the second, after he has done so, the payments under the second method being made in the month or quarter following the cutting. The amount payable is based on the capacity of the plant, the life of the loan, and the amount of the maturities.

Surplus payments to the sinking fund can be used for purchasing future serials in the open market or otherwise, or the deed may provide that bonds from other serials may be purchased at a fixed premium at the option of the trustees. In the early days of timber bond issues, the basis for sinking fund provision was often fixed at too high a figure, and the operator was hampered financially in consequence. This possibility should be seriously considered in connection with an issue of bonds. Sinking fund provisions should not be based on inflated or exceptional prices, but preferably on prices lower than the average. It will be found in practice that anticipated profits outlined in a prospectus are often unrealized, not only because the average price is overestimated, but also because the cost of manufacture is far too often underestimated. As sinking funds are considered primarily in connection with profits, this point becomes very material in calculating the amount of sinking fund contributions.

CHAPTER II

GENERAL OFFICE

Books Required

All the material information of a lumber business, both accounting and statistical, eventually finds its way into the general office and is incorporated in its records. Its source and the method of preparing the subsidiary records, can more conveniently be considered under the headings of operating divisions, such as "Logging," "Sawmill," "Shipping," etc. The books necessary for recording the financial transactions are:

- General Ledger
- Journal
- Voucher Journal
- Cash Book
- Detailed Construction Ledger
- Detailed Operating Ledger
- Sales Journal
- Freight Journal
- Customers Ledgers
- Log Ledger
- Timber Ledger

General Ledger

No special form is required for this, but a column for feet and pieces is practically a necessity. Such accounts should be opened as are necessary to record correctly the

transactions regarding the particular company. Care should be taken to open controlling accounts sufficient to provide for simplicity of check. If an adequate number of accounts are opened, the control is more effective, and errors between the controlling and detailed accounts are necessarily less difficult to locate.

Journal

A book with the usual journal rulings is sufficient in most cases, but one in columnar form may in some instances be desirable. It is usually unnecessary, however, as transfer and other journal vouchers can be put through the voucher journal if desired.

Voucher Journal

A special form of voucher journal is necessary. Form 1 will be found suitable for most lumber manufacturing concerns. The headings of the various columns will naturally vary with the number of controlling accounts required.

This form can be used for both cash and journal vouchers. The vouchers themselves should, preferably, be of the "check" voucher pattern, and contain sufficient space for adequate distribution. They should, of course, be numbered consecutively; and it will be found convenient to give each month a number corresponding to its sequence in the calendar; thus, the first voucher in January will be 1001; the first in February, 2001; and the first in December, 12001. If this system be adopted, the location of any particular voucher may be instantly ascertained. The journal vouchers should preferably be of a different color from the cash vouchers and should be separately filed.

One point involved in check vouchers is probably not very widely known, but may become of considerable importance. Most vouchers contain on the back of the check the

following words, or some phrase of similar import: "The indorsement of this check by payee is an acceptance of it in full settlement of the account as stated in voucher bearing corresponding number," and on the face of the voucher, "Detach this statement before presenting check." A case has arisen—though not actually relating to vouchers—in which the defendant claimed that he did not receive the documents called for in a similar notice, and the plaintiff was unable to prove the facts. Under these circumstances, it is better to insert on the check itself the words, "Detach the above voucher before presenting this check," as this is notice that a statement should have been received and also *prima facie* evidence that such statement was actually received.

A voucher record has certain objections which are well known to accountants. Perhaps the most important is the possibility of a duplicate payment. If it is desired to install instead a regular purchase journal and ledger, the former book will conform very closely to the voucher journal form, with the elimination of such columns as do not relate to purchases.

Cash Book

A special form of cash book is usually necessary, but the particular form will naturally vary in accordance with the requirements of the business and the number of controlling accounts required. Form 2 incorporates the usual rulings.

A bound book should be used for recording the cash transactions. All moneys received should be deposited daily, and all payments should be made by check, including those for petty cash requirements. The petty cash fund should be started with a sufficient sum to carry, say, a week's expenditures, the total of which should be reimbursed by check, thus restoring the fund to its original amount.

Detailed Construction Ledger

Form 3 will be found convenient for recording details of the construction accounts, a list of which is given in Chapter III.

Detailed Operating Ledger

Details of the operations are entered up from the vouchers and from other sources. Form 4 will be found suitable for the purpose. A list of the usual operating accounts is given in Chapter III.

Sales Journal

The form of sales journal will naturally vary with the requirements of each individual mill, but Form 5 can be adapted to circumstances.

The book may be of loose-leaf form, the left-hand side containing the sale and freight details, and the right-hand side the distribution of the sale. If it is desired to segregate the product still further into classes of lumber, it is merely a question of inserting additional columns.

The totals of Accounts Receivable and Cash Sales will be posted to the debit of the respective accounts, the general ledger items being, of course, posted individually.

The totals of the Estimated Freight column will be posted to the credit of the Estimated Freight account, and the *individual* items to the credit column of the estimated freight division of the Customers Ledger account. The amount of estimated freight is entered in the Estimated Freight column in the Customers Ledger account for the purpose of showing the actual value of the customer's accounts exclusive of freight. When the actual freight bill comes to hand, the corresponding estimated items of the Customers Ledger account are checked off; the total of the unchecked items will then agree with the balance shown on the Estimated Freight

account. All freight items are adjusted through the freight journal, for which a form is given later.

The totals of the various distribution columns, viz., Estimated Freight, Lumber, etc., will be posted to the credit of their respective accounts in the general ledger; and items appearing in the "Merchandise and Sundries" column will be specified in detail and posted individually or from a monthly dissection of the items appearing therein.

For convenience in arriving at the amount of commission payable to salesmen, a column has been inserted giving the necessary particulars.

Freight Journal

Lumber is usually sold f. o. b. at destination; and each item, accordingly, contains a proportion of freight, which must be estimated at the time of shipment, and adjusted when the actual freight bill comes to hand. The freight journal shown in Form 6 will be found convenient.

The amount of the actual freight is entered in the freight journal and posted to the credit of the individual accounts. Opposite this amount is entered the original amount of the estimated freight as it appears in the sales journal. This estimated amount is posted to the debit of the Estimated Freight column in the customer's account, and the monthly total is debited to Estimated Freight account. The debit or credit adjustment plus the total of the Estimated Freight column will, of course, equal the total credited to customers. These adjustments could be segregated, but, as so many mixed cars are sold and as the amount involved is usually small, it is a common practice to either credit or debit the difference to Lumber Sales. As already stated, each item of estimated freight is adjusted when the actual freight bill comes to hand. When this information is received, the company is in a position to make a claim against the railroad

company for differences. The form submitted is designed to show the ultimate disposition of every item of estimated freight.

Customers Ledger

A convenient ruling for a customers ledger is shown in Form 7.

The columns on the extreme right are for recording estimated freight. At the time the sale is entered, the estimated freight is inserted in the credit column from the sales journal, which is relieved by an entry of the same amount to the debit column from the freight journal, at the time the actual freight is posted. The reason for the insertion of these columns is to enable the trial balance to be taken in two columns, and also that the actual value of Accounts Receivable may be readily ascertained. The total of the balances of the Estimated Freight columns will agree with the balance of the Estimated Freight account.

Log Ledger

If it is necessary to record transactions in logs purchased, Form 8 can be used.

Details of the purchase are entered therein, together with all credits for cash or supplies. The statistical details are inserted from the scale reports.

Timber Ledger

The timber ledger is purely for statistical purposes, in order to show the extent and location of the logging operations. The timber ledger shown in Form 9 will be found to answer the purpose.

The form presented contains in the left-hand corner a plat of each section, which is divided up into tracts of forty

acres each. These tracts can be shaded to represent the various classes of timber standing thereon, or details of the actual cruise can be entered if desired.

The estimate for each forty acres is entered under the various locations according to the classes of timber. Only three columns for the estimate and cut are provided in the form of timber ledger shown, but these can be increased as desired. The details of the actual cut are entered from the scale reports received from the woods.

CHAPTER III

CLASSIFICATION OF CONSTRUCTION AND OPERATING EXPENSES

Construction Charges

The method of treating construction charges for a sawmill does not differ from ordinary commercial practice, except possibly that the segregation is carried a little fuller than is usually the case, it being desirable, from the standpoint of insurance and for other reasons, to know the exact cost of each unit.

Only the account of "Construction and Equipment" need be carried in the general ledger, the particulars making up the total of this account being shown in a detailed construction ledger in which the accounts may be segregated in any way desired. The following list contains a suggested distribution of the construction charges:

- Clearing Mill Site
- Sawmill and Equipment
- Planing Mill and Equipment
- Lath Mill and Equipment
- Dry Kilns
- Power House
- Shavings Vault
- Sorting Shed
- Dry Sheds

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Burner and Conveyor
Water System Plant
Waterworks
Electric Light Plant
Electric Lighting—Distribution System
Fire Protection System
Yard
Yard Equipment
Warehouse
Oil House
Lime House
Machine and Blacksmiths' Shops
Mill Pond
Dam
Boom
Launches and Boats
Log Slip
Logging Railroad
Locomotives
Logging Equipment and Slides
Barn
Office
Club
Official Residences
Boarding House
Boarding House Equipment
Cottages
Commissary
Camp Construction
Camp Equipment
Office Furniture and Equipment
Tools and Appliances
Horses, Mules, Oxen, Wagons
Miscellaneous

If other operations, such as a sash and door factory, bending works, or similar activities are carried on, separate construction accounts will be opened for these.

The accounts in the construction ledger will, of course, contain details showing the individual amounts expended in respect of machinery, labor, lumber, and materials generally, compiled from the vouchers, pay-rolls, and transfer vouchers.

Operating Charges

A complete enumeration of operating accounts to coincide with the requirements of every business is practically impossible; the following list, however, will give a general indication of the lines to be followed:

LOGGING EXPENSES—(1) WOODS	Account Number
Superintendence	1
(a) Salaries	
(b) Expenses	
Foremen and Clerks.....	2
(a) Salaries	
(b) Expenses	
Scalers	3
(a) Salaries	
(b) Expenses	
Sawing	4
(a) Contract Labor	
(b) Company Labor	
Supplies	5
Maintenance of Camp Buildings.....	6
(a) Labor	
(b) Material	

CONSTRUCTION AND OPERATING EXPENSES 29

	Account Number
Maintenance of Spur Tracks	7
(a) Labor	
(b) Material	
Maintenance of Equipment.....	8
(a) Labor	
(b) Material	
Road Building.....	9
Fire Patrol and Protection.....	10
General Expense.....	11
Depreciation	12

LOGGING EXPENSES—(2) TRANSPORTATION Account
Number

Railroad	13
Rafting	14
Teams	15
(a) Teamsters	
(b) Feed and Stable Help	
(c) Repairs and Blacksmithing	

Charge to these accounts all costs of logging, from preparation of woods and roads, flumes, etc., for operation, to delivery of logs to pond. For inventory purposes, distinction should be observed between "Woods" cost and "Transportation" cost.

POND EXPENSE Account
Number

Labor	30
Supplies	31
Maintenance of Dams.....	32
(a) Labor	
(b) Material	

	Account Number
Maintenance of Equipment.....	33
(a) Labor	
(b) Material	
General Expenses.....	34
Depreciation	35

Charge to these accounts all costs in connection with handling logs in the pond and delivering same to mill, and for maintenance of storage facilities, booms, dams, and pond equipment.

SAWMILL

	Account Number
Power	50
Foremen and Assistants.....	51
General Labor	52
Supplies	53
Maintenance of Buildings.....	54
(a) Labor	
(b) Material	
Maintenance of Machinery and Equipment..	55
(a) Labor	
(b) Material	
Insurance	56
General Expenses.....	57
Depreciation	58

Charge to these accounts all costs from scaling the logs at the head of the mill to the delivery of the finished product to the sorting sheds.

CONSTRUCTION AND OPERATING EXPENSES 31

YARDS	Number Account
Foremen and Assistants.....	80
Labor—Sorting from Chain.....	81
“ Transportation to Piles.....	82
“ Piling	83
“ Shed Grading.....	84
“ General	85
Teaming	86
Maintenance of Yards and Sheds.....	87
(a) Labor	
(b) Material	
Maintenance of Equipment.....	88
(a) Labor	
(b) Material	
Supplies	89
Fire Protection.....	90
Insurance	91
General Expenses.....	92
Depreciation	93

Charge to these accounts all yard costs from receipt of lumber at the sorting chain to delivery to piles, kilns, dry sheds, or planing mill.

DRY KILNS	Account Number
Power	110
Labor	111
Maintenance of Buildings.....	112
(a) Labor	
(b) Material	
Maintenance of Equipments.....	113
(a) Labor	
(b) Material	

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	Account Number
Supplies	114
Insurance	115
General Expenses.....	116
Depreciation	117

Charge to these accounts all costs of operating dry kilns.

POWER	Account Number
Engineers and Firemen.....	130
Oil and Waste.....	131
Supplies	132
Maintenance of Buildings.....	133
(a) Labor	
(b) Material	
Maintenance of Machinery and Equipment..	134
(a) Labor	
(b) Material	
Insurance	135
General Expenses.....	136
Depreciation	137

Charge to these accounts all cost of power, including handling of fuel used. The cost of power should be distributed over the various operating divisions on a metered or equitable basis where possible.

PLANING MILL	Account Number
Power.....	150
Foreman	151
General Labor.....	152
Supplies	153

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	Account Number
Maintenance of Buildings.....	154
(a) Labor	
(b) Material	
Maintenance of Machinery and Equipment..	155
(a) Labor	
(b) Material	
Insurance	156
General Expenses.....	157
Depreciation	158

Charge to these accounts all costs of dressing lumber, from the time it is received at the planing mill until it is delivered for transfer to the dry sheds or shipping platforms.

LATH MILL	Account Number
Power	170
Contract Labor.....	171
Company Labor.....	172
Supplies	173
Maintenance of Buildings.....	174
(a) Labor	
(b) Material	
Maintenance of Equipment.....	175
(a) Labor	
(b) Material	
Insurance	176
General Expenses.....	177
Depreciation	178

Charge to these accounts all costs in connection with the manufacture of lath. It is impracticable and misleading to attempt to charge operations of the lath mill with any

amount purporting to represent the value of the product received from the sawmill, as waste material is largely used. Laths may be considered as a by-product pure and simple.

SHINGLE MILL	Account Number
Logs	190
Contract Labor	191
Company Labor	192
Supplies	193
Maintenance of Buildings	194
(a) Labor	
(b) Material	
Maintenance of Equipment	195
(a) Labor	
(b) Material	
Insurance	196
General Expenses	197
Depreciation	198

Charge to these accounts all expenses in connection with the manufacture of shingles. In a number of cases it is impracticable to charge the logs or bolts used to the shingle mill; and the shingles may be more conveniently considered as a by-product.

POLES	Account Number
Sawing—Contract Labor	210
Sawing—Company Labor	211
Hauling	212
Scaling	213
Delivery to Cars	214
General Expenses	215

Charge to these accounts all costs in connection with cutting and delivering poles. The pole business is usually

CONSTRUCTION AND OPERATING EXPENSES 35

a separate undertaking; and poles are generally sold as they stand in the woods, all expense being borne by the purchaser.

GENERAL OPERATING EXPENSES	Account Number
Paymaster	230
Timekeepers	231
Watchmen	232
Maintenance of Fire Apparatus.....	233
(a) Labor	
(b) Material	
Stable Expenses.....	234
(a) Barn Boss and Helpers	
(b) Feed	
(c) Repairs	
(d) Miscellaneous	
Taxes	235
Insurance—Lumber and Miscellaneous.....	236
Injuries and Damages.....	237
Miscellaneous	238

Charge to these accounts all costs which are not immediately distributable to the various operating departments.

DISTRIBUTION EXPENSES—SHIPPING	Account Number
Salaries—Shipping Clerk and Assistants....	250
Labor—Trucking to Platform.....	251
Labor—Loading to Cars.....	252
Supplies	253
Car Stakes.....	254
(a) Labor	
(b) Material	
Demurrage	255
Miscellaneous	256

Charge to these accounts costs of delivering stock sold from piles, dry sheds, and planing mill to cars preparatory to shipment.

SELLING	Account Number
Salesmen	260
(a) Salaries	
(b) Expenses	
Advertising	261
Commissions	262
Collections	263
Miscellaneous	264

Charge to these accounts all costs in connection with the marketing of the product.

GENERAL EXPENSES	Account Number
Salaries of Officers.....	280
Expenses of Officers.....	281
Salaries of Clerks.....	282
Expenses of Clerks.....	283
Stationery and Printing.....	284
Office Supplies.....	285
Telephone	286
Postage and Telegrams.....	287
Taxes and Licenses.....	288
Insurance	289
Legal Expenses.....	290
Depreciation of General Office Building and Equipment	291
Miscellaneous	292

Charge to these accounts all expenses pertaining to the general administration of the affairs of the company.

CHAPTER IV

LOGGING AND SAWMILL COSTS

Devising a Cost System

The accountant called upon to devise forms for logging and sawmill costs and statistics, must bear in mind that the requirements for different mills vary, and also that every lumberman has his own—generally very definite—ideas on the subject. The accountant must carefully study the needs of each individual mill, and adapt himself to conditions. To devise a single system which will adequately take care of the costs in every mill is an impossibility; and the forms shown in Part II (11—16) are merely of a general character, indicating the lines to be followed. The accountant is usually left a comparatively free hand with regard to the form of the general books; but with regard to the special forms for operating divisions he must be largely guided by the requirements of the management, the needs of the particular mill, and the methods of operation. Forms to take care of any particular phase of the operations are usually not difficult to devise. The main thing to avoid is that over-elaboration which is, unfortunately, rather characteristic of some accountants.

If certain information is desired by the management, ascertain first of all whether this information is material. If, after discussion, it is found to be of importance, devise the simplest form which will serve the purpose. Remember that each form added means additional expense; and do not devise forms which require the services of an expert

bookkeeper to fill up, if they are intended for the use of a foreman or laborer.

Form of Pay-Roll

Pay-rolls containing dissection columns are usually unnecessary and are somewhat cumbersome to handle. Provided the occupation of each employee and the account number to which his time is to be charged are definitely stated, Form 10 will generally be sufficient for both logging and sawmill operations.

A dissection of the pay-roll will be made up at the end of each pay-roll period, and the summary entered from the pay-roll voucher to the detailed operating or construction ledger, as the case may be.

Pay-Roll Check

A form of pay-roll check should contain merely the employee's number, the number of hours worked, the rate, and the amount. The indorsement should be so worded as to constitute a full settlement when signed. More elaborate forms containing actual details of the occupation of the employee and the hours worked each day are sometimes used; but their preparation throws a burden on the paymaster's staff which outweighs their advantages.

Company Pay-Roll Tokens

Some states still permit the payment of employees in kind rather than in money. Generally, a metal or celluloid token is used as the equivalent of various coins. These are redeemable, as a rule, only at the company's stores, or other stores specified, and in merchandise only, so far as employees are concerned. When a pay-roll is provided for in this manner, "Company's Pay-Roll Tokens" account is credited with the currency value of the tokens issued, the various

operating or other accounts being charged. The amount of tokens issued is a direct liability which must be liquidated by money or money's worth. The employees exchange the tokens for goods, and from time to time they are turned in to the general office by the commissary manager or store-keeper and are redeemed in cash or by means of a credit. In either case, the value of the tokens exchanged is charged to "Company's Pay-Roll Tokens" account—the balance on this account representing the liability in respect of tokens unredeemed.

A memorandum cash book for tokens is kept, in which the cashier is charged with the face value of the tokens given to him at the start, and subsequently redeemed and credited with the face value of tokens disbursed from time to time.

Daily Report of Logs Cut in Woods

The woods operations are, as a rule, reported to the office daily on a form somewhat similar to that of Form 11.

This form is printed on cardboard to facilitate handling, and contains details of the location of the logging operations, marks and numbers, and the board measure contained in the various sizes of logs. These cards may form the basis for the calculation of the stumpage. Stumpage is usually calculated when the logs are delivered at some definite point, such as in the pond, to the railroad, at a particular slide, or to the mill itself. The point at which stumpage is calculated varies in accordance with the practice of the mill. A summary of the logs delivered at the point for stumpage calculation will be made from the scale cards turned in.

Log Summary

The scale cards are turned in daily and entered in the monthly log summary, which shows the monthly result of logging operations and cumulative totals to date. (Form 12.)

Mark Book

In a number of cases logs are floated for a considerable distance from various locations, and it is necessary to keep a record of the marks and feet of the various logs handled. Some mills carry a great number of different marks. A book containing a sufficient number of columns ruled for quantities will take care of this. Logs belonging to other mills will be separately shown and paid for at agreed rates.

Daily Scale—Logs Cut by Mill

As each log reaches the head of the gangway prior to sawing, it is scaled and recorded on Form 13.

The form shown contains details of the marks and number, the board feet contained in each length, and an operating report. Segregation may be made into such classes of logs as may be required. If a segregation is made, the classification, to be of any value, must be carried out in its entirety; and the lumber produced must be similarly scaled to the yard. The sales journal must also contain a similar segregation so as to arrive at the inventory.

Report of Mill Cut

Form 14 contains the details of the daily operations for the month, showing the result of the mill operations during the day and night shifts.

The details of the time and the log scale to mill are entered from the daily scale to the mill (Form 13) and the details of the lumber cut daily are entered from the lumber record (Form 15).

Daily Record of Lumber Cut

The daily record shown in Form 15 contains details of the lumber delivered from the sorting chain to the yard, and

is compiled from the delivery tickets which accompany each buggy load.

At the end of each month the lumber in the sorting sheds—but not delivered to the piles—and the lumber in course of manufacture, is estimated for inventory purposes.

Piling Ticket

As the lumber is delivered from the sorting chain to the buggies for piling, a ticket is made out for each load in the form shown (Form 16).

The original of this ticket goes to the general office and is entered on Form 15; and if the piling is done by contract the duplicate is handed to the contractor, who turns it in as a voucher to substantiate his account.

CHAPTER V

PUBLIC UTILITIES AND OUTSIDE OPERATIONS

Railroads

A considerable amount of revenue is frequently derived from public utilities such as railroads and lighting and water plants which were originally installed for the benefit of the mill itself. A railroad may have been installed for the purpose of hauling supplies, logs, and lumber for the mill; but as the country opens up, a general freight and passenger business develops, in which case the road is generally incorporated as a separate proposition. In nearly every case, such a road makes interstate connections, and the form of its accounts is therefore prescribed by statute. In the books of the mill itself, a controlling account only is necessary, the balance of this account being represented by the assets and liabilities of the railroad. In billing freight, and in hauling and switching charges, the mill itself should be treated in the books of the railroad merely as an ordinary customer. If the road is used only for mill purposes, the cost of operating will be distributed over the various operations concerned, such as logging, lumber, supplies, etc.

Power, Light, and Water

The electric power plant is operated primarily for the purpose of supplying the mill with power and light, but it frequently supplies also the mill-town and the adjacent villages and farms. It is customary to charge flat rates only, based on the number of lights used, or per horse-power in

the case of a power load. A consumers ledger is, of course, necessary, but this can be of any good standard form.

With regard to the treatment of revenue, derived from light and power, two methods are in use. Under the first method, the revenue is credited against the operating cost, and the net result charged to the mill; and in the other, the power production is treated as a separate operating division, charging the mill with power and light at cost, and its consumers, presumably, at a profit. The net result, so far as the company itself is concerned, is the same; but the latter method is the more scientific, and the information obtained is a useful guide in fixing rates. Direct costs, such as maintenance of lines to consumers, are charged against the consumers' revenue, together with a proportion of the cost of production based on the relation between the kilowatt hours as metered to the consumers' distribution lines, and the total station production. Under this method, the mill is charged, as nearly as possible, with the true cost of the kilowatt hours it consumes, and the lumber cost is more accurately ascertained.

In the case of the water department, it is usually impracticable to apportion the costs; and the revenue must therefore be credited against the cost of operations, and the resulting balance be charged to the mill. As in the case of the power operations, any good standard form will take care of the consumers' accounts.

Land Department

The land department handles the sales of real estate. A ledger containing particulars of the sales is necessary, and Form 17 will be found convenient.

Details as to location of property, and as to purchaser and terms of payment, are entered in the ledger. Individual sales are entered from the journal, and the collections, from

the cash book. The total of the balances on this ledger will agree with the balance shown in the "Accounts Receivable—Land Department" account in the general ledger.

As already stated, the proportion of the profit on installment sales of land which should be transferred to Surplus, is a question which must be settled by the circumstances of each particular case. Usually the whole of the profit is credited at the time of the sale, it being contended that, as each sale is secured, this course is legitimate. Against this argument, however, is the fact that, if the lands, as distinct from timber, are carried at any value on the books, the lands unsold and probably unsalable will still remain at book value when logging operations are completed.

Outside Operations

If outside operations, such as bending works, veneer works, sash and door factory, etc., are carried on in conjunction with the sawmill, considerable difficulty arises in ascertaining what amount should be charged to these operations in respect of the product of the mill itself. Theoretically, the cost of the material used should be charged; but this cost is practically never known, and it is quite impracticable to ascertain it, as the cost of doing so would be prohibitive and the required result almost impossible to arrive at. These outside operations in nearly every instance use special qualities, cuts, and sizes; and it is obvious that in a mill of any size it would be absurd to attempt to segregate the costs. Probably the most practical method is to charge out the board measure consumed at the average cost of the general production; while, of course, this cannot be called a true cost, it is sufficiently accurate for all practical purposes.

The outside operations here mentioned involve cost systems too elaborate for discussion in this volume, which is intended to deal with the operations of the sawmill only.

Boarding House and Hospital

Although they could hardly be classed as outside operations, the boarding house, hospital, stable, and commissary may be conveniently considered under this heading. The boarding house is often handled by a contractor, and the resulting profit or loss does not affect the company one way or the other; if, however, it is operated by the company, it should be charged with all supplies and wages, and credited with the board bills deducted from the pay-roll. The profit or loss arising from its operation should be separately shown. The hospital, when operated by the company, is treated in the accounts in a similar manner.

Stable

Theoretically, the stable should show neither a profit nor a loss; but in actual operation it is bound to do one or the other. All expenses in connection with the stable—feed, wages, depreciation, etc.—are charged to that account, the credits being derived from the various operating divisions, which are charged for the service of teams at a per diem figure representing the cost of such service, as nearly as it is possible to approximate it. It is better to show the resulting balance as a special profit or loss, rather than to attempt to distribute it over the operating divisions. Its effect on the cost of lumber is, or should be, infinitesimal.

Commissary and Warehouse

The commissary is a general store for supplying goods to the mill employees, and can be run on the same lines as an ordinary retail store, a controlling account only being carried in the mill books. The commissary will be charged with all purchases made on its behalf, and credited with the cash paid in or deducted from the pay-rolls. The business of the commissary being largely a credit one, a form of ledger is

required, the MacKaskey being probably the most convenient pattern. Accounts due by the various employees are deducted from the amount of wages payable at each pay-roll period. Goods supplied to the camps or other operating divisions are credited to the commissary, and charged to operations by means of a journal voucher at the end of each month or other convenient period.

The warehouse is charged with all goods delivered to it, and credited from the requisitions supplied to camps, commissary, etc. A separate account should be kept for each class of goods. The balances on these various accounts should agree with the physical inventory when taken.

CHAPTER VI

SHIPPING DEPARTMENT

The records of the shipping department are among the most important in a sawmill, as the selling department is very dependent upon their accuracy. Inaccurate billing is a source of annoyance to both customer and manufacturer.

Orders

As soon as an order has been received, a copy is made on Form 18, which is filed in the general office and forms part of the permanent records.

At the same time that the office copy is made, an exact duplicate is made on a card of the same size, which is sent to the shipping clerk.

Tally Card

As soon as the shipping clerk has received the orders for the day, he enters up the necessary tally card, which contains practically the same information as the order, with the exception of the customer's name. (See Form 19.)

The shipping clerk enters on this card the particulars of the shipment required, by pieces, sizes, lengths, and descriptions; and it is then given to the tally man, who places it on a board beside the car which is being loaded, and enters thereon exact details of the actual shipment. A separate card is used for each truck load.

Shipments may be made direct from the yard, or may come from either the dry shed or planing mill. If from

the dry shed, a small tally card similar to that shown in Form 20 is made out.

This card accompanies the truck from the shed to the loading platform, and the number of pieces are checked and entered in the proper column on the tally card. The card is placed in a small envelope, and eventually returned to the general office.

Delivery Card

When boards are to be planed, the delivery card shown in Form 21 is made out.

This card accompanies the truck from the yard or sheds to the planing mill, where its contents are checked. The top half of the card is retained, and at the end of the day is turned in to the general office as a record of the amount of work done by the planing mill during that day. When the boards have been planed, the bottom half of the card is detached, and accompanies the truck from the planer to the loading platform, where its contents are checked and entered on the tally sheet. Forms 20 and 21 are checked by the general office against Form 19 as an additional precaution.

Piece Tally Sheet

Details of the tally by pieces are made up on the piece tally sheet, which contains the working details for entry on the original tally card (Form 19). Form 22 will be found convenient for this.

Marginal figures indicating surface feet can be printed in the first column of each section of the piece tally sheet, if desired. This may save a little time when tallying. The totals of columns, when extended and added, must be increased if the boards exceed an inch in thickness.

The original tally card (Form 19) when complete is returned to the shipping clerk, and he in turn sends it, ac-

accompanied by the duplicate card of Form 18, to the invoice clerk, who makes the summary of the shipment on the order forms, and prices and extends it. The invoice is then made out, one copy going to the customer, the duplicate being filed with the selling department, and the triplicate filed in the general office.

Daily Loading Record

The details of the loading are entered from the tally cards on the summary shown in Form 23.

Car and Loading Record

Each car as it is switched to the company's sidings is entered on the car record sheet shown in Form 24.

When the car is loaded, full particulars are entered, including the date and hour released. This form enables the management to check all claims for demurrage, etc., and shows at a glance the available number of cars.

CHAPTER VII

MONTHLY AND ANNUAL CLOSING

Method of Closing

In the majority of cases, lumber manufacturing concerns close their accounts monthly, as well as annually, so that the operating costs may be more closely watched. The method of closing is the same in both cases, except that at the end of the fiscal year the inventories are more accurately taken and the accounts are closed on the physical rather than the book inventory. Accruals for taxes, interest, insurance, and other matters of like character are entered; and trial balances are taken of the customers ledger, of the detailed construction ledger, and of the detailed operating ledger, and these are agreed with the respective controlling accounts in the general ledger. The outstanding vouchers are listed, and agreed with the balance shown on the Accounts Payable account in the general ledger. Stumpage is then calculated at log scale on the logs delivered to the mill, pond, railroad, or other point at which it has been decided to calculate the stumpage, and is debited to Logging account and duly credited to Timber account. Provision for the sinking fund is also made at the basic price, at log scale or lumber scale, as the case may be, if the deed calls for sinking fund provision by either of these methods. If the deed calls for a definite payment in consideration of the release of lands, the necessary amount will, of course, have been already paid.

Inventories

The inventory of logs will be ascertained from the logging records. Owing to operating conditions, it is usually impossible for a physical inventory to be taken, especially where the logs are transported by water or stored in a pond.

The inventory of lumber will be taken, and the mill overrun or underrun ascertained. In case either is excessive, the excess should be capable of explanation. Most frequently the discrepancies arise either in the scaling of the logs to the mill or in the output. Errors of this character are exceedingly hard to locate; but if the lumber be over or underscaled it usually shows up in the following month.

Except at the end of the year, the book account of logs and lumber inventories should never be closed; but all other accounts can be closed if desired. If the inventory is brought down each month, the true cost is not ascertained. The cost price is arrived at by taking into consideration the inventory at the beginning of the year, and all transactions since that time to the date of the accounts. Intermediate inventories must be ignored in order to arrive at the cost to a particular date. The cost of the sales during the month is ascertained by multiplying the number of board feet sold by the cost of production per thousand feet to date. This amount is charged to Cost of Sales and credited to Lumber account.

In a number of mills, particularly the older ones, the product cannot be scaled from the saw, owing to structural arrangements; and in small mills the scaling cost is sometimes considered prohibitive. In such cases, the monthly inventories must be more or less a matter of estimate. They can be approximately arrived at by adding to the log scale the percentage of overrun based on the actual scale of an average log. At frequent intervals, a log of average length and diameter should be accurately scaled from the saws so that the percentage of overrun may be properly verified.

Calculating Depreciation

Depreciation must be calculated at the ascertained rate, which is arrived at by dividing into the cost of the plant the number of available board feet, and multiplying this by the number of feet produced during the period. Special depreciation is necessary in connection with certain items, particularly in regard to the logging equipment. If "donkeys" are used for skidding logs, for instance, the average life of wire ropes is probably not much more than six months.

Form of Statement

With regard to the form in which the monthly or annual statement should be shown, the practice will naturally vary in accordance with the requirements of each individual concern. Some forms are exceedingly elaborate, while others are so incomplete that material information is lacking. The form of report should give the details of logging and lumber costs as extracted from the detailed operating ledger, showing the amount charged under each heading and the cost per thousand feet. Forms of monthly report combining the general and detailed information are given in Forms 25 and 26. It will be understood that these are only suggestive, and, although similar forms are actually in use and have been found satisfactory, experience shows that the requirements of the management often necessitate more elaborate reports.

CHAPTER VIII

DEBATABLE POINTS IN LUMBER ACCOUNTING

Divergent Views

There are several important points in connection with lumber accounting which have never been settled either by accountancy practice or by the custom of the trade. In fact, widely divergent views on certain material questions are held by both lumber men and accountants. It is not proposed to deal with all of these questions, but only with the principal ones, which are given here and considered in order later in the chapter.

- (1) Can an amount be credited to the Surplus account as representing the unearned increment arising from the increased value of the standing timber?
- (2) Should the value of uncut lands be included as part of the surplus?
- (3) Is it legitimate to add to the value of the standing timber, interest and taxes on temporarily unproductive areas?
- (4) At what price should the inventory of lumber be valued?
- (5) If the inventory of lumber be priced at cost, what constitutes true cost?

(1) Disposition of Unearned Increment

Can an amount be credited to the Surplus account as representing the unearned increment arising from the increased value of the standing timber?

That the timber increases in value by the passage of time is undoubtedly a fact. Increase in girth and length represents a proportionate increase in the value of the product, but the growth is so slow that it is practically inconsiderable and is probably more than offset by the liability to forest fires and destructive natural causes. There is often, however, a material increase in value arising from the general depletion of timber lands and the increasing demand for forest products; and this movement cannot be ignored.

In practice it will be found that alleged increases in value are occasionally taken credit for; but it cannot be claimed that such increases constitute divisible profits. They should more properly be credited to a special reserve account, or should, at least, be shown as surplus not available for distribution.

(2) Value of Uncut Lands

Should the value of uncut lands be included as part of the surplus?

The value of lands not cut over is wholly problematical and is dependent on geographical, climatic, and other conditions. In the majority of cases a certain value exists, and it is often considerable; but granting this, the land itself—especially the more remote portions—is practically valueless, while the timber is still *in situ*.

As previously stated, the usual practice is to appraise standing timber only as security for a bond issue and as the basis for the charge to logging cost; the method of

appraisal being to divide the number of feet, as cruised and estimated, into the book value. This is a sound and conservative method; and at the outset probably every lumberman intends to follow it. It will, however, be found that the custom of writing up assets is a popular one when times are bad, and that the practice of including the value of uncut lands recommends itself particularly to a company desirous of showing a substantial surplus to its stockholders or bondholders. This custom is undesirable in many ways, and more especially because in numerous cases it is the land itself which will provide for the return of the stockholders' original capital.

In this respect lumber investments are different from mining. It is common knowledge that in a mining proposition every dividend paid represents partly profit and partly capital; but the investor in the stock of lumber manufacturing concerns occasionally views the matter somewhat differently, because—at least in some localities—the stockholder looks to the timber to provide dividends, and to the land underlying the timber to provide for the return of the capital. While this view is quite justified in numerous cases, there are many where it is not, and where even the value of the plant and equipment is included in the timber values, the land of itself being of no value, or of such small value as to be unworthy of consideration. Any amount taken credit for by this means is undoubtedly a profit which is merely estimated and wholly unrealized, and one which cannot, on the face of it, be wholly realized until the timber resources are exhausted. It is not a divisible profit, and should therefore be credited to "Reserve for Appreciation Added to Lands and Timber" or some similar account, or, if objection is raised to this method of treatment, should be shown as an appropriation of surplus, and expressly described as not available for distribution.

(3) Interest and Taxes on Temporarily Unproductive Areas

Is it legitimate to add to the value of the standing timber, interest and taxes on areas temporarily unproductive?

Most timber propositions are bonded; and interest must be paid on an investment, of which a large proportion is unproductive. Therefore, the question as to what proportion (if any) of this interest may legitimately be borne by the unproductive part of the investment, must be seriously considered. If the timber is not bonded, or is bonded for less than its actual value, it would certainly be undesirable to add interest to the whole investment and so make a bookkeeping profit on the transaction; but where interest on bonds or other securities has actually been paid, and the proceeds have been wholly devoted to the purchase of timber lands, interest on unproductive areas probably constitutes a legitimate capital charge, and one which may be said to be sanctioned by custom. It would be a hardship in a great many cases should the common stockholder be expected to bear the whole of the interest charge on a proposition, the greater portion of which is unproductive. In considering this question, however, it must be borne in mind that, when an issue of bonds is promoted, it is invariably anticipated that the operations of the mill will be sufficiently profitable to provide for the payment of the whole of the bond interest out of earnings in each year.

With regard to taxes, it may be stated that the practice of adding amounts so paid on unproductive areas is almost universal. In some cases, the cost of fire patrol and protection is also added to the cost of the standing timber.

If interest and taxes, etc., are added to the value of lands and timber, they vitally affect the stumpage value. Stumpage being based on the cruise and book value, all additions by way of purchase, or such additions in estimated value as are now being considered, naturally affect the log-

ging cost. In practice, it is usual to add to the result obtained by dividing the number of feet as cruised, into the book value, a certain amount per thousand feet so as to be on the safe side; and this is done in spite of the fact that the actual production usually overruns the estimated yield. At the moment, however, when the result obtained by dividing the number of feet remaining uncut into the book value, exceeds the figure at which the stumpage value has been accepted as a basis for the charge to logging account, the stumpage value must be increased proportionately, so that the book value of the timber may be entirely exhausted when the total area has been completely logged off. It will thus be seen that, eventually, operations assume the whole of the cost, including interest added (if any), and that the addition of expenditures on unproductive areas merely apportion the cost as between years.

The inclusion of interest and similar additions to capital values should be objected to in every case as constituting mere "paper" additions, which have no value or existence in fact; but cases arise where such additions are practically unavoidable and are supported by reasonably sound arguments. The accountant called upon to consider this difficult question must be absolutely satisfied that the facts of the particular case warrant the inclusion, and must be very sure that he is in possession of all the facts, and of the reasons for the inflation of values.

If such additions must eventually be admitted, it is certainly preferable to state them in the balance sheet as "Deferred Charges to Operations," rather than to conceal the items in the timber values. The whole of the timber values, of course, eventually finds its way into the cost of operations, but a segregation should certainly be made in the balance sheet between the actual value (cost) of the timber and items such as interest, etc.

(4) Pricing the Inventory

At what price should the inventory of lumber be valued?

This is undoubtedly one of the most difficult questions in lumber accounting. No uniformity of practice exists, and there are arguments in favor of all methods. "Cost or market price, whichever is the lower," has been an accepted axiom in accounting circles, and it is one which is safe, conservative, and eminently adapted to general practice. With regard to lumber accounting, however, the situation is somewhat changed, and other methods must be seriously considered by the accountant, even at the risk of being termed iconoclastic. It is absolutely necessary to adopt a definite basis, and it is unreasonable to suppose that any lumberman would allow cost price to be adopted in one period and market price in another, or that he would permit some portions of his product to be valued at market price and some at cost. The lumber inventory must be treated as a whole, and not as a collection of units requiring separate treatment.

There are three methods of valuing the inventory of lumber, namely:

- (a) Cost price
- (b) Selling price, less a deduction for handling charges, etc.
- (c) Fixed price

(a) Cost Price. The question as to what constitutes true lumber cost is discussed later, and it is assumed that the actual cost has been definitely settled and the inventory priced at that figure. So far so good; but what is the situation? The prices obtained in the Northwest for ordinary commercial lumber, produced at a cost of, say, \$11 per thousand, vary from \$8.50 to \$40 per thousand. In hard-

woods the variations are much greater. It is evident that it costs precisely the same amount to saw, edge, trim, grade, and pile a high-grade board as one of the lowest grade of "mill run." For this reason the cost cannot be apportioned in any way as between high and low grades; in fact, to attempt to do so would be to destroy the cost principle at the outset. It naturally follows, therefore, that, if the yard contains an overwhelming preponderance of low-grade lumber, the cost price is not the best basis. In general practice, however, it will be found that, for commercial lumber, the cost basis works out excellently, while for "hardwood" lumber it does not always do so. In this case, the prices vary more than in commercial lumber, and the cost is higher. There may be an active demand for high-grade oak or gum, leaving a high percentage of low-grade lumber in the yards; and if the inventory be priced at cost, this will result in anticipating a profit which is not only unrealized, but is actually unrealizable under any circumstances. On the other hand, presuming that the low-grade boards have been disposed of and the high-grade lumber remains in the pile, the results for the year will in all probability show a loss if the inventory be priced at cost, and it is very much to be doubted whether the results arrived at on this basis disclose what has actually been accomplished by the mill during the period under consideration.

(b) Selling Price Less Charges. This method involves the grading of all lumber in the yards, which is, of itself, a tedious process. After grading, the lumber is valued at the current market price; and a deduction, based on previous experience, is made for the estimated cost of handling the lumber from the pile to the car, and for breakage and de-grade. This method of pricing is a fairly common one,

especially among hardwood lumbermen; but it has little to recommend it, inasmuch as it involves anticipated and unrealized profits to an extent which exceeds the line of safety, including profits which, owing to market fluctuations, may never be realized at all. Accountants invariably dislike to cut and slash figures submitted by a client, but, where an inventory has been priced on this basis, such a proceeding becomes almost inevitable. In some cases, it will be found that in addition to deductions for handling, a fixed percentage is also deducted (10% is common), but frequently this percentage is insufficient to provide for market fluctuations and selling expenses.

(c) Fixed Price. The term "Fixed Price" has been adopted for the lack of a better term. Once the price under this basis is "fixed," it becomes, in the absence of special conditions, the inventory price for that particular grade of lumber at each stocktaking period. As in the case of a valuation at selling price, it involves the grading of the lumber in the yard, and is, generally speaking, impracticable in the case of large concerns manufacturing commercial lumber. In the case of the more valuable woods, the lumber is usually graded at inventory time in any case.

The fixed price for each grade should be based on a price below which the market has never fallen, less a deduction for handling charges, breakage and de-grade, selling expenses, etc. It practically means that the lumber inventory is included at a price at which it could be disposed of at any moment.

This method has the advantage that it tends to produce more evenness in results, and the rate of profit does not fluctuate so much between periods, as may be the case when "cost" or "market" is adopted as the basis of pricing the inventory.

(5) Cost and True Cost

If the inventory of lumber be priced at cost, what constitutes true cost?

In considering this question, it will be found that marked differences of opinion exist. All lumbermen are agreed that logging, pond, and sawmill costs; power-house, yard, and general operating expenses; and depreciation of plant and machinery, should enter into the cost of the lumber in the yards; but as to whether dry kiln and planing mill expenses and expenses incurred during the closed period (if any) should be included, there is no uniformity of opinion. The operations of the dry kiln and planing mill add very little, if anything, to the value of the lumber, except to make it more immediately salable and to reduce freight rates; moreover, it is probable that only a percentage of the lumber in the pile has gone through these processes; but, in spite of this fact, it is the usual custom to include the expense of operating the dry kiln and planer as part of the lumber cost. It is difficult to find convincing arguments to support the inclusion of these items in the cost of manufacture, as they might more properly be termed the costs of preparing the lumber for shipment. They should not, therefore, be included in arriving at the price basis for the inventory, and it is unfortunate that general custom should in any way sanction the inclusion of such costs.

A number of mills shut down during certain months of the year; and during this closed period, overhead and other expenses are incurred. The time is usually occupied in repairing machinery, repiling the lumber in the yard, and other similar operations. These operations do not, of course, add anything to the value of the product, but are expenses which are essential to the operations of the sawmill, and, as such, may legitimately be included as part of the lumber cost. In practice it will be found that they are

invariably included in arriving at inventory values in mills where the cost of production is used as the basis of valuation. It may be found convenient, in order to equalize the expenses incurred during the closed period, to charge to manufacturing cost each month a sum—based on previous experience—sufficient to provide for the expenses during the period in which the mill is shut down. These sums are credited to a reserve account and the actual expenditures charged against them, the resulting balance being charged or credited to manufacturing cost at the end of the closed period.

CHAPTER IX

TECHNICAL TERMS USED IN THE LUMBER BUSINESS

Accretion	Increase in diameter or height.
Air-Dried	Lumber dried in the open air, as distinct from lumber which has been kiln-dried.
Band Saw	An endless saw for cutting logs. Sawing by band is more economical than by circular, as the percentage of sawing waste is less.
Belting	A ring cut round the tree to deaden or kill it. This enables gum, cypress, etc., to be floated.
Board Foot	The contents of a board one foot square and one inch thick. This is the unit of measure for lumber and logs.
Board Measure	The measuring standard, the unit of which is a board foot.
Board Rule	A graduated stick for ascertaining the contents of boards.
Boom	Logs fastened together used to hold floating logs in place.
Boom Company	A corporation engaged in handling and sorting floating logs.
Boom Stay	A weight used to anchor a boom.

Boom Stick	Timber forming part of a boom.
Burner	Burners may be open or closed, and are used for destroying waste material not required for production of power, sale, etc.
Caliper	An instrument used for measuring the diameter of logs or trees.
Carriage	The attachment to the sawmill used for carrying the logs through the saw.
C. I. F.	Cost, insurance, and freight.
Clean Cutting	An area on which the whole of the timber has been cut.
Clear Length	The portion of the stem free from branches.
Commissary	A general store for supplying goods to lumbermen.
Commissary Checks	Form of order on the commissary entitling employee to receive merchandise.
Conveyor	An endless chain for carrying lumber, refuse, etc., from the sawmill.
Cruiser	One who estimates the amount of standing timber in the woods.
Cull	Logs rejected or deductions made in measuring logs on account of defects.
Cut-off Saw	A saw used for cutting logs to required lengths before entering the sawmill.
Cutover Lands	Lands on which the whole of the standing timber has been logged.

- Cutting Height** The height above the ground at which a tree is to be cut.
- Deadening** (See "Belting")
- De-grade** The amount which lumber runs under a specified grade.
- Double Band Saw** A band saw containing teeth on both edges, which enables the log to be cut on the reverse as well as the forward movement of the carriage.
- Doyle Rule** A rule for ascertaining the number of board feet in a log of given length and diameter. It is constructed by deducting four inches for slab from the small end of the log, squaring one-quarter of the remainder, and multiplying the result by length of the log in feet. Mill cut usually overruns about 15 to 25 per cent for short logs, but is higher for long logs with small top diameter.
- Drift** (See "Drive")
- Drive** (1) To float logs or timber from forest to mill or shipping point.
(2) A body of logs or timbers being floated to mill or shipping point.
- Dry Kiln** A kiln for quickly drying lumber so that it can be immediately shipped.
- Edger** A machine consisting of adjustable saws for sawing boards into desired widths and for removing the waste edges from boards.

Filing Room	A room used by the filer for sharpening saws.
Flume	(1) An enclosed trough containing running water used for transporting logs. (2) To transport logs by flume.
f. o. b.	Free on board.
Forest Capital	The capital represented by the forest land and standing timber.
Full Scale	Measurements made without deduction for defects.
Gangway	An inclined plane on which a jack chain runs, used for transporting logs from the pond or yard to the mill.
Grade	To sort lumber into various classes.
Haul-up	(See "Gangway")
Hog	A machine for cutting offal into sizes suitable for use under the boilers or in the locomotives, etc.
Incinerator	(See "Burner")
Increment	The value or volume of timber produced by natural growth.
Jack Chain	An endless spiked chain for transporting logs from one point to another.
Landing	(1) A place to which logs are hauled prior to transportation. (2) A platform where logs are collected and loaded on cars.

Lath	Thin narrow strips of wood used in building operations. Laths are made in three thicknesses—single, half, and double.
Log Brow	(See "Landing")
Log Haul	(See "Gangway")
Log Rule	(1) A tabular statement of the amount of lumber contained in a log of given length and diameter. (2) A graduated stick for measuring diameters of logs.
Lumber	The principal product manufactured from timber.
Merchantable Length	The total length of stem available for use.
Merchantable Volume	The total volume of that portion of the tree available for use.
Mill Pond	A pond near the sawmill in which logs are stored until required. Ponds may be hot or cold. The hot pond is heated by steam and enables mill operations to be continued during the winter.
Mill Run	The entire product of the mill; generally applied to board output.
Nigger	A device for loading logs on the saw carriage.
Offal	The waste product of the board.
Pile	(1) To arrange lumber in piles. (2) A stack of lumber in the yard.
Pile Stick	A board used for separating the layers of lumber in the pile.

Planing Mill	The place where boards are planed. In the West the planing mill is principally operated to reduce the shipping weight of lumber.
Pocket Boom	A boom for containing logs after they are sorted.
Pole	A tree from four inches to a foot in diameter, breast high.
Releasing List	A schedule attached to a mortgage describing by parcels and contents the lands covered by the mortgage.
Road Gang	A crew of men engaged in cutting and repairing logging roads.
Scale	To determine the volume of logs.
Scale Book	A book specially ruled for recording the scale of logs.
Scaler	One who determines the volume of logs.
Scribner Rule	A log scale based on computations derived from diagrams drawn to show the number of inch boards that can be sawed from logs of different sizes after an allowance for waste. Gives fairly accurate results for small logs, but not for large. Cutting in sound logs, the overrun may be 10 to 20 per cent.
Shingle	A thin and small piece of wood used for roofing, etc.
Single Band Saw	A band saw having a cutting edge on one side only.

Size	A machine to dress lumber to a required size.
Skid	(1) To draw logs from the stump to the skidway, landing or mill. (2) To reinforce a road by placing poles across it. (3) The logs upon which logs are handled or piled.
Skidder	(1) One who skids logs. (2) A steam engine which skids logs by means of a cable.
Skidway	Two parallel logs placed at right angles to the road. Logs are usually piled upon a skidway as delivered for loading purposes.
Slabs	Waste product.
Slash	(1) The debris left after logging. (2) Land covered with limbs and tops of trees.
Sorting Boom	A boom used to guide logs into the sorting jack.
Sorting Jack	A raft or platform in the stream containing an opening for the passage of logs to be sorted by marks and diverted into pocket booms.
Stand	All growing trees in a forest or in part of a forest.
Standard	A measurement of quantity used in export shipments of lumber.
Standard Rule	A rule based on comparison with the merchantable contents of a log of fixed length and diameter, known as a standard log.

Steam Hauler	A geared locomotive for hauling loaded sleds over an ice road.
Storage Boom	A boom to hold logs in storage.
Stull	Round piling about 10 inches in diameter used principally as mine timbers.
Stump	The portion of the tree remaining below the cut made in felling.
Stumpage	The standing timber; in other words, the value of the timber as it stands uncut.
Timber Right	The right to cut or turpentine timber.
Tram Road	A railroad built and used for the purpose of transporting logs from woods to mill.
Trimmer	A machine consisting of a series of gang saws for cutting boards into the desired lengths.
Trucks	Cars used for transporting logs from woods to mill.
Turpentine Privileges	The right to extract the gum from trees.
Used Length	The sum of the length of logs cut from a tree.
Used Volume	The sum of the volume of logs cut from a tree.
Windfall	A tree blown down by wind.
Yield	The amount of wood on a given area, or the amount of wood which will be found thereon at some future time.

Part II—Records Used in Lumber Manufacturing

CHAPTER X

FORMS

The forms submitted on the following pages are, for the most part, actually in use, though some few have been specially devised to include the best features of several different related forms. It is not suggested that all the forms desirable for any particular mill will be found in the present chapter, or that all its records will be used in the exact form in which they are shown here, for conditions may necessitate additional information not provided for on these, and, as already stated, the management may have a good deal to say on the subject of the operating forms.

Exception may be taken to the fact that a form of daily report is not submitted, but it will be readily understood that circumstances and even location would have a marked effect on the character and, therefore, on the form of this report. For instance, where the organization is all under one roof, an entirely different report would be required from that necessary where the manufacturing operations and the financial operations are conducted in different places. As a matter of fact, a specially devised form of daily report for each mill is almost unavoidable.

Forms for the retail yard are not submitted, since this can reasonably be considered an entirely separate business.

SCALEP		DAILY SCALE - LOGS CUT BY MILL										191		
	No. and of Mark	12	14	16										
		Totals												
		Hours Run					Cause of Shut Down					Daily Report		
		Hours Shut Down					Remarks					Foreman		
		No. of Men												

Form 13. Daily Scale—Logs Cut by Mill. (See page 40.)

REPORT OF MILL CUT

FOR THE MONTH OF _____ 19__

Day	Shift DAY NIGHT	Time Operatg Shut Down	Log Scale to Mill	Lumber Scale	Classification of Product			
					Lumber	Miscellaneous	Lath	
1								
2								
3								
4								
5								
6								
7								
27								
28								
29								
30								
31								
Total								
Previous Year to Date								
Year to Date								

Form 14. Report of Mill Cut. (See page 40.)

Date _____	
Order No.	DRY SHED
Pieces	Description

Date _____	
Order No.	DRY SHED
Pieces	Description

Form 20. Dry Shed Tally Card. (See page 47.)

Date _____		
DELIVER TO PLANING MILL		
Order No. _____		
Pieces	Description	Feet
Tallyman _____		Scaler _____
Date _____		
PLANED AND LAID OUT		
Order No. _____		
Pieces	Description	Feet
Tallyman _____		Scaler _____

Form 21. Delivery Card. (See page 48.)

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