1926

Cost Accounting for News Print Paper Mills

News Print Service Bureau

Cost Accounting
for
News Print Paper Mills

The
NEWS PRINT SERVICE BUREAU
342 Madison Avenue
New York City

Cost Accounting
for
News Print Paper Mills

By

C. W. HALLIGAN

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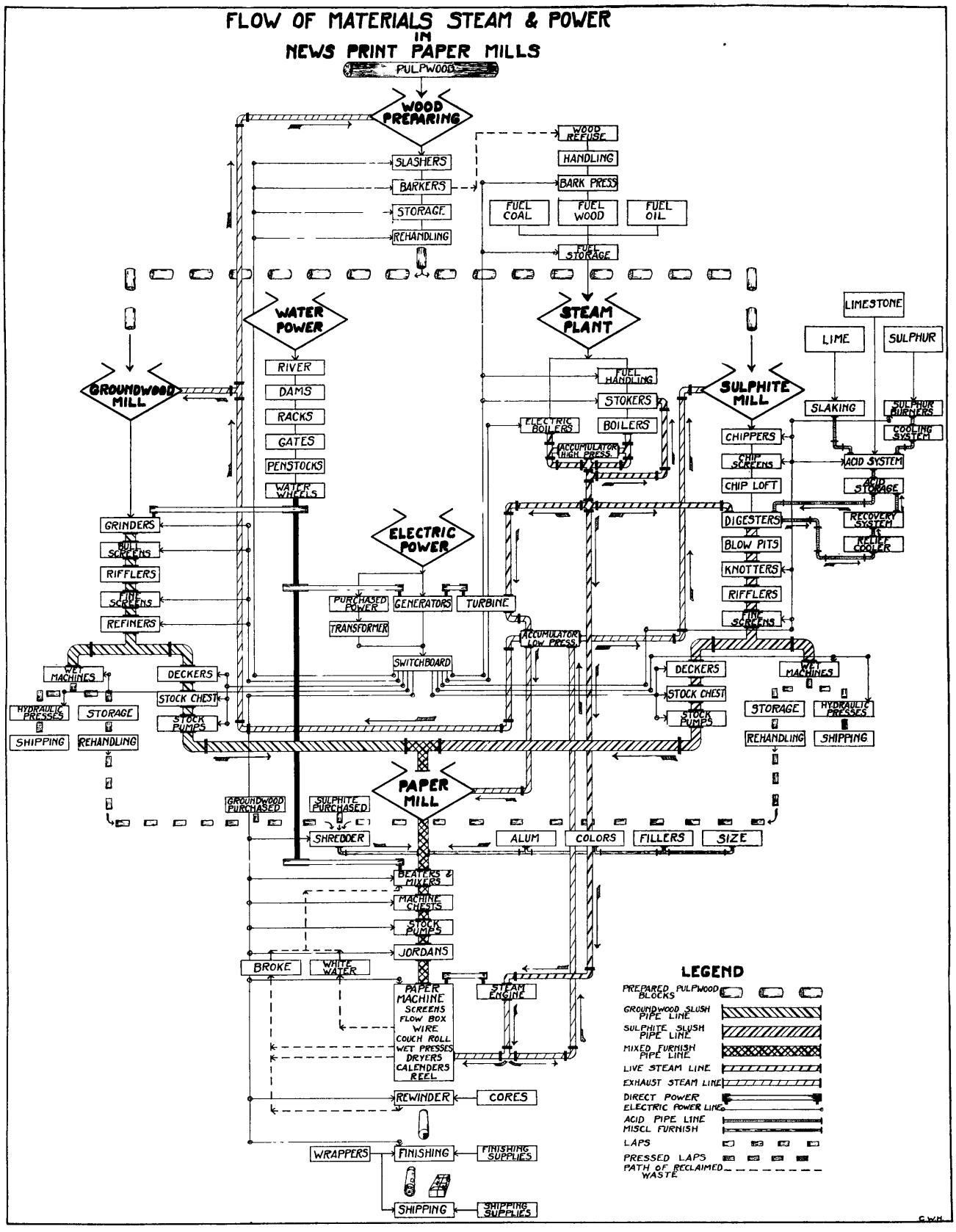
342 Madison Avenue,
New York City.


FLOW OF MATERIALS STEAM & POWER
IN
NEWS PRINT PAPER MILLS
PULPWOOD
WOOD PREPARING
SLASHERS
BARKERS
STORAGE
REHANDLING
WOOD REFUSE
HANDLING
BARK PRESS
FUEL COAL
FUEL WOOD
FUEL OIL
FUEL STORAGE
WATER POWER
RIVER
DAMS
RACKS
GATES
PENSTOCKS
WATER WHEELS
STEAM PLANT
FUEL HANDLING
STOKERS
BOILERS
ELECTRIC BOILERS
ACCUMULATOR (HIGH PRESS.)
LIMESTONE
LIME
SULPHUR
GROUNDWOOD MILL
SULPHITE MILL
SLAKING
SULPHUR BURNERS
COOLING SYSTEM
CHIPPERS
CHIP SCREENS
CHIP LOFT
ACID SYSTEM
ACID STORAGE
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ROLL SCREENS
RIFFLERS
PIPE SCREENS
REFINERS
ELECTRIC POWER
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GENERATORS
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WET MACHINES
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STOCK PUMPS
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STORAGE
SHIPPING
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PAPER MILL
GROUNDWOOD PURCHASED
SULPHITE PURCHASED
SHREDDER
ALUM
COLORS
FILLERS
SIZE
BEATERS & MIXERS
MACHINE CHESTS
STOCK PUMPS
JORDANS
BROKE
WHITE WATER
PAPER MACHINE
SCREENS
FLOW BOX
WIRE
COUCH ROLL
WET PRESSES
DRYERS
CALENDERS
REEL
STEAM ENGINE
REWINDER
CORES
WRAPPERS
FINISHING
FINISHING SUPPLIES
SHIPPING
SHIPPING SUPPLIES
LEGEND
PREPARED PULPWOOD BLOCKS
GROUNDWOOD SLUSH PIPE LINE
SULPHITE SLUSH PIPE LINE
MIXED FURNISH PIPE LINE
LIVE STEAM LINE
EXHAUST STEAM LINE
DIRECT POWER
ELECTRIC POWER LINE
ACID PIPE LINE
MISCL FURNISH
LAPS
PRESSED LAPS
PATH OF RECLAIMED WASTE
C.W.H.

PREFACE

"Cost Accounting for News Print Paper Mills" presents a practical application of the general principles established in the system prepared for the news print industry and approved by the Committee on Uniform Cost Keeping of the News Print Service Bureau in 1919. An effort has been made to cover the many improvements and changes in operating methods as well as refinements in cost keeping procedure, which have taken place during the past few years.

A general accounting plan is provided to illustrate methods for accumulating information that will eventually be distributed and incorporated in the cost figures. The system has been planned for a large plant, but it can be easily applied to small mills without departing from the principles outlined, by eliminating any accounts not needed.

The growing interest in budgets and standard costs makes imperative the presentation of this important development in accounting, therefore the section devoted to this subject is especially recommended for consideration.

Special acknowledgement is due all members of the Committee as well as Messrs. J. M. Wiswall of The Brompton Pulp and Paper Company, Limited; C. LeBrun and J. W. Hodgson of the Belgo Canadian Paper Company, Limited; E. A. Brissett and H. P. Darley of Price Brothers and Company, Limited; John L. Seeley of the Crown Willamette Paper Company and George D. Bearce, of the News Print Service Bureau, for the assistance rendered in reviewing the text and for their many valuable and helpful suggestions.

December, 1925. C. W. HALLIGAN.

COMMITTEE STATEMENT

MR. PERCY B. WILSON, *Chairman of the Executive Committee,*
News Print Service Bureau,
New York City.

DEAR SIR:

At a meeting of cost accountants and engineers of News Print Service Bureau members on October 18, 1923, the undersigned special Committee was designated to prepare a revised edition of "Cost Keeping for News Print Paper Mills." The revision, written at our request by Mr. C. W. Halligan, is submitted herewith.

The study of cost keeping problems has long engaged the attention of news print manufacturers, and during the past ten years they have made these studies on a cooperative basis, each contributing his best thought and effort, based upon wide experience, and all helped by the work of well-known public accountants.

The first recommendations for standard methods of cost accounting in the news print industry were made by a special Committee of Manufacturers on October 19, 1916, assisted by Loomis, Suffern & Fernald, the second, dated February 15, 1919, were made by a Joint Committee of the News Print Service Bureau and of the Canadian Export Paper Company, with the assistance of Perley Morse & Company, with Price, Waterhouse & Co. acting in an advisory capacity and the entire matter submitted to the Federal Trade Commission, which found that the system embodied "In the main the principles of accounting on which the cost figures in the news-print price proceeding were based."

Six years of thorough testing have demonstrated the essential soundness of the methods recommended in 1919, while experience in a growing industry which is constantly improving its processes and increasing in efficiency has made it possible to bring out now a revision of the earlier publication which we recommend to the manufacturers of news print paper in North America.

Cost keeping serves its greatest purpose when it furnishes accurately, completely and promptly to managers and executives the information which enables them to reduce costs and increase operating efficiencies. It is our belief that the revised system here presented provides adequate means for accomplishing these results.

Respectfully submitted,

Laurentide Co., Limited

Spanish River Pulp & Paper Mills, Limited

Belgo Canadian Paper Co., Limited

International Paper Company

Abitibi Power & Paper Co., Limited

St. Maurice Paper Co., Limited

Chairman

December 4, 1925.

COMMITTEE.

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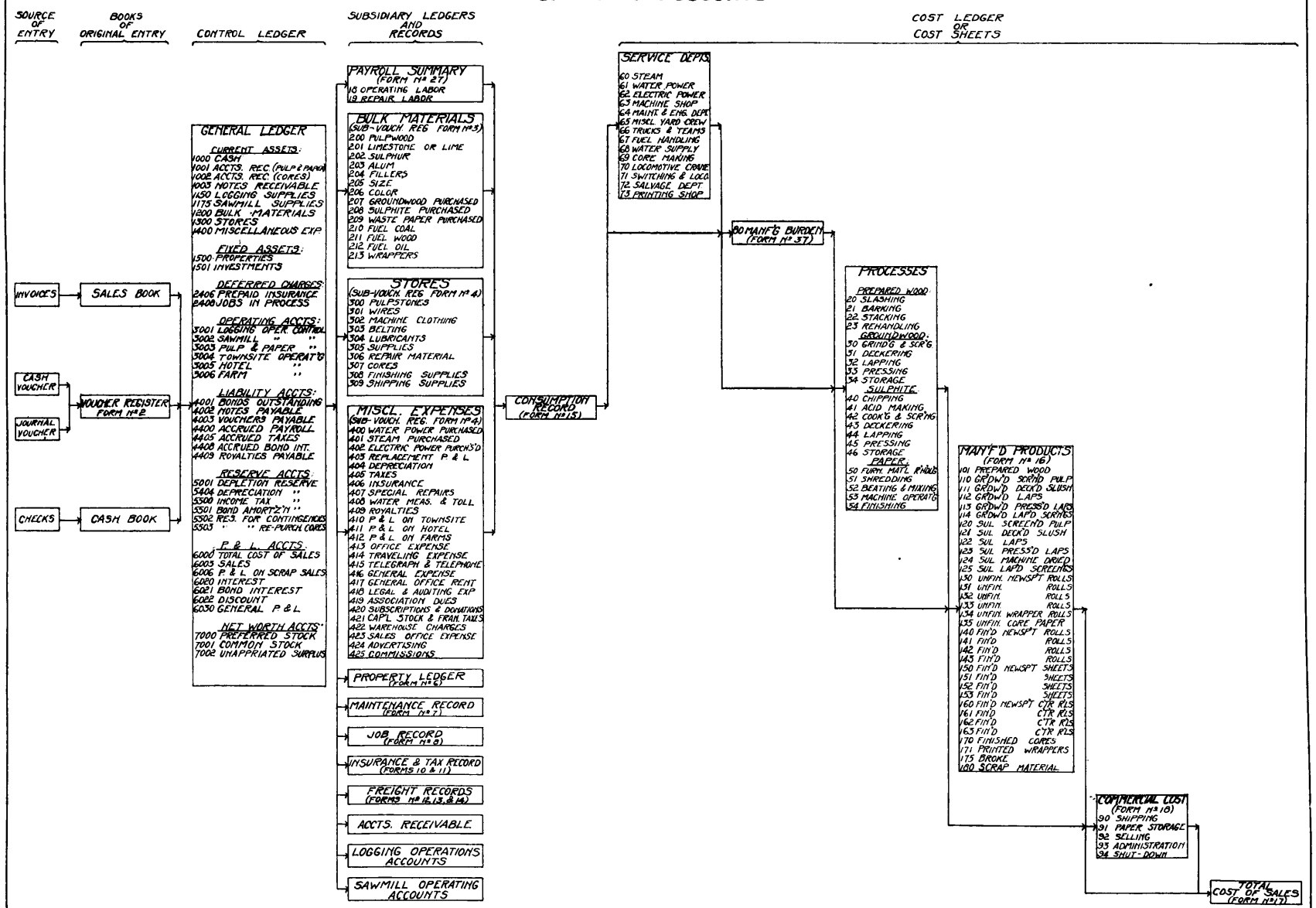


Card of Accounts

The following card of accounts includes all the accounts necessary for operating this system of cost accounting for news print paper mills as well as other allied activities conducted by them. Account symbols have been assigned to simplify the procedure, particularly in regard to time and store keeping and are arranged as follows:

No. 1 to 19 Labor occupations,
No. 20 to 99 Operating departments,
No. 100 to 199 Manufactured products,
No. 200 to 299 Bulk materials,
No. 300 to 399 Stores,
No. 400 to 499 Miscellaneous expenses,
No. 1,000 to 7,000 General ledger accounts.

By combining these numbers the account to be charged can be ascertained together with the account supplying the charge. For example:

No. 20-1 indicates sawyer labor charged to the slasher section of the wood preparing operation.

No. 53-1 indicates machine tender labor charged to Paper Machine Operating.

The individual labor occupations are not usually carried on the cost sheets, therefore, No. 18 is provided for operating labor and salary totals and No. 19 for repair labor totals in all departments. These numbers prefixed by any department symbol indicate either operating or repair labor as the case may be. In charging materials or expenses, any of the account numbers from 200 to 499 prefixed by a department symbol indicate a specific kind of material or expense charged to that department. For example:

No. 53-302 indicates Machine Clothing charged to Machine Operating.

If any other processes are used in place of, or in addition to those given, the code numbers may be revised to suit local conditions without altering the principles outlined. For example, when a bleach plant is operated in the sulphite mill, a Bleaching process may be inserted after Lapping, and if paper is super-calendered, a Super-Calendering operation may be inserted before Finishing.

GENERAL LEDGER ACCOUNTS

Acct. Symbols	
	CURRENT ASSET ACCOUNTS
1000	Cash.
1001	Accounts Receivable.
1002	Accounts Receivable (Cores).
1003	Notes Receivable.
1150	Logging Supplies.
1175	Sawmill Supplies.
1200	Bulk Materials (Including unprocessed pulpwood at the Pulp and Paper Mill).
1300	Stores.
1400	Miscellaneous Expenses. (No deferred balance.)
	FIXED ASSET ACCOUNTS
1500	Properties.
1501	Investments.
	DEFERRED CHARGES
2406	Prepaid Insurance.
2408	Jobs in Process.
	OPERATING ACCOUNTS
3001	Logging Operations Control. (Balance represents inventory of logs in process, and in transit.)
3002	Sawmill Operations Control. (Balance represents inventory of lumber in process, and in storage.)
3003	Pulp and Paper Mill Operations Control. (Balance represents processed material inventories.)
3004	Townsite Operating.
3005	Hotel Operating.
3006	Farm Operating.
	LIABILITY ACCOUNTS
4001	Bonds Outstanding.
4002	Notes Payable.
4003	Vouchers Payable.
4400	Accrued Payroll.
4405	Accrued Taxes.
4408	Bond Interest Accrued.
4409	Royalties Payable.
	RESERVE ACCOUNTS
5001	Depletion of Forests.
5404	Depreciation Reserve.
5500	Reserve for Income Taxes.
5501	Reserve for Bond Amortization.
5502	Reserve for Contingencies.
5503	Reserve for Repurchase of Cores.

Acct. Symbols

PROFIT AND LOSS ACCOUNTS

6000 Total Cost of Sales.
6003 Sales.
6006 Profit and Loss on Scrap Sales.
6020 Interest.
6021 Bond Interest.
6022 Discount.
6030 General Profit and Loss Account.

NET WORTH ACCOUNTS

7000 Preferred Stock.
7001 Common Stock.
7002 Unappropriated Surplus.

DETAILED MATERIAL AND EXPENSE ACCOUNTS

LABOR

(General Ledger Control Account No. 4400)

18 Operating Labor and Salaries.
19 Repair Labor.

BULK MATERIALS

(General Ledger Control Account No. 1200)

200 Pulpwood.
201 Limestone or Lime.
202 Sulphur.
203 Alum.
204 Fillers.
205 Size.
206 Color.
207 Groundwood Purchased.
208 Sulphite Purchased.
209 Waste Paper Purchased.
210 Fuel Coal.
211 Fuel Wood.
212 Fuel Oil.
213 Wrappers (Purchased).

STORES

(General Ledger Control Account No. 1300)

300 Pulp Stones.
301 Wires.
302 Machine Clothing.
303 Belting.
304 Lubricants.
305 Supplies (See analysis of this account).
306 Repair Material (See analysis of this account).
307 Cores (Purchased).
308 Finishing Supplies.
309 Shipping Supplies.

MISCELLANEOUS EXPENSES

(General Ledger Control Account No. 1400)

400 Water Power Purchased.
401 Steam Purchased.
402 Electric Power Purchased.
403 Replacement P. & L.
404 Depreciation.
405 Taxes.
406 Insurance.
407 Special Repairs.
408 Water Measurement and Toll Charges.
409 Royalties.
410 P. & L. on Townsite.
411 P. & L. on Hotels.
412 P. & L. on Farms.
413 Office Expense.
414 Traveling Expense.
415 Telegraph and Telephone.
416 General Expense.
417 General Office Rent.
418 Legal and Auditing Expense.
419 Association Dues.
420 Subscriptions and Donations.
421 Capital Stock and Franchise Taxes.
422 Warehouse Charges.
423 Sales Office Expense.
424 Advertising.
425 Commissions.

PULP AND PAPER MILL OPERATING ACCOUNTS (COST LEDGER)

(Controlled by General Ledger Account No. 3003
Pulp and Paper Mill Operations Control)

Acct. Symbols

SERVICE DEPARTMENTS

60 Steam.
61 Water Power.
62 Electric Power.
63 Machine Shop.
64 Maintenance and Engineering.
65 Miscellaneous Yard Crew.
66 Trucks and Teams.
67 Fuel Handling Expense.
68 Water Supply.
69 Core Making.
70 Locomotive Crane.
71 Switching and Locomotive.
72 Salvage Department.
73 Printing Shop.

80 MANUFACTURING BURDEN

PREPARED WOOD PROCESSES

20 Slashing.
21 Barking.
22 Stacking.
23 Rehandling.

GROUNDWOOD PULP PROCESSES

30 Grinding and Screening.
31 Deckering.
32 Lapping.
33 Pressing.
34 Storage.

SULPHITE PULP PROCESSES

40 Chipping.
41 Acid Making.
42 Cooking and Screening.
43 Deckering.
44 Lapping.
45 Pressing.
46 Storage.

PAPER PROCESSES

50 Furnish Material Rehandling.
51 Shredding.
52 Beating and Mixing.
53 Machine Operating.
54 Finishing.

Acct. Symbols

COMMERCIAL COST

90 Shipping.
91 Paper Storage.
92 Selling.
93 Administration.
94 Shut-down.

MANUFACTURED PRODUCTS

101 Prepared Wood.
110 Groundwood Screened Pulp.
111 Groundwood Deckered Slush.
112 Groundwood Laps.
113 Groundwood Pressed Laps.
114 Groundwood Lapped Screenings.
120 Sulphite Screened Pulp.
121 Sulphite Deckered Slush.
122 Sulphite Laps.
123 Sulphite Pressed Laps.
124 Sulphite Machine Dried.
125 Sulphite Lapped Screenings.
130 Unfinished Newsprint Rolls.
131 Unfinished ..... Rolls.
132 Unfinished ..... Rolls.
133 Unfinished ..... Rolls.
134 Unfinished Wrapper Rolls.
135 Unfinished Core Paper.
140 Finished Newsprint Rolls.
141 Finished ..... Rolls.
142 Finished ..... Rolls.
143 Finished ..... Rolls.
150 Finished Newsprint Sheets.
151 Finished ..... Sheets.
152 Finished ..... Sheets.
153 Finished ..... Sheets.
160 Finished Newsprint Counter Rolls.
161 Finished ..... Counter Rolls.
162 Finished ..... Counter Rolls.
163 Finished ..... Counter Rolls.
170 Finished Cores.
171 Printed Wrappers.
175 Broke.
180 Scrap Material.

LABOR ANALYSIS

(For Timekeeping Records)

(General Ledger Account No. 4400 Accrued Payroll)

Acct. Symbols	
	WOOD PREPARING AND HANDLING
	Slashing
20-02	Foreman.
20-1	Sawyer.
20-2	Saw Filer.
20-3	Wood Handler (Boom Men, Rivermen, Jack Laddermen, Eveners and Skidmen).
20-4	Oiler and Cleaner.
20-5	Log Counter.
20-6	Carpuller.
20-18	Total Operating Labor.
	Barking
21-02	Foreman.
21-1	Wood Handler.
21-2	Sorter.
21-3	Splitterman.
21-4	Barkerman.
21-5	Conveyorman.
21-6	Oiler and Cleaner.
21-7	Knife Grinder.
21-18	Total Operating Labor.
	Stacking
22-02	Foreman.
22-1	Wood Handler.
22-2	Conveyorman.
22-3	Stackerman.
22-18	Total Operating Labor.
	Rehandling
23-1	Wood Handler.
23-2	Anchorman.
23-3	Dynamiter or Powderman.
23-18	Total Operating Labor.
	GROUNDWOOD PULP MILL
	Grinding and Screening
30-01	Superintendents.
30-02	Foreman or Head Grinderman.
30-1	Block Handler (Trucker, Magazine Loader or Wood Picker).
30-2	Grinderman.
30-3	Stone Sharpener.
30-4	Oiler and Cleaner.
30-5	Screenman.
30-6	Pulp Sampler.
30-7	Stock Runner.
30-8	Rifflerman.
30-9	Saveallman.
30-18	Total Operating Labor.
	Deckering
31-1	Deckerman.
	Lapping
32-02	Foreman.
32-1	Wet Machine Tender (Pressman or Roll Skinner or Lap Cutter).
32-2	Trucker or Conveyor Man
32-3	Weigher.
32-18	Total Operating Labor.
	Pressing
33-02	Foreman.
33-1	Pressman.
33-2	Trucker.
33-3	Weigher.
33-18	Total Operating Labor.
	Storage
34-	(Storage labor charge supplied by yard foreman).
	SULPHITE PULP MILL
	Chipping
40-1	Chipperman.
40-2	Chipperman's Helper.
40-3	Knife Grinder.
40-4	Chip Screenman.
40-5	Conveyorman.
40-6	Chip Binman.

Acct. Symbols

40-7 Cleaner.
40-18 Total Operating Labor.

Acid Making

41-02 Foreman.
41-1 Acid Maker.
41-2 Acid Tester.
41-3 Sulphur Burner.
41-4 Limestone Man (Lime Slacker or Towerman).
41-18 Total Operating Labor.

Cooking and Screening

42-01 Superintendent.
42-02 Foreman (Tour Boss).
42-1 Cook.
42-2 Cook's 1st Helper.
42-3 Cook's 2nd Helper.
42-4 Blowpit Man.
42-5 Screenman.
42-6 Stock Runner.
42-7 Rifflerman.
42-8 Saveallman.
42-9 Oiler and Cleaner.
42-18 Total Operating Labor.

Deckering

43-1 Deckerman.

Lapping

44-02 Foreman.
44-1 Wet Machine Tender (Pressman or Roll Skinner or Lap Cutter).
44-2 Trucker.
44-3 Weigher.
44-4 Oiler and Cleaner.
44-18 Total Operating Labor.

Pressing

45-02 Foreman.
45-1 Pressman.
45-2 Trucker.
45-3 Weigher.
45-18 Total Operating Labor.

Storage

46- (Storage labor charge supplied by yard foreman).

Acct. Symbols

PAPER PROCESSES

Furnish Material Rehandling

50-1 Stock Handler (Other furnish material rehandling charges supplied by yard foreman).
50-2 Clay and Size Man.
50-18 Total Operating Labor.

Shredding

51-1 Shredderman.

Beating and Mixing

52-02 Foreman or Beater Engineer.
52-1 Mixerman or Beaterman.
52-2 Beaterman's Helper.
52-3 Pulp Weigher.
52-4 Oiler and Cleaner.
52-18 Total Operating Labor.

Machine Operating

53-01 Superintendent.
53-02 Boss Machine Tender or Tour Boss.
53-1 Machine Tender.
53-2 Back Tender.
53-3 Third Hand (Winderman).
53-4 Fourth Hand.
53-5 Fifth Hand.
53-6 Sixth Hand.
53-7 Broke Hustler.
53-8 Steam Engineer or Motorman or Electric Drive Operator.
53-9 Paper Tester.
53-10 Paper Inspector.
53-11 Oiler and Cleaner.
53-12 Saveallman.
53-13 Clothing Man.
53-18 Total Operating Labor.

Finishing

54-01 Superintendent.
54-02 Foreman.
54-1 Head Finisher.
54-2 Roll Finisher.
54-3 Sheet Finisher.
54-4 Wrapper Cutter.
54-5 Cutter Girl.
54-6 Counter Girl.
54-7 Press Cutterman.
54-8 Rewinderman.

Acct. Symbols

54-9 Rewinderman's Helper.
54-10 Tier.
54-11 Sealer.
54-12 Marker.
54-13 Weigher.
54-14 Trucker.
54-15 Electric Trucker.
54-16 Clerk.
54-17 Cleaner.
54-18 Total Operating Labor.
(See Account No. 90 for Shipping Labor Analysis).

SERVICE DEPARTMENTS

Steam

60-01 Superintendent.
60-1 Engineer (Boiler House only).
60-2 Coal Handler.
60-3 Head Fireman.
60-4 Fireman or Stokerman.
60-5 Tube Cleaner.
60-6 Ash Handler.
60-7 Oiler and Cleaner.
60-8 Water Tender.
60-9 Fuel Oil Tender (Tends oil in storage tanks and from storage to boilers).
60-10 Coal Checker.
60-11 Flue Gas Tester.
60-18 Total Operating Labor.

Water Power

61-1 Gate Tender.
61-2 Rack Cleaner.
61-18 Total Operating Labor.

Electric Power

62-01 Superintendent.
62-1 Generator Man.
62-2 Turbine Operator.
62-3 Switchboard Operator.
62-4 Motor Inspector.
62-5 Motor Oiler.
62-6 Lineman.
62-18 Total Operating Labor.

Machine Shop

63-02 Foreman.
63-1 Machinist.
63-2 Machinist Helper.
63-3 Millwright.

Acct. Symbols

63-4 Millwright Helper.
63-5 Blacksmith.
63-6 Blacksmith Helper.
63-7 Tinsmith.
63-8 Tinsmith Helper.
63-9 Pattern Maker.
63-10 Roll Grinder.
63-11 Welder.
63-12 Milling Machine Operator.
63-13 Threading Machine Operator.
63-14 Crane Operator.
63-15 Apprentice.

Maintenance and Engineering

64-01 Master Mechanic.
64-1 Millwright.
64-2 Millwright Helper.
64-3 Piper.
64-4 Piper Helper.
64-5 Carpenter.
64-6 Carpenter Helper.
64-7 Painter.
64-8 Painter Helper.
64-9 Mason.
64-10 Mason Helper.
64-11 Chief Electrician.
64-12 Electrician.
64-13 Electrician's Helper.
(Also salaries of the Engineering, Drafting and Planning Sections).

NOTE: The repair labor in the two preceding sections is designated on cost sheets as -19 preceded by the symbol for the department charged.

Miscellaneous Yard Crew

65-02 Foreman.
65-1 Laborer.

Trucks and Teams

66-1 Truck Driver.
66-2 Truck Driver Helper.
66-3 Teamster.
66-4 Teamster Helper.
66-5 Stableman.
66-18 Total Operating Labor.

Fuel Handling

67-1 Coal Handler.

Water Supply

68-1 Filterman.

Acct Symbols

Core Making

69-1 Core Maker.
69-2 Core Maker Helper.
69-3 Capper.
69-4 Core Repairer (Tip Remover).
69-5 Sizeman.
69-18 Total Operating Labor.

Locomotive Crane

70-1 Engineer or Crane Operator.
70-2 Fireman.
70-18 Total Operating Labor.

Switching and Locomotive

71-02 Conductor.
71-1 Engineer.
71-2 Fireman.
71-3 Brakeman.
71-4 Trackman.
71-18 Total Operating Labor.

Salvage Department

72-1 Head Salvage Man.
72-2 Helper.
72-18 Total Operating Labor.

Printing Shop

73-1 Printer.
73-2 Printer Helper.
73-18 Total Operating Labor.

MANUFACTURING BURDEN

General

80-1 Gatekeeper.
80-2 Day Watchman.
80-3 Night Watchman.
80-4 Nurse.
80-5 Sanitary Inspector.
80-6 Safety Supervisor.
80-7 Fire Inspector.
80-8 Janitor.
80-9 Cleaner.

Storekeeping

80-10 Storekeeper.
80-11 Stockman.

Acct Symbols

80-12 Oil Keeper.
80-13 Clerk.
80-14 Scaler.

Timekeeping

80-15 Timekeeper.
80-16 Asst. Timekeeper.

Manufacturing Burden is also charged with the following salaries not usually designated by occupation symbols:
General Manager.
Works or Mill Manager.
Manufacturing Dept. Staff.
Mill Office Staff.
Purchasing Dept. Staff.
Traffic Dept. Staff.
Chemical Laboratory Staff.

80-18 Total Operating Labor.

MANUFACTURED PRODUCTS

(No labor charged direct to these accounts, therefore, no labor analysis).

COMMERCIAL COST

Shipping

(For paper only, because pulp would be loaded by yard crew).
90-02 Foreman.
90-1 Trucker.
90-2 Loader or Roll Pusher
90-3 Car Cleaner or Carman
90-4 Shipping Clerk.
90-5 Car Liner.
90-6 Checker.
90-18 Total Operating Labor.

BULK MATERIALS

The yard crew labor unloading these materials is charged to the particular material unloaded and the rehandling labor is charged to the consuming department. This distribution is furnished by the yard foreman.

Acct. Symbols	
	Fuel Wood
211-1	Refuse Man (Collecting and transporting wood room refuse to bark press and boiler house).
211-2	Bark Pressman (Bark press operator).
211-3	Hog Chipperman.

Acct Symbols	
	NOTE: Other occupations peculiar to certain mills owing to physical layout of plants should be added to the department benefited (i.e., Elevator Men.) If, of a general character applying to all departments additional occupations may be added to Manufacturing Burden.

ANALYSIS OF ACCOUNT NO. 305 SUPPLIES

Acct. Symbols	
100	Acids.
200	Brooms.
300	Brushes.
400	Chain and Rope.
500	Chemicals (other than those used in furnish).
600	Emery and Stones.
700	Fire Protection Equipment.
800	Files and Rasps.
900	Glue and Paste.
1000	Hose and Fittings.
1100	Incandescent Lamps.
1200	Implements.
1300	Knives (including chipper knives).
1400	Ladders.
1500	Lamps and Lanterns.
1600	Miscellaneous.
1700	Oils (cutting and cleaning oils and kerosene).
1800	Pails, buckets and cans.
1900	Rubber coats and boots.
2000	Saws.
2100	Scales and parts.
2200	Soap and cleaning material.
2300	Stable and Garage Supplies.
2400	Tools (small).
2500	Tools (large).
2600	Trucks (hand, wheelbarrows, carts).

ANALYSIS OF ACCOUNT NO. 306 REPAIR MATERIAL

Acct. Symbols	
100	Barkers and Parts.
200	Beaters and Parts.
300	Blocks and Hoists—cranes and hoists (Power).
400	Boilers and Parts.
500	Boiler and Pipe coverings.
600	Bolts and nuts.
700	Chippers and parts.
800	Conveyors and parts.
900	Cutters and Parts.
1000	Digesters and Parts.
1100	Electric Equipment (except bulbs).
1200	Elevators and Parts.
1300	Fans and Parts.
1400	Filters and Parts.
1500	Gaskets.
1600	Gauges and Instruments.
1700	Gears and Pinions.
1800	Glass.
1900	Governors and Parts.
2000	Grinders and Parts.
2100	Hardware, light.
2200	Hardware, heavy.
2400	Jordans and Parts.
2500	Lubricating Devices.
2600	Lumber.
2700	Metals (Babbitt, Copper, Iron, Etc.)
2800	Miscellaneous.
2900	Nails.
3100	Paints and Oils.
3200	Packing.
3300	Paper Machine Parts.
3400	Pipe Fittings and Valves.
3500	Pumps and Parts.
3600	Railroad Material and Equipment.
3700	Rivets.
3800	Roofing Material.
3900	Rubber Sundries.
4000	Screens and Parts (including screen plates).

Acct. Symbols	
4100	Screws.
4200	Shredders and Parts.
4300	Steam Engines and Parts.
4400	Stokers and Parts.
4500	Tanks and Parts.
4600	Turbines and Parts.
4700	Wagon and Motor Truck Parts.
4800	Washers.
4900	Water Wheels and Parts.
5000	Wet Machines and Parts.
5100	Winders and Parts.
5200	Wire.
5300	Wire Cloth and Perforated Metal.

These account numbers are used only in the store room. The group classifications 305 and 306 are used to designate the materials charged to consuming departments.

FORM Nº 2

VOUCHER REGISTER

Cr. / Dr.

DATE	EXPLANATION	VOUCHER Nº	VOUCHERS PAYABLE ACCT. Nº 4005 (Cr.)	SETTLEMENT DATE	SETTLEMENT HOW	UNPAID VOUCHERS	GENERAL LEDGER AMOUNT	GENERAL LEDGER FOL.	VOUCHERS PAYABLE ACCT. Nº 4005 (Dr.)	PULP AND PAPER MILL BULK MATERIALS ACCT. Nº 1200	PULP AND PAPER MILL STORES ACCT. Nº 1300	PULP AND PAPER MILL MISCELLANEOUS EXPENSES ACCT. Nº 1400	LOGGING STORES	LOGGING EXPENSE	SAWMILL STORES	SAWMILL EXPENSE	GENERAL LEDGER ACCOUNT	GENERAL LEDGER FOL.	GENERAL LEDGER AMOUNT

FORM Nº 3

SUBSIDIARY VOUCHER REGISTER
BULK MATERIALS
CONTROL ACCT. Nº 1200

VOUCHER Nº	TOTAL AMOUNT	PULPWOOD ACCT. Nº 200 CORDS	PULPWOOD ACCT. Nº 200 AMOUNT	LIMESTONE OR LIME ACCT. Nº 201 POUNDS	LIMESTONE OR LIME ACCT. Nº 201 AMOUNT	SULPHUR ACCT. Nº 202 POUNDS	SULPHUR ACCT. Nº 202 AMOUNT	ALUM ACCT. Nº 203 POUNDS	ALUM ACCT. Nº 203 AMOUNT	FILLERS ACCT. Nº 204 POUNDS	FILLERS ACCT. Nº 204 AMOUNT	SIZE ACCT. Nº 205 POUNDS	SIZE ACCT. Nº 205 AMOUNT	COLOR ACCT. Nº 206 POUNDS	COLOR ACCT. Nº 206 AMOUNT	PURCHASED GROUNDWOOD ACCT. Nº 207 POUNDS	PURCHASED GROUNDWOOD ACCT. Nº 207 AMOUNT	PURCHASED SULPHITE ACCT. Nº 208 POUNDS	PURCHASED SULPHITE ACCT. Nº 208 AMOUNT	PURCHASED WASTE PAPER ACCT. Nº 208 POUNDS	PURCHASED WASTE PAPER ACCT. Nº 208 AMOUNT	FUEL COAL OR OIL ACCTS. Nº 210 OR 212 POUNDS	FUEL COAL OR OIL ACCTS. Nº 210 OR 212 AMOUNT	FUEL WOOD ACCT. Nº 211 POUNDS	FUEL WOOD ACCT. Nº 211 AMOUNT	WRAPPERS ACCT. Nº 213 POUNDS	WRAPPERS ACCT. Nº 213 AMOUNT

FORM Nº 4

SUBSIDIARY VOUCHER REGISTER
STORES AND MISCELLANEOUS EXPENSES

VOUCHER Nº	TOTAL AMOUNT	STORES CONTROL ACCT. Nº 1300 — PULP STONES ACCT Nº 300 PCS.	PULP STONES ACCT Nº 300 AMOUNT	WIRES ACCT Nº 301 PCS.	WIRES ACCT Nº 301 AMOUNT	MACHINE CLOTHING ACCT Nº 302 PCS.	MACHINE CLOTHING ACCT Nº 302 AMOUNT	BELTING ACCT Nº 303	LUBRICANTS ACCT Nº 304	SUPPLIES ACCT Nº 305	REPAIR MATERIAL ACCT Nº 306	CORES ACCT Nº 307 FEET	CORES ACCT Nº 307 AMOUNT	FINISHING SUPPLIES ACCT Nº 308	SHIPPING SUPPLIES ACCT Nº 309

VOUCHER Nº	TOTAL AMOUNT	MISCELLANEOUS EXPENSES CONTROL ACCT. Nº 1400 — OFFICE EXPENSE ACCT Nº 213	TRAVELLING EXPENSE ACCT Nº 214	GENERAL EXPENSE ACCT Nº 216	SUBS & DONATIONS ACCT Nº 220	WAREHOUSE CHARGES ACCT Nº 222	SALES DEPT. EXP. ACCT Nº 223	ADVERTISING ACCT Nº 224	COMMISSIONS ACCT Nº 225

ACCT Nº	OTHER EXPENSES ACCOUNT	AMOUNT
400	WATER POWER PURCHASED	
401	STEAM "	
402	ELECTRIC POWER "	
403	REPLACEMENT P & L.	
404	DEPRECIATION	
405	TAXES	
406	INSURANCE	
407	SPECIAL REPAIRS	
408	WATER MEAS. & TOLL	
409	ROYALTIES	
410	P & L. ON TOWNSITE	
411	P & L. ON HOTELS	
412	P & L. ON FARMS	
415	TELEGRAPH & TELEPHONE	
417	GENERAL OFFICE RENT	
418	LEGAL & AUDITING EXP.	
419	ASSOCIATIONS DUES	
421	CAPITAL STOCK AND FRANCHISE TAXES	

FORM Nº 1

VOUCHER

VOUCHER Nº ____ CASH ☐ JOURNAL ☐ DATE PAID ____ CHECK Nº ____

ACCT Nº	CREDITS:		
ACCT Nº	DEBITS.		

APPROVED _____ AUDITED _____ ENTERED _____

(FOLD)

FORM Nº 5

VOUCHER RECORD CARD

NAME

VO. Nº	DATE	AMOUNT	VO. Nº	DATE	AMOUNT

General Accounting Records

The voucher system of bookkeeping is generally used in the paper industry, so that this system presupposes the use of the usual records and methods for the voucher system. Although a combined Journal and Voucher register for both cash and journal vouchers is considered preferable, a separate journal in bound or looseleaf form will operate almost as conveniently, except that entries are made in the general ledger from two different sources rather than one. (See Forms No. 1 and 2.)

This system does not deal with Sawmill or Logging costs. They are merely mentioned to illustrate how the accounting for such operations may be controlled by the same set of books used for a pulp and paper mill.

The essential books and records necessary in the development and operation of this system are as follows:

VOUCHER REGISTER

(See Form No. 2)

The Voucher Register recommended is similar in principle to those used in general accounting practice. The distribution or debit columns are arranged to conform with the accounts prescribed for controlling the cost accounting for pulp and paper mills. The columns provided for the control of Logging and Sawmill operations are merely given as an illustration of a consolidation of all accounting for a company through one set of books, and will not be further considered.

Separate columns are provided for original entries covering purchases of the two general groups of materials Account No. 1200 "Bulk Materials," Account No. 1300 "Stores," and expenses chargeable to Account No. 1400 "Miscellaneous Expenses." Postings are made, in total only, to the general ledger control accounts mentioned, at the close of the month. All entries made in these three columns should be further analyzed in the subsidiary voucher register described below.

This record should be operated similar to an invoice register in that invoices should be vouchered and entered daily as approved so that it may be closed out immediately upon receipt of the last invoice for the month.

SUBSIDIARY VOUCHER REGISTER

(See Forms No. 3 and 4)

The subsidiary voucher register forms rather than detailed ledger accounts are recommended for analyzing the classes of materials and expenses posted in the control columns in the Voucher Register. Columns are provided in the subsidiary voucher register for all detailed accounts controlled by general Ledger Accounts No. 1200, No. 1300 and No. 1400. The totals of these columns at the close of each month are posted to the Consumption Record (Form No. 15) for determining the value of materials consumed and expenses applicable to the current month's operating cost. If desired, these calculations may be made directly on the subsidiary voucher register by adding the inventory for the beginning of the period to the totals of each kind of material and deducting the inventory at the close of the period.

When more than one mill is operated by the same company, a separate subsidiary voucher register should be provided for each mill and the vouchers should indicate the mill to which the charge is to be made.

SALES BOOK

This record is usually a binder containing copies of invoices, which may be summarized at the close of the period by grades of pulp and paper. The billing for actual pulp and paper sold, is charged to Account No. 1001, Accounts Receivable and credited to Account No. 6003 Sales. The billing value of cores should be charged to Account No. 1002 Accounts Receivable (Cores), and credited to Account No. 5503 Reserve for Repurchase of Cores.

GENERAL LEDGER

(See Card of Accounts)

The general ledger should contain all the customary asset, liability and capital accounts, and in addition the operating and inventory accounts necessary to properly control the subsidiary records, particularly the cost ledger.

ACCOUNTS PAYABLE LEDGER

This ledger is not generally kept when a voucher register system is used. A statistical record of purchases may be substituted to furnish a classification of vouchers by companies. (See Form No. 5.)

ACCOUNTS RECEIVABLE LEDGER
CASH BOOK

These records are universally accepted and used in practically all lines of industry and do not call for further explanation.

FORM No 6

PROPERTY LEDGER

SYMBOL ___ ESTIMATED LIFE ___ YEARS
PROPERTY NAME ___ ___ ___
MAKER ___ ___ PROBABLE SALES VALUE $
DEPARTMENT ___ ___ DEPRECIATION RATE ___ %

DATE	VO No	REMARKS	COST	ANNUAL DEPRECIATION	PRESENT VALUE

FORM No 7A

MAINTENANCE RECORD

DEPARTMENT ___ YEAR ___

APPARATUS OR BUILDING	JAN	FEB	MAR	APR	MAY	JUNE	JULY

FORM No 7B

MAINTENANCE RECORD

APPARATUS OR BUILDING ___ YEAR ___

DEPARTMENT	JAN	FEB	MAR	APR	MAY	JUNE	JULY

FORM No 8

JOB COST SHEET

CLASSIFICATION ✓
CONSTRUCTION ___
REPLACEMENT ___
SPECIAL REPAIR ___

JOB No ___
DEPARTMENT ___
CHARGE ACCOUNT ___ $ PER MONTH

DESCRIPTION

ESTIMATE		COST						
EXPLANATION	AMOUNT	DATE	VO No	EXPLANATION	LABOR	MATERIAL	TOTAL
TOTAL				TOTAL			

OVER (RED) OR UNDER (BLACK) ESTIMATE

REMARKS

APPROVALS	SIGNATURES	DATE
REQUISITION FILED		
ESTIMATE SUBMITTED		
ESTIMATE APPROVED		
WORK AUTHORIZED		

FORM No 9

JOB RECORD

MONTH ENDING ___

JOB No	DEFERRED BALANCE	COST THIS MONTH	CHARGED OFF ACCOUNT	CHARGED OFF AMOUNT	DEFERRED BALANCE
TOTALS					

FORM No 10

INSURANCE RECORD

YEAR ___

POLICY No	INSURANCE COMPANY OR AGENT	PROPERTY INSURED	POLICY DATE	EXPIRATION DATE	AMOUNT OF POLICY	PREMIUM RATE	PREMIUM AMOUNT	RETURNED PREMIUMS DATE	RETURNED PREMIUMS AMT	DEFERRED TO LAST YEAR	PRORATION JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	DEFERRED TO CLOSE OF YEAR

FORM No 11

TAX RECORD

YEAR ___

TAX BILL DATE	TAX PERIOD FROM	TAX PERIOD TO	PAYABLE TO	PROPERTY TAXED	ASSESSED VALUATION	TAX RATE	TAX AMT	ACCRUED LAST YEAR	ACCRUALS JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ACCRUED CLOSE OF YEAR

PROPERTY LEDGER

(See Form No. 6)

This record is provided to analyze Accounts No. 1500 Properties, 5001 Depletion and 5404 Depreciation by classes, and if desired in detail under classes. It is usually found useful to break up properties into the following groups:

Forests	Buildings
Riparian Rights	Machinery
Lands	Miscl. Real Estate

Under these groups subclassifications may be arranged by operations such as Logging, Sawmill and Pulp and Paper Mills further analyzed by departments and processes. Some proponents of detailed property ledgers advocate details down to machinery units. Subordinate classifications down to departments are sufficient for the purposes of this system as a basis for distributing depreciation charges.

This permanent detailed record of the original cost of buildings and machinery, subsequent improvements or additions, and the depreciation written off is of inestimable value in the settlement of fire losses and the control of depreciation reserves.

COST LEDGER

The permanent office cost sheets are recommended for use as a cost ledger to avoid duplication of effort and to eliminate the numerous journal entries for closing-out the operating accounts at the end of the period. A standard ledger may be used without changing the principles outlined.

A detailed description of the cost ledger accounts and its operation is given in the Cost Accounting Section.

MAINTENANCE EXPENSE RECORD

(See Forms No. 7A and 7B)

This record is used successfully by several companies for controlling the cost of repairs and maintenance. A separate card should be used for each building and major unit of machinery in the plant, and ordinary maintenance posted monthly from a summary of the repair crews' time records, and the store keepers' distributions. Any extraordinary repairs, the cost of which has been accumulated on a job record should be posted to this maintenance record when completed.

By studying the maintenance record of any piece of machinery, its useful life may be determined with a greater degree of accuracy than by rule of thumb methods, and replacement made at the proper economic time.

JOB RECORD

(See Forms No. 8 and 9)

Form No. 8, Job Cost Sheet is used to estimate and accumulate the cost of new construction, replacement and large repair jobs. When a new construction job is completed, its cost is charged to the property account. Replacement jobs are also charged to the property account after the profit and loss has been calculated as described under Account No. 403 Replacement Profit and Loss. Most companies establish a maximum cost for ordinary maintenance work and all repair jobs with an estimated cost in excess of this figure are carried on Form No. 8 until completed, rather than under repair labor and material. When completed such jobs are charged to the departments benefited under Account No. 407 Special Repairs, and if unusually large, may be prorated over several periods.

Form No. 9 is a summary of the cost of all jobs carried on Form No. 8 from which postings may be made monthly to the property ledger and cost accounts. The total of the deferred balance column should represent the balance of Account No. 2408 Jobs in Process.

A code number should be assigned to jobs which will indicate the department in which the work is done, and at the same time distinguish it from other jobs in the same department. For example, No. 2408-60-1 would indicate Job No. 1 for the Steam Plant.

INSURANCE AND TAX RECORDS

(See Forms No. 10 and 11)

The insurance form shown on page 18 is a running record of insurance carried, from which the amount expired may be determined at the end of the accounting period. The tax record supplies for ready reference, the vital information appearing on the tax bills, and provides a permanent record of the amount of taxes paid over a period of years.

STORES LEDGER

The stores ledger may be a regulation ledger in bound or looseleaf form, but a specially designed card ledger is usually more convenient. A description of store room accounting is given on page 25 under the heading of "Control of Materials."

FREIGHT RECORDS

(See Forms No. 12, 13 and 14)

Form No. 12 is a record of cars handled which has been found very useful in checking commodities from the receipt of the arrival notice to

FORM Nº 12

CAR RECORD

RAILROAD _____ MONTH _____

CAR Nº	CAR INITIAL	✓	SHIPPER	CONTENTS	ARRIVAL NOTICE DATE	ARRIVAL NOTICE TIME	ORDERED DATE	ORDERED TIME	PLACED TRACK	PLACED DATE	PLACED TIME	FREE TIME EXPIRES DATE	FREE TIME EXPIRES TIME	RELEASED DATE	RELEASED TIME	OVERTIME DR	OVERTIME CR	OVERTIME AMOUNT

FORM Nº 13

INCOMING FREIGHT RECORD

RAILROAD _____ MONTH _____

DATE	PRO. Nº	CAR Nº	CAR INITIAL	COMMODITY	POINT OF ORIGIN	SHIPPER	INVOICE DATE	AMOUNT	DISTRIBUTION	MISCELLANEOUS ACCOUNT	MISCELLANEOUS AMT.

FORM Nº 14

OUTGOING FREIGHT RECORD

RAILROAD _____ MONTH _____

DATE	PRO. Nº	CAR Nº	CAR INITIAL	COMMODITY	DESTINATION	CONSIGNEE	AMOUNT	DISTRIBUTION	MISCELLANEOUS ACCOUNT	MISCELLANEOUS AMT.

FORM Nº 15

CONSUMPTION RECORD

MILL _____ MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	OPENING INVENTORIES AND DEFERRED CHARGES QUANTITY	OPENING INVENTORIES AND DEFERRED CHARGES AMOUNT	RECEIPTS AND CHARGES QUANTITY	RECEIPTS AND CHARGES AMOUNT	ADJUSTMENTS QUANTITY	ADJUSTMENTS AMOUNT	DR. or CR.	CONSUMED AND ACCRUED QUANTITY	CONSUMED AND ACCRUED AMOUNT	CLOSING INVENTORIES AND DEFERRED CHARGES QUANTITY	CLOSING INVENTORIES AND DEFERRED CHARGES AMOUNT	REMARKS
	LABOR:												
18	OPERATING												
19	REPAIR												
	TOTAL												
	BULK MATERIALS:												
200	PULPWOOD												
201	LIMESTONE OR LIME												
202	SULPHUR												
203	ALUM												
204	FILLERS												
205	SIZE												
206	COLOR												
207	GROUNDWOOD PURCHASED												
208	SULPHITE PURCHASED												
209	WASTE PAPER PURCHASED												
210	FUEL COAL												
211	FUEL WOOD												
212	FUEL OIL												
213	WRAPPERS (PURCHASED)												
	TOTAL												
	STORES:												
300	PULP STONES												
301	WIRES												
302	MACHINE CLOTHING												
303	BELTING												
304	LUBRICANTS												
305	SUPPLIES												
306	REPAIR MATERIALS												
307	CORES (PURCHASED)												
308	FINISHING SUPPLIES												
309	SHIPPING SUPPLIES												
	TOTAL												
	MISCELLANEOUS EXPENSES:												
400	WATER POWER PURCHASED												
401	STEAM PURCHASED												
402	ELECTRIC POWER PURCH.												
403	REPLACEMENT P & L.												
404	DEPRECIATION												
405	TAXES												
406	INSURANCE												
407	SPECIAL REPAIRS												
408	WATER MEASUREMENT & TOLL												
409	ROYALTIES												
410	P & L. ON TOWNSITE												
411	P & L. ON HOTELS												
412	P & L. ON FARMS												
413	OFFICE EXPENSE												
414	TRAVELING EXPENSE												
415	TELEGRAPH & TELEPHONE												
416	GENERAL EXPENSE												
417	GENERAL OFFICE RENT												
418	LEGAL & AUDITING EXPENSE												
419	ASSOCIATION DUES												
420	SUBSCRIPTIONS & DONATIONS												
421	CAPITAL STOCK & FRANCHISE TAXES												
422	WAREHOUSE CHARGES												
423	SALES OFFICE EXPENSE												
424	ADVERTISING												
425	COMMISSIONS												
	TOTAL												
	GRAND TOTAL												

the time the cars are released empty. In a great many instances considerable demurrage has been saved by the use of this record. Forms No. 13 and 14 illustrate incoming and outgoing freight records for the tabulation of paid freight bills and subsequent reconciliation with railroad statements and invoices. These records may also be used for the distribution of freight charges by providing appropriate columns to cover the particular needs of the company.

CONSUMPTION RECORD

(See Form No. 15)

This form is used for determining the quantities and values of labor, materials and expenses applicable to the current accounting period. The inventories for the beginning and end of the period are entered in the columns provided, and the purchases and charges for each detailed labor, material and expense item are entered and added to the opening inventory. When the consumption is determined from inventories, the closing inventory is deducted from the sum of the opening inventory and purchases or charges, leaving a balance representing consumption, after allowing for any adjustments. If the consumption is known, i.e., store room materials, it is deducted from the sum of the opening inventory and purchases or charges, and the closing inventory established.

The quantities and values appearing in the consumption column furnish the major information necessary to compile costs and the monthly closing entries described on page 32.

This form may be used as a report to the head office when more than one mill is operated.

INVENTORY RECORD, MANUFACTURED PRODUCTS

(See Form No. 16)

This form is used for determining inventories and the manufacturing cost of sales after the cost of all Manufactured Products has been calculated. The inventories of all products at the beginning and end of the accounting period, and the current period's cost of Manufactured Products, are entered in the columns provided. The closing inventories, valued at a weighted average unit cost, computed from the value of the opening inventory and production cost, are deducted, leaving balances representing the manufacturing cost of sales of each product. The total of the closing inventory column will represent the balance of Account No. 3003, Pulp and Paper Mill Operating Control.

The quantities and values appearing in the column entitled "Manufacturing Cost of Sales," are posted to the Cost of Sales Record (Form No. 17).

COST OF SALES RECORD

(See Form No. 17)

This form is used for calculating the Total Cost of Sales, and Profits and Losses by products and in total. The Manufacturing Cost of Sales is posted from the Inventory Record (Form No. 16) and the Commercial Cost from the Commercial Cost Analysis (Form 18) and the totals extended. The sales may then be entered and the resulting profit or loss calculated on each product and in total.

FORM Nº 16

INVENTORY RECORD OF MANUFACTURED PRODUCTS

MILL _____ MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	OPENING INVENTORIES QUANTITY	OPENING INVENTORIES AMOUNT	PRODUCTION COST QUANTITY	PRODUCTION COST AMOUNT	ADJUSTMENTS QUANTITY	ADJUSTMENTS AMOUNT	ADJUSTMENTS DR. OR CR.	CONSUMED QUANTITY	CONSUMED AMOUNT	MFG. COST OF SALES QUANTITY	MFG. COST OF SALES AMOUNT	CLOSING INVENTORIES QUANTITY	CLOSING INVENTORIES AMOUNT
101	PREPARED WOOD													
110	GROUNDWOOD SCREENED PULP													
111	GROUNDWOOD DECKERED SLUSH													
112	GROUNDWOOD LAPS													
113	GROUNDWOOD PRESSED LAPS													
114	GROUNDWOOD LAPPED SCREENS													
120	SULPHITE SCREENED PULP													
121	SULPHITE DECKERED SLUSH													
122	SULPHITE LAPS													
123	SULPHITE PRESSED LAPS													
124	SULPHITE MACHINE DRIED													
125	SULPHITE LAPPED SCREENS													
130	UNFINISHED NEWSPRINT ROLLS													
131	UNFINISHED ROLLS													
132	UNFINISHED ROLLS													
133	UNFINISHED ROLLS													
134	UNFINISHED WRAPPERS													
135	UNFINISHED CORE PAPER													
140	FINISHED NEWSPRINT ROLLS													
141	FINISHED ROLLS													
142	FINISHED ROLLS													
143	FINISHED ROLLS													
150	FINISHED NEWSPRINT SHEETS													
151	FINISHED SHEETS													
152	FINISHED SHEETS													
153	FINISHED SHEETS													
160	FINISHED NEWSPRINT CTR ROLLS													
161	FINISHED CTR ROLLS													
162	FINISHED CTR ROLLS													
163	FINISHED CTR ROLLS													
170	FINISHED CORES													
171	PRINTED WRAPPERS													
175	BROKE													
180	SCRAP MATERIAL													
	TOTAL													

FORM Nº 17

COST OF SALES RECORD

MILL _____ MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MFG. COST OF SALES QUANTITY	MFG. COST OF SALES AMOUNT	COMMERCIAL COST SHIPPING	STORAGE	SELLING	ADMIN.	SHUT-DOWN	TOTAL	TOTAL COST OF SALES	SALES	PROFIT OR LOSS	REMARKS
112	GROUNDWOOD LAPS												
113	GROUNDWOOD PRESSED LAPS												
114	GROUNDWOOD LAPPED SCREENINGS												
122	SULPHITE LAPS												
123	SULPHITE PRESSED LAPS												
124	SULPHITE MACHINE DRIED												
125	SULPHITE LAPPED SCREENINGS												
134	UNFINISHED WRAPPERS												
135	UNFINISHED CORE PAPER												
140	FINISHED NEWSPRINT ROLLS												
141	FINISHED ROLLS												
142	FINISHED ROLLS												
143	FINISHED ROLLS												
150	FINISHED NEWSPRINT SHEETS												
151	FINISHED SHEETS												
152	FINISHED SHEETS												
153	FINISHED SHEETS												
160	FINISHED NEWSPRINT CTR ROLLS												
161	FINISHED CTR ROLLS												
162	FINISHED CTR ROLLS												
163	FINISHED CTR ROLLS												
170	FINISHED CORES												
171	PRINTED WRAPPERS												
180	SCRAP MATERIAL												
	TOTAL												

FORM Nº 18

COMMERCIAL COST ANALYSIS

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	THIS YEAR MONTH	THIS YEAR CUM.	LAST YEAR MONTH	LAST YEAR CUM.
90	SHIPPING:				
90-18	OPERATING LABOR				
90-134	WRAPPERS				
90-325	SUPPLIES				
90-329	SHIPPING SUPPLIES				
90-19	REPAIR LABOR				
90-306	REPAIR MATERIAL				
	TOTAL				
91	PAPER STORAGE:				
91-18	OPERATING LABOR				
91-422	WAREHOUSE CHARGES				
	TOTAL				
92	SELLING:				
92-18	SALARIES				
92-413	OFFICE EXPENSE				
92-414	TRAVELING EXPENSE				
92-423	SALES OFFICE EXPENSE				
92-424	ADVERTISING				
92-425	COMMISSIONS				
	TOTAL				
93	ADMINISTRATION:				
93-18	SALARIES				
93-413	OFFICE EXPENSE				
93-414	TRAVELING EXPENSE				
93-415	TELEGRAPH & TELEPHONE				
93-416	GENERAL EXPENSE				
93-417	GENERAL OFFICE RENT				
93-418	LEGAL & AUDITING EXPENSE				
93-419	ASSOCIATION DUES				
93-420	SUBSCRIPTIONS & DONATIONS				
93-421	CAPITAL STOCK & FRANCHISE TYS				
	TOTAL				
94	SHUT-DOWN.				
94-60	STEAM				
94-62	ELECTRIC POWER				
94-81	BARKING				
94-30	GRINDING & SCREENING				
94-42	COOKING & SCREENING				
94-33	MACHINE OPERATING				
	TOTAL				
	TOTAL COMMERCIAL COST				

The Control of Materials

The control of materials is of paramount importance in the elimination of waste and the reduction of costs, consequently, any money spent in properly storing or accounting for materials should be considered as insurance against wastage, thievery, and inventory adjustments. Good control involves the efficient physical handling and storage of materials, in addition to accurate clerical records of material received, consumed and on hand. Sufficient clerical help to maintain these records is obviously necessary.

When accurate perpetual book inventories are available, complete annual or semi-annual physical inventories are unnecessary and large yearly adjustments to correct financial and cost statements are avoided by confining inventory discrepancies to the period in which they occur. Materials should be stored so that accurate physical inventories may be taken without undue effort, for reconciliation with the stock records as frequently as necessary and practical, and they should also be conveniently located for use with minimum rehandling expense.

Materials are divided into two groups for the purpose of control.

1. "Bulk Materials," which are **not** usually under the actual jurisdiction of the storekeeper.
2. "Stores," which **are** directly under the storekeeper's jurisdiction.

1. BULK MATERIALS

PULPWOOD

The control of this material is difficult because the measurement of quantities entering and leaving storage presents many complications. Where pulpwood is received in cars only, a fairly accurate check may be made by scaling each car. Where wood is delivered direct to the mill by water, it is customary to count the number of pieces received. The quantity in cords or 1,000 ft. B.M. is then estimated from the "Count," and from an "Average Diameter" calculated from tests. Where wood is received by boat or barge the inside volumetric cargo measurements may be used in conjunction with the cubic feet per cord to determine the quantity received.

Where pocket grinders are used it is customary to rack the wood in trucks of known capacity and the consumption is determined from the daily reports showing the number of trucks of wood ground. Magazine grinders are usually equipped with an automatic registering device to estimate the number of cords ground. All these measurements are subject to variations in the cord itself due to barking losses, different sized sticks, crookedness, rot, uneven racking in trucks or inaccurate registering by the magazine grinder recording device. Most companies have their block piles surveyed at intervals by engineers, and use a converting factor, based upon experience, as a check on the consumption figures calculated by other means.

PULP

Lapped or pressed groundwood or sulphite pulp either made at the mill or purchased, presents many causes for inventory fluctuations entirely aside from its actual deterioration. One method of guarding against inventory variations is to store the pulp in piles of uniform size. In this case each pile should be entirely consumed before starting on the next. Partially consumed piles should be inventoried by the use of tables showing the weight per cubic foot, based upon tests which allow for settling. All pulp should be weighed and tested for moisture to and from storage.

FUEL COAL

It is customary to weigh all coal into the boiler house or into the stokers as used. Where chain grate stokers are used the consumption may be established by determining the weight of the cubical contents of the coal fed by one grate revolution and multiplying by the number of grate revolutions during the period as recorded on an automatic counter. These consumption figures are not always accurate and therefore should be reconciled with physical inventories obtained by a volumetric measurement of coal in storage.

In order to confine inventory variations to the period in which they occur, coal should be stored in several small piles rather than one or two large ones. For example, the piles may be of 1,000 tons each with the requirement that one pile must be completely consumed before using the next. In this manner boiler house weights may be checked as each pile is used.

RECEIVING REPORT

FORM Nº 19

VIA	
PRO. Nº	
CAR Nº	
CHARGES	

RECEIVED FROM _____

DATE _____

REPT Nº	
ORDER Nº	
INVOICE DATE	

BOXES BBLS BALES ETC.	GROSS WEIGHT	QUANTITY	UNIT	DESCRIPTION SIZE - KIND - STYLE	INVOICE VALUE	TRANSP. CHARGES	TOTAL F.O.B. MILL COST

REMARKS: (POOR PACKING, DAMAGED MATERIAL, ETC.)	ACCT. Nº	ACCOUNTS CHARGED	FOLIO	AMOUNT

_____ STOREKEEPER

SYMBOL	UNIT	MINIMUM	SECTION
ACCOUNT	SIZE	MAXIMUM	SHELF
KIND			
SHIPPER'S CODE 1	2	3	4

ORDERED			RECEIVED						UNIT COST	ISSUED									
DATE	Nº	QUANTITY	DATE	SHIP.	REC. REPT. Nº	QUANTITY	F.O.B. MILL COST			DATE	REQ.	PRICE	QUANTITY	BALANCE	DATE	REQ.	PRICE	QUANTITY	BALANCE

FORM Nº 20

FOREMEN'S REQUISITION

Nº ____

FORM Nº 21

DATE _____

QUANTITY	DESCRIPTION	CHARGE	UNIT COST	AMOUNT

FOREMAN _____

CHARGE SLIP

Nº ____

FORM Nº 22

DEPT. OR JOB _____

DATE _____

	BALANCE FORWARD			

MATERIAL IDENTITY TAG

FORM Nº 23

TAG Nº _____

SYMBOL REC. REPT. Nº

INVOICE DATE ORDER Nº

SHIPPER

DESCRIPTION:

SIZE

DATE USED

WHERE USED

CHARGE TO

REMARKS

TAG Nº _____

SYMBOL

DESCRIPTION:

WHERE STORED:

DATE USED

FILLERS, COLORS, SIZE AND ALUM

These bulk materials are usually stored indoors and often are under the direct control of the storekeeper. They are usually received in containers of known capacity, so that no great difficulty is experienced in securing accurate consumption figures and in taking inventories.

WRAPPERS

Wrappers are under the direct control of the storekeeper, who in most mills weigh the quantity issued for the anticipated daily requirements. Other mills determine the quantity consumed only through physical inventories taken weekly or monthly.

CORES

Cores in stock are controlled through a perpetual inventory record. Cores in circulation may be controlled by a separate special ledger sheet for each customer showing the number and value of cores shipped. When the cores are returned, credits are entered in the proper columns for size, quantity and value. Each month a transcript is made from these accounts showing the transactions with each customer, resulting in an inventory at the close of the period. Customers may be required to approve these statements and return them to the mill, so that the core ledger is in constant reconciliation with the customers' records.

2. STORES

It is generally accepted that a perpetual inventory system is the only practical method of preventing shortages or overages. This involves a continuous physical check on all materials in the store room, in addition to the necessary clerical records. The stock in the bins should be reconciled with the stock records on each item in the room, successively and continuously repeated, so that book inventories may be accepted without the necessity of taking complete semi-annual or annual inventories.

A physical signal to prevent the depletion of material, is a red board placed over the minimum requirements, making it necessary to lift the board in taking material out of the minimum balance, thereby, signaling that an additional supply is needed. When boards cannot be conveniently used, the minimum quantity may be tied up with red cord or placed in a red bag with the same results.

Shelving should be laid out so that the materials used most frequently are located nearest the counter. Castings should be tagged, identifying them with the machine for which they were purchased.

All possible materials should be kept in the store room even though they may seem more accessible when located near the point of consumption. The mechanical crews usually prefer to have piping, tubing, shafting, flat metals, rods and bars and lumber stored near the machine shop, while the machine crews prefer clothing and wires stored near the machine room. This is inconsistent with good material control and a compromise should be made by arranging racks in the store room for these materials in a direct line with a door for convenient removal, by hand or crane.

STORE ROOM RECORDS

Store room records are necessary to prevent leakages of material due to petty thievery and wastage. They also enable the management to control the money invested in store room inventories and keep it at a minimum. Such records guide the purchasing agent in ordering new materials and in avoiding shut-downs owing to lack of some essential repair part. They are also of vital importance in providing the cost department with proper distributions for calculating operating costs.

There are numerous kinds of clerical records in use, but they are essentially the same in principle in all properly conducted paper mill store rooms. Form No. 19 is one type of report by which storekeepers or receiving clerks report receipts of materials. A receiving report is recommended rather than a copy of the invoice, so that receiving clerks or storekeepers will report exactly what they see rather than what is supposed to be included in the shipment. A separate form should be used for reporting each lot or carload of materials received, rather than a daily or weekly report, since it may be attached to the invoice, after approval, as part of the permanent voucher record of each completed transaction.

Numerous kinds of filing systems are used in paper mill store rooms for keeping perpetual inventory records of materials in stock. It is recommended that one of the visible filing systems now on the market be used for filing store room ledger records, rather than bound books or the obsolete vertical card files.

The card or sheet should be designed, so that the issues and balance will be shown in quantity only. This will eliminate the clerical work involved in summarizing issues and calculating new balances in dollars. Inventories can be quickly secured by applying the unit cost to

FORM Nº 24

FOREMEN'S DAILY TIME REPORT

TOUR _____ DEPARTMENT _____ FOREMAN _____ DATE _____

CLOCK CARD Nº	OCCUPATIONS	TOTAL

TOTAL	
RATE	
AMOUNT	

FORM Nº 25

DAILY REPAIR & YARD LABOR REPORT

TOUR _____ DEPARTMENT _____ FOREMAN _____ DATE _____

CLOCK CARD Nº	RATE	DISTRIBUTION OF CHARGES								TOTAL	
		HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT

FORM Nº 26

PAYROLL

PERIOD ENDING _____ _____

CLOCK CARD Nº	NAME	OCCUPATION	CHECK Nº	HOURS	RATE	EXTEN-TIONS	TOTAL	DEDUC-TIONS	NET AMOUNT

NAME _____ INCOME TAX RECORD FORM Nº 28

CLOCK CARD Nº _____

1925								1926							
DATE	AMT.	DED.	NET	DATE	AMT.	DED.	NET	DATE	AMT.	DED.	NET	DATE	AMT.	DED.	NET

FORM Nº 27

PAYROLL SUMMARY

MONTH ENDING _____

DEPT.	OCCUPATIONS		SPLIT WEEK ENDING		WEEK ENDING		WEEK ENDING		WEEK ENDING		WEEK ENDING		SPLIT WEEK ENDING		TOTAL	
	Nº	TITLE	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT

the quantitative balances whenever considered necessary. Form No. 20 illustrates a Store's Ledger card with maximum information in a minimum space. A visible file for these cards is particularly recommended to prevent loss and to facilitate postings. Form No. 20 can easily be rearranged to fit any kind of visible file. As mentioned under the "Control of Stores Materials," the balances on these ledger cards should be continually reconciled with the quantity of stock of each material on hand.

Materials should be issued from stores only on presentation of a requisition approved by authorized superintendents and foremen. Requisitions should be priced from the ledger card record at the average cost of each kind of material in stock, except such items as Pulpstones, Wires, Machine Clothing or other special materials which may be charged out at the individual unit cost. Entries should be made on the stock cards from these requisitions, immediately after the material is issued so that the stock card will show a true balance of materials on hand.

Requisitions should be summarized daily, distributed to consuming processes or departments and the total distribution for the month supplied to the cost accountant for cost purposes. This distribution may be made on analysis sheets or on a charge slip similar to form No. 22. A charge slip is provided for the various classes of material used by each department and requisitions are entered as soon as the material is issued. Carbons of these slips are furnished to the department heads to keep them informed of the itemized charges made to their department, thereby automatically checking the accuracy of the distribution.

A material identity tag similar to Form No. 23, printed on linen and secured to special castings by a wire fastener, saves considerable time and labor in finding and identifying materials, either in or out of the store room. The stub of the tag is usually kept on file, attached to the stock ledger card.

Timekeeping and Payroll Distribution

There are two objectives in timekeeping:

1. To secure a record of time worked by each man in the plant upon which to base his pay.

2. To secure an analysis of time by processes and departments to distribute the total payroll for cost purposes.

Time clocks are universally accepted as the basis for determining the wages due each man. Each man in the plant is assigned to a definite occupation bearing a recognized rate of pay. This occupation, together with the department in which each man is working, is usually designated on the time card by code symbols similar to those given in the list accompanying the card of accounts. The number of hours worked by each man as shown on the time card is multiplied by his occupational rate and his total wages for the period extended.

The design of clock cards is governed by the type of clock used, and is standard as to general information secured, so that further description is unnecessary. A summary of time cards is usually made on the payroll, which is also standardized as to general design and information listed. (See Form No. 26.)

Additional information is needed to secure an analysis of wages for cost distribution, because men are not always working at their assigned occupations or departments. It is customary in most paper mills for the foremen to furnish this information by filling out a daily time report (Form No. 24) showing the hours worked by each man under his jurisdiction and the process or department to be charged. It is necessary to use a special report form (Form No. 25) for repair crews, since their occupations do not coincide with the departments to be charged. In some mills each repair man furnishes his own daily time distribution to the timekeeper after approval by his foremen. These forms also serve as a check on the time cards, since clock punchings are not conclusive evidence of a man's presence at the plant.

Time sheets should be reconciled daily with clock punchings and summarized in hours by occupations, the totals extended by using the occupational rates for cost distributions, and a reconciliation effected with the payroll at the close of each period.

There is usually more than one payroll in each accounting period, so it is necessary for cost purposes to consolidate all payroll summaries by occupations on a form similar to No. 27. When wages are paid weekly, the payroll summaries for the first and last weeks in a month are split to coincide with the calendar month. The unpaid portion of the split week applying to the current month will appear as a credit balance in Account No. 4400, Accrued Payroll.

In addition to payroll values, the payroll hours may be summarized each period by departments for statistical purposes described under "Operating Control."

Cost Accounting

"The purpose of cost accounting, a branch of general or commercial accounting, is to provide detailed information as to the separate components of cost which have entered into a product. General accounting shows merely the total profit or loss of the business as a whole; cost accounting shows the profit or loss on each unit, whether the unit be the job, contract, line of product, operating department, or process. It is 'accounting for units' that differentiates cost accounting from general accounting." *

In addition to "accounting for units," cost accounting is a tool which should be used in locating the points where excessive costs are incurred, so that proper measures may be taken to eliminate waste and consequently reduce costs.

The cost system must be a subordinate part of the general accounting system and not a separate statistical record. The coordination of these two branches of accounting is effected by the use of the control accounts described under "General Ledger Accounts for the Control of Costs."

The description of the cost accounting plan is presented in five sections each covering a specific subject for convenient reference as follows:

Production Units.
General Ledger Accounts for the Control of Costs.
Detailed Material and Expense Accounts.
Detailed Operating Accounts.
Total Cost of Sales.

Costs are divided, in this system, into two well recognized divisions:

1. **Manufacturing Cost,** representing the cost of fabricating products.
2. **Commercial Cost,** representing the cost of shipping, selling and administration, which should be added to the manufacturing cost of products sold before calculating a profit or loss.

This distinction is essential in classifying cost information in order to properly assign responsibility for the activities mentioned.

The general procedure for compiling costs under this system is as follows:

1. The **accumulation** of the quantities and values of materials purchased and expenses incurred, properly classified in the subsidiary voucher register during the accounting period.
2. The **determination** of the quantities and values of materials used and expenses applicable to the current accounting period from the timekeeper's and storekeeper's distributions, and from the subsidiary voucher register.
3. The **distribution** of the quantities and values of direct materials and expenses for the period to the detailed operating and product accounts.
4. The **distribution** of the "Service Department" operating accounts to the **processing** operating departments.
5. The **distribution** of "Process" operating departments to "Manufactured Products."
6. The **distribution** of "Subsidiary" manufactured products to "Major" manufactured products.
7. The **distribution** of the manufactured products between "Inventory" and "Total Cost of Sales."

The "Chart of Accounts" illustrates these steps in graphic form, and a detailed description of all distributions is given in the succeeding sections, classified by materials, expenses, departments, processes and products.

Transfers Between Mills

Products transferred between mills are generally valued at manufacturing cost in order to avoid an inter-mill profit. In order to stand-

*"Cost Accounting, Principles and Practice"—Jordan and Harris.

ardize the charge a predetermined average cost price per unit may be used and an adjustment made at the end of the year to close out any existing difference between transfer values and actual cost.

When transfers are made at market price or prices other than cost resulting in an inter-mill profit and loss, cognizance should be taken of the fact that inventories may be over or under-valued resulting in a distorted profit and loss on consolidated statements.

Adjustment of Errors

Small errors may be adjusted by increasing or decreasing the current period's costs for convenience in bookkeeping, but large errors should be adjusted in the "Cumulative" Costs only rather than distort the current month's operating costs.

PRODUCTION UNITS

The determination of the volume of production in the various departments is of vital importance in cost accounting, and great care should be exercised in computing these quantities. A description is given of the methods used in the newsprint paper industry.

PREPARED WOOD

(Prepared Cords of 128 cubic feet.)

It is customary to calculate the quantity prepared from the amount of wood used for groundwood and sulphite pulp, since few mills attempt to measure the wood to the barkers. Where pocket grinders are used, the prepared wood is often racked in trucks of known capacity and the consumption of prepared wood determined from the number of trucks ground. Where magazine grinders are used, the consumption is determined from automatic measuring devices, which record the quantity of wood passing through the magazines. The quantity of prepared wood used in the sulphite operation is determined by weighing the chips on a conveyor scale as used, or by multiplying the number of digester fills by a tested digester capacity. A test figure for the number of cords per ton of sulphite is also often used. In computing the production of prepared wood by any of these methods, consideration should be given the inventories at the beginning and end of the period.

These calculations are subject to the variations of the "Cord" as a unit of wood measurement, but represent the best present practice for determining the cordage ground or cooked.

SULPHITE SCREENED PULP

(Tons air dry, 10% moisture.)

The production of Sulphite Screened Pulp, when used in slush form, is determined by multiplying the number of digester blows by the tested digester capacity per cook. Another method for determining the production is by measuring tanks or automatic mixing and proportioning devices, which measure the Sulphite Deckered Slush as it is delivered to the mixing and beating operations. If any portion of the production is lapped, this quantity should be added to the quantity measured, to secure the total production of Sulphite Screened Pulp. This method is contingent upon the uniform consistency of the stock controlled by regulators and upon the allowance made for stock in any white water used from the paper machines.

SULPHITE DECKERED SLUSH

(Tons air dry, 10% moisture.)

This represents the difference between the Sulphite Screened Pulp production and the sum of Sulphite Laps and Sulphite Machine Dried.

GROUNDWOOD SCREENED PULP

(Tons air dry, 10% moisture.)

There are many methods of measuring groundwood in slush form. Some mills conduct tests by lapping their entire groundwood production for a given period, measuring all the prepared wood used in the grinders and thus determine a yield per cord or per solid cubic foot of prepared wood. The production of groundwood screened pulp is then determined from the quantity of wood ground by using the test figure. This method is dependent upon the human element in recording the quantities of wood ground and the obvious differences between test and operating conditions.

A method that is used extensively in the news print industry is to first calculate the Groundwood Deckered Slush, as described below, from the paper production or automatic mixing and proportioning device, and adding the production of Groundwood Laps.

GROUNDWOOD DECKERED SLUSH

(Tons air dry, 10% moisture)

The production of this product may be calculated by one of the following methods depending upon local conditions:

1. When the groundwood screened pulp production is calculated from the yield per cord of wood ground, the production of Groundwood

Deckered Slush represents the difference between the Groundwood Screened Pulp and Groundwood Laps production.

2. The production may be determined from the tonnage of unfinished paper made. The paper production should be corrected to an air dry basis (10% moisture) and the amount of sewer losses, as determined from tests, added. The quantity of Sulphite Deckered Slush and Sulphite and Groundwood Laps used should then be deducted, leaving a balance representing Groundwood Deckered Slush made and consumed.

Example:

Unfinished Roll Production..... 100 tons
Average Moisture content in Paper 7%
White Water Loss..... 5%
(Fibre loss, air dry basis, to total production)
Sulphite Used ..... 25 tons

The moisture is 7% of the paper tonnage reported as made, therefore,

7% of 100 tons = 7 tons (total weight of water in production).

100 tons minus 7 tons = 93 tons (bone dry weight of paper made).

The weight of paper made corrected to the air dry basis is therefore:

93 tons ÷ 90% = 103.3 tons (total weight of furnish materials **retained** on air dry basis of 10% moisture).

The sewer loss, determined from tests, is 5% of the paper made, or 5 tons air dry stock, therefore:

103.3 tons plus 5 tons = 108.3 tons (total weight of furnish materials **consumed**).

108.3 tons minus 25 tons sulphite used = 83.3 tons Groundwood Deckered Slush produced and used.

If any Groundwood Laps are used from storage, this quantity should be deducted to obtain the Groundwood Deckered Slush production.

If any appreciable quantity of fillers and size is used the percentage of retention should be estimated and deducted from the final figure mentioned above, before determining the Groundwood Deckered Slush production.

3. The Groundwood Deckered Slush production may be determined from the counters on the automatic mixing and proportioning devices used in some mills which register the volume delivered to the paper machines. An allowance should be made for the stock in the white water from the paper machines, when this method is used.

GROUNDWOOD LAPS
GROUNDWOOD PRESSED LAPS
GROUNDWOOD LAPPED SCREENINGS
SULPHITE LAPS
SULPHITE PRESSED LAPS
SULPHITE LAPPED SCREENINGS
SULPHITE MACHINE DRIED

(Tons air dry, 10% moisture)

All these products should be regularly weighed and representative samples tested for moisture by the recognized standard methods.

UNFINISHED ROLLS

(Tons, actual weight exclusive of cores and wrappers)

The Unfinished Roll production of any grade of paper should be the net weight of "White" Saleable Paper as removed from the winders. A deduction should be made from the weight of culled or bad rolls sufficient to cover the anticipated waste in cutting into sheets or rewinding into small rolls. This production is used in calculating the cost of Unfinished Rolls and the efficiency of paper machines.

FINISHED ROLLS

(Tons, actual weight including wrappers but excluding weight of cores)

The Finished Roll production of any grade of paper is always weighed as it is necessary to determine the quantity of paper shipped to customers. This production, which should include the weight of wrappers, but exclude the weight of cores and any special materials for export shipments, is used in calculating the unit cost of Finished Rolls.

FINISHED SHEETS

(Tons, "Nominal Weight")

Sheet paper is usually ordered in reams of a definite basis weight, and is billed at what is termed "Nominal Weight." This is determined by multiplying the basis weight ordered by the actual number of reams of 480 or 500 sheets, converted to the standard 24″ x 36″ basis. The variation between the "Nominal" and actual weight is accounted for by wrappers and other packing, and by any variation between **ordered** and **actual** basis weight. The production of sheet paper should, therefore, be expressed in tons "Nominal Weight" and used in calculating the unit cost of Finished Sheets.

FINISHED COUNTER ROLLS

(Tons actual weight, including plugs and wrappers)

STEAM

(1000 lbs. delivered from and at 212° F.)

The unit of steam production is universally recognized as the number of thousand pounds produced "From and at 212° F." For calculating the efficiency of the boilers, the quantity generated at the headers is used, but in computing the cost per thousand pounds, the production should represent the quantity available for consumption, at the boiler house walls. This quantity should be determined from flow meters measuring steam used in all departments.

ELECTRIC POWER

(Kilowatt Hours)

The production of electricity is determined from meters showing the kilowatt hours produced.

WATER POWER

(Horse Power Hours, Water Wheel Hours or Water Wheel Days)

When horse power hours are used as a unit of production, the power may be determined from the head and gate openings of the operating wheels, using the tested or manufacturers' rated efficiency for each water wheel.

Water Wheel Hours or Days may also be used as a basis for distributing the total Water Power cost to processes or departments using water wheels, upon the assumption that each wheel operated delivers the rated horse power.

GENERAL LEDGER ACCOUNTS FOR THE CONTROL OF COSTS

This system may be operated with only five cost control accounts in the general ledger, as follows:

1. ACCOUNT NO. 1200—BULK MATERIALS

This account contains the inventory value of all materials purchased in bulk and controls the detailed accounts numbered 200 to 213.

2. ACCOUNT NO. 1300—STORES

This account contains the inventory value of all converting or operating materials purchased and controls the detailed accounts numbered 300 to 309.

3. ACCOUNT NO. 1400—MISCELLANEOUS EXPENSES

This account is provided for the accumulation and control of all expenses (Accounts No. 400 to 425) applicable to the current period other than labor and materials and is transferred in total to Account No. 3003 Pulp and Paper Mill Operations Control.

4. ACCOUNT NO. 3003—PULP AND PAPER MILL OPERATIONS CONTROL

This account is charged with all the Bulk Materials and Stores consumed together with all the labor and Expenses applicable to the period and controls the detailed operating and manufactured products accounts numbered 20 to 180. When the current cost of operating has been determined at the close of each accounting period this account is credited with the total cost of sales, leaving a balance representing the inventory value of manufactured products.

5. ACCOUNT NO. 6000—TOTAL COST OF SALES

This account controls the detailed cost of sales analyzed, by products, and contains a debit balance until the books of account are officially closed, that represents the complete cost of sales. This balance may be used for making up profit and loss statements without the necessity of closing the books during the fiscal period.

Separate columns are provided in the voucher register (Form No. 2) to accumulate charges during the accounting period under Accounts No. 1200, Bulk Materials; No. 1300, Stores, and No. 1400, Miscellaneous Expenses. These accounts should be further analyzed under the subclassifications listed in the card of accounts, in a subsidiary ledger or subsidiary voucher register illustrated by Forms No. 3 and 4.

GENERAL LEDGER CLOSING ENTRIES

At the end of each accounting period the following entries should be made to transfer the labor, material and expense applicable to the period to Account No. 3003, Pulp and Paper Mill Operations Control.

ENTRY NO. 1

Debit—Account No. 1200, Bulk Materials.

(For unloading and storage labor.)

Account No. 3003, Pulp and Paper Operations Control.

Account No. 1500, Properties.

For (a) Bulk materials and stores consumed.

(b) Current monthly write-off of Jobs in Process and complete jobs capitalized.

(c) Operating and repair labor.

Account No. 3004, Townsite Operating.

(For any pulp and paper mill materials used and for operating and repair labor.)

Account No. 3005, Hotel Operating.

(For any pulp and paper mill materials used and for operating and repair labor.)

Account No. 3006, Farm Operating.

(For any pulp and paper mill materials used and for operating and repair labor.)

Credit—Account No. 1200, Bulk Materials.

(Credit sub-classifications in detail for materials consumed.)

Account No. 1300, Stores.

(Credit sub-classifications in detail for materials consumed.)

Account No. 2408, Jobs in Process.

(Credit individual job accounts in detail for current monthly write-off of jobs in process or completed.)

Account No. 4400, Accrued Payroll.

This entry will leave only the value of the inventory in both Account No. 1200, Bulk Materials, and Account No. 1300, Stores. Account No. 2408, Jobs in Process, will contain a balance representing the value of uncompleted construction jobs and repair jobs not entirely absorbed in operating costs. The Accrued Payroll Account No. 4400 may have a credit balance representing wages and salaries accrued but unpaid.

ENTRY NO. 2

Debit—Account No. 1400, Miscellaneous Expense.

Credit—Account No. 2406, Prepaid Insurance.

Account No. 4405, Accrued Taxes.

Account No. 4406, Royalties Payable.

Account No. 5404, Depreciation Reserve.

Account No. 3004, Townsite Operating.

Account No. 3005, Hotel Operating.

Account No. 3006, Farm Operating.

(To set up the amount of insurance, taxes, depreciation and royalties applicable to the current period's operations, and to close out the townsite, hotel and farm operating accounts.)

ENTRY NO. 3

Debit—Account No. 3003, Pulp and Paper Mill Operations Control.

Credit—Account No. 1400, Miscellaneous Expenses.

(To transfer the miscellaneous expenses to the cost of operating.)

The only additional general ledger entry necessary in controlling the cost of operating should be made after all detailed costs have been calculated. The following entry should be made to clear Account No. 3003, Pulp and Paper Mill Operations Control of the total cost of sales and any administrative or manufacturing burden expense applicable to the logging, sawmill or other outside operations.

ENTRY NO. 4

Debit—Account No. 6000, Total Cost of Sales.

Account No. 6006, Profit and Loss on Scrap Sales.

Account No. 3001, Logging Operations Control.

Account No. 3002, Sawmill Operations Control.

Credit—Account No. 3003, Pulp and Paper Mill Operations Control.

The effect of this entry is to leave a debit balance in Account No. 3003, Pulp and Paper Mill Operations Control, representing the inventory of manufactured products at the close of the period, analyzed in detail on the Inventory Record of Manufactured Products, Form No. 16.

DETAILED MATERIAL AND EXPENSE ACCOUNTS

The following accounts will contain all the detail necessary for calculating costs, after the first three entries described in the preceding section have been posted. The remaining cost accounting procedure is the distribution and redistribution to departments, processes and products.

ACCOUNT No. 4400—ACCRUED PAYROLL

This account on the general ledger is charged with all wages and salaries paid. It is credited at the close of each accounting period and the operating accounts charged with the amount accrued and applicable to the current period, as described under "General Ledger Closing Entries." The analysis of wages is furnished by the timekeeper, and consolidated with the summary of salary charges supplied by the Treasurer's office. The labor summary is divided between operating and repair labor as follows:

ACCOUNT NO. 18—OPERATING LABOR

This account should include both wages and salaries and should be sub-divided by occupations in each department on a summary according to the labor analysis accompanying the card of accounts. The operating labor charges on the cost sheets for each department, should be made from this summary. Where an occupation covers more than one process, i. e., where screenmen or wet machine men tend deckers, a split should be made as nearly as possible on the basis of the actual time spent in each process.

ACCOUNT NO. 19—REPAIR LABOR

The distribution of repair labor to operating departments should be compiled by the timekeeper on Form No. 34 from records supplied by the mechanical superintendent of the actual time spent in each department plus overhead. Code numbers assigned to departments, shown in the card of accounts, are of great convenience to the repair men in making charges for their time. Repair crews should be informed of the limits or boundaries of each department, so that charges will be properly allocated. These limits are defined under "Detailed Operating Accounts," Page 41.

ACCOUNT No. 1200—BULK MATERIALS

This class of material is not directly controlled by the storekeeper although he may be held accountable for the inventory records. The material costs in this group include the invoice value, duty, freight and any unloading and storage expense incurred in placing the material in its original storage space. The quantities consumed should be charged to departments controlled by Account No. 3003 at the average unit cost delivered to storage, and credited to Account No. 1200 (see closing journal entry No. 1, page 32). Methods for determining the consumption are described on page 23.

The detailed accounts controlled by Account No. 1200, Bulk Material, as they appear on the subsidiary voucher register (Form No. 3), are listed below together with the details to be included in each and the departments to be charged. If more than one kind of any of the following materials is regularly carried in stock, supplementary records should be used for each.

ACCOUNT NO. 200—PULPWOOD

(Rough, Peeled, or Rossed as originally received)

When logging operations are conducted by the company, Account No. 3001, Logging Operations Control, is credited and Account No. 1200 and sub-account No. 200 is charged with the value of pulpwood delivered during the period at a predetermined cost per unit, if the actual cost has not been determined. The value of the quantity of pulpwood prepared is transferred to Account No. 101, Prepared Wood.

ACCOUNT NO. 201—LIMESTONE OR LIME

ACCOUNT NO. 202—SULPHUR

The consumption of these commodities should be transferred to Account No. 41, Acid Making. If a separate acid making cost is not calculated, Account No. 120, Sulphite Screened Pulp should be charged.

ACCOUNT NO. 203—ALUM

ACCOUNT NO. 204—FILLERS

(Clay, Talc, Starch, Agalite, etc.)

ACCOUNT NO. 205—SIZE

(Prepared Size, Rosin, Soda Ash, Silicate of Soda, etc.)

ACCOUNT NO. 206—COLOR

(Color or Chemicals used for coloring)

ACCOUNT NO. 207—PURCHASED GROUNDWOOD

(Laps, Pressed Laps)

ACCOUNT NO. 208—PURCHASED SULPHITE

(Laps, Pressed Laps, Sheets)

ACCOUNT NO. 209—PURCHASED WASTE PAPER

(Folded News, Mixed Papers)

The quantities of the furnish materials, Account No. 203 to No. 209, consumed during the period, are transferred to Account No. 130, Unfinished Newsprint Rolls. If more than one kind of paper is manufactured, the consumption should be further analyzed according to the quantity used in each grade and transferred to the proper unfinished roll Accounts No. 130 to No. 135, inclusive.

ACCOUNT NO. 210—FUEL COAL

The coal consumed should be transferred to Account No. 60, Steam, Account No. 70, Locomotive Crane, and Account No. 71, Switching and Locomotive, according to the quantity used by each.

ACCOUNT NO. 211—FUEL WOOD

(Hog Fuel, Refuse Wood)

Hog Fuel used should be transferred to Account No. 60, Steam, at the cost delivered to storage. When refuse wood from the wood rooms or mill yard is used, it should be transferred to Account No. 60, Steam, at only the actual cost of reclaiming and delivering to the boiler house. This is based upon the principle that waste from one department used by another should be charged to the department using it at merely the cost of reclaiming and handling. If waste is not used, the cost of disposal should be borne by the department in which it originates.

ACCOUNT NO. 212—FUEL OIL

The consumption during the period is transferred to Account No. 60, Steam.

ACCOUNT NO. 213—WRAPPERS

(Body Wrappers, Bands and Heads Purchased)

The consumption of wrappers is transferred to Account No. 54, Finishing, and to Account No. 90, Shipping, according to the quantities used in each of these departments for wrapping rolls and sheets and for lining cars, respectively.

ACCOUNT No. 1300—STORES

This group of material is directly under the control of the storekeeper, who should issue material only upon the presentation of requisitions signed by properly authorized superintendents and foremen.

The material cost includes the invoice value, duty, freight or express charges. Freight, express and duty on **small** stores included under Repair Material and Supplies should be distributed at the close of the month, on the basis of the relative invoice value of each of these two classes of material consumed by each department. This eliminates the necessity of prorating these expenses to the unit cost of individual items. The quantities consumed should be charged to departments controlled by Account No. 3003, and credited to Account No. 1300 (see closing journal entry No. 1, page 32) at the average unit cost delivered to the mill. In the case of such materials as Wires, Pulp Stones, Machine Clothing, large castings or special machine parts, the charge is made at the actual f.o.b. mill cost of each piece. The consumption of each material is determined from a summary of filled requisitions for the period. The detailed accounts included in this group as they appear on the subsidiary voucher register (Form No. 4) are listed below, together with the departments to be charged.

ACCOUNT NO. 300—PULPSTONES

The value of Stones issued for use is transferred to Account No. 30, Grinding and Screening.

ACCOUNT NO. 301—WIRES*

(Fourdrinier, Cylinder, Decker, Wet Machine and Sewing Wire)

Issues of this material are transferred to consuming departments as follows:

Account No. 31, Groundwood Deckering.
Account No. 32, Groundwood Lapping.
Account No. 43, Sulphite Deckering.
Account No. 44, Sulphite Lapping.
Account No. 53, Machine Operating.

ACCOUNT NO. 302—MACHINE CLOTHING*

(1st, 2nd and 3rd Press Felts, Jackets, Top and Bottom Dryer Canvas, Sewing Twine, Apron Cloth and Wet Machine Felts.)

Issues of this material are transferred to consuming departments as follows:

Account No. 32, Groundwood Lapping.
Account No. 44, Sulphite Lapping.
Account No. 53, Machine Operating.

ACCOUNT NO. 303—BELTING

(Belting, Belt Lacing, Belt Hooks, Belt Dressing)

ACCOUNT NO. 304—LUBRICANTS

(Lubricating oils and greases only—**not** kerosene nor cutting and cleaning oils)

ACCOUNT NO. 305—SUPPLIES†

(See sub-analysis in Card of Accounts)

ACCOUNT NO. 306—REPAIR MATERIAL†

(Including cylinder and flat screen plates. See sub-analysis in Card of Accounts)

Accounts No. 303 to 306, inclusive, are charged to all operating accounts and Account No. 2408, Jobs in Process, classified by detailed jobs, according to the quantity consumed by each, based upon the storekeeper's summary of requisitions at the close of the period.

Any store charges applying to office buildings or general departments for which separate accounts are not provided, should be prorated to the major operating departments, Account No. 30, Grinding and Screening; Account No. 42, Cooking and Screening; Account No. 53, Machine Operating, and Account No. 60, Steam. Each class of material so used, should be distributed in proportion to the direct charges made for similar materials to each of the major departments mentioned.

The storekeeper and the repair crews should be furnished with a description of the boundaries of all departments and processes to insure accurate distribution of material charges. Usually, the boundaries are assumed to be the real or imaginary four walls surrounding each department, but when it is possible to identify conveyors and pipe lines by numbering or painting in distinctive colors, each department should be charged with all stores used between the point where its raw material is received and the point where its manufactured product is delivered to the next succeeding process.

ACCOUNT NO. 307—CORES

(Purchased Paper or Iron Cores, Caps)

This account should be used only when cores are purchased. When cores are manufactured Account No. 69, Core Making, and Account No. 170, Finished Cores, should be used. The cost of new cores used is transferred to Account No. 54, Finishing. Since no charge should be made to this account for returned cores used, other than the reconditioning cost, a memorandum record in quantity only need be provided to account for the quantities of returned cores consumed and on hand.

The accounting procedure in handling core transactions between the mill and the customer is described as follows:

Accounting for Cores

It is the general custom in the news print paper industry to charge customers for cores

*NOTE: A credit in the form of a deduction from these storeroom charges for the period should be made to Account 53 Machine Operating for all old wires and machine clothing removed from the paper machines and the stores accounts No. 301 and 302 charged. This credit should be made at a scrap value low enough to enable the salvage department to recondition them for reuse in other departments or for sale at the market scrap value. The actual income derived from outside sales should be credited to Account No. 6006 P. & L. on Scrap Sales.

†NOTE: A fairly definite line of demarcation may be drawn between Supplies and Repair Material; in the store records, by considering everything a Repair Material that will ultimately be permanently fastened in any manner to any part of the buildings or machinery in the plant to restore it to usefulness. All other materials not otherwise classified, and not ultimately fastened in a permanent manner to the buildings or machinery, but necessary in the proper operation of the plant, should be considered a Supply. Examples of the materials included under these two headings are listed in the sub-analysis of the card of accounts.

shipped. There are three alternate methods of making this charge.

1. By including it in the billed paper weight at the paper price per pound.
2. As a separate item on the invoice for paper at a specified rate per inch or foot.
3. On a separate memorandum bill at a specified rate per inch or foot.

An actual or implied obligation exists, under any of these methods, that the mill shall purchase from its customers all returned cores, either paying cash or crediting the customers' accounts when returns are made freight prepaid.

The core charges appearing on invoices, under methods 1 and 2, should be credited to Account No. 5503, Reserve for Re-purchase of Cores, rather than to "Paper Sales," and charged to accounts controlled by Account No. 1002, Core Accounts Receivable. If cores are included in the charge to Accounts Receivable for paper and credited to Paper Sales, the profits would be unduly inflated, and an overstated asset value shown, upon which a cash return is uncertain.

ACCOUNT NO. 308—FINISHING SUPPLIES

(Paste, Stencils, Brushes, Ink, Labels and Twine)

The quantity of these materials used, as determined from the storekeeper's summary of requisitions, is transferred to Account No. 54, Finishing, and further divided by grades when necessary.

ACCOUNT NO. 309—SHIPPING SUPPLIES

(Cases, Crates, Strap Iron, Dunnage)

The quantity of these materials used, as determined from the storekeeper's summary of requisitions, is transferred to Account No. 90, Shipping, further divided by grades when necessary.

ACCOUNT No. 1400—MISCELLANEOUS EXPENSES

After posting the closing entries, numbered 1 and 2, mentioned on page 32, this account will contain all the expense applying to the accounting period, other than labor and material, necessary for compiling costs of all departments. The detailed analysis of this control account, appearing below, is obtained from the subsidiary voucher register Form No. 4. The total expense in this account should be transferred to departments controlled by Account No. 3003 and credited to Account No. 1400, as explained in closing journal entry No. 3. (See page 32.)

ACCOUNT NO. 400—WATER POWER PURCHASED

This account is necessary only when water power is purchased from outside sources; it is transferred in total to Account No. 61, Water Power.

ACCOUNT NO. 401—STEAM PURCHASED

This account is necessary only when steam is purchased from outside sources; it is transferred to Account No. 60, Steam, for distribution with steam generated in the plant boiler house.

ACCOUNT NO. 402—ELECTRIC POWER PURCHASED

This account is necessary only when electricity is purchased from outside sources; it is transferred to Account No. 62, Electric Power.

ACCOUNT NO. 403—REPLACEMENT PROFIT AND LOSS

This item of cost represents an adjustment of the estimated depreciation to actual depreciation and should be calculated whenever a complete individual property unit or an integral part of some building or piece of machinery is replaced or reconditioned. This adjustment is figured by deducting the scrap value of the replaced element from the difference between the original cost of the old unit and the amount of depreciation charged off, up to the time of replacement.

Example:

Original cost of unit.....	$3,000
Depreciation charged off	2,000
Scrap Value	50

ENTRY

Debit—Account No. 1400, Miscellaneous Expenses ..... (Detailed Account No. 403, Replacement P. & L.)	$950	
Account No. 6006, Scrap Sales	50	
Credit—Account No. 5404, Depreciation Reserve		$1,000

The book value of the old asset should be credited to the plant account and charged to the de-

preciation reserve and the cost of the new unit charged to the plant account. The Replacement Profit and Loss is charged to the departments in which replacements have been made and to which depreciation had previously been charged to correct the amount written off prior to the time of replacement. When the replacement profit or loss is large, it should be prorated over several periods to avoid distorting the current period's cost of operation in any department.

DISTINCTION BETWEEN ADDITIONS AND IMPROVEMENTS, REPAIRS AND REPLACEMENTS

Additions, Improvements, Repairs and Replacements are defined as follows:

Additions and Improvements embrace all expenditures made for new buildings and machinery and additions to existing buildings and machinery which are charged to plant accounts.

Replacements include all substitutions for worn out, obsolete or inadequate buildings and machinery which should be charged to the plant accounts after the entries are made for the replacement profit or loss on the old unit and for the transfer of the book value of the old asset from the plant accounts to the depreciation reserve.

Repairs include all current expenditures recurring from day to day in the maintenance of the existing properties, without the entire replacement of any substantial part or unit as outlined above under "Replacements." This includes the replacement of small parts of any complete unit and all necessary repairs resulting from breaks, leaks or other causes which do not warrant a complete replacement. Repairs should be charged to the current operating costs.

It is evident that no hard and fast lines can be drawn between "Repairs" and "Replacements." There are two factors, however, that may be used as guides to distinguish between them.

1. If a complete machinery or building unit is **broken by accident** substantially before the end of its estimated life, or a **part** of a complete unit is renewed for any cause, it should be considered a **repair.**

   Example: The renewal of a calender roll, a rubber covered or wooden press roll or a few boiler tubes. Relining digesters is also considered a repair, since its life is short; it is written off over a period of time, because of the large cost.

2. If a complete unit is **worn out** in **regular operation** and renewed, it should be considered a replacement and handled accordingly.

   Example: The renewal of a complete calender stack, paper machine press or **all** the boiler tubes.

ACCOUNT NO. 404—DEPRECIATION‡

A proper depreciation reserve will provide a fund to assist in replacing the plant in its entirety or in part for the perpetuation of its activities.

This account should be charged monthly through the Control Account No. 1400, Miscellaneous Expense, with one-twelfth the estimated annual depreciation on the entire plant and Account No. 5404, Depreciation Reserve, credited. (See closing entry No. 2, page 32.) The yearly estimate should be based upon the best rates obtainable on the life of the different classes of buildings and equipment in the plant.

The distribution of this account should be made from a table of percentages prepared at the beginning of the year, allocating the monthly depreciation charges to operating departments, based upon the relative value of buildings and equipment in each, as follows:

Account No. 21, Barking (Depreciation on wood room buildings, conveyors, Jack ladders, slasher saws, splitters, barking drums, knife barkers, electric motors, etc.).

Account No. 30, Grinding and Screening (Depreciation on groundwood mill buildings, grinders, screens, deckers, wet machines, hydraulic presses, pumps, stock piping, pulp storage tanks, electric motors, etc.).

Account No. 42, Cooking and Screening (Depreciation on sulphite mill buildings, chippers, chip screens, chip conveyors, acid towers, acid cooling system, sulphur burners, digesters, blowpits, screens, deckers, wet machines, hydraulic presses, electric motors, pumps, stock piping, etc.).

Account No. 53, Machine Operating (Depreciation on paper mill buildings, stock chests, mixers, beaters, jordans, shredders, automatic mixers and proportioners, stock regulators, screens, paper machines, stock piping, savealls, steam engines, electric motors, electric trucks and scales, etc.).

Account No. 60, Steam (Depreciation on steam plant buildings, stacks, boilers, stokers, ash conveyors, coal conveyors, pumps, electric motors, recording instruments, steam piping, etc.)

Account No. 61, Water Power (Depreciation on dams, penstocks, regulating gates, waterways, water wheels, etc.).

Account No. 62, Electric Power (Depreciation on power house buildings, generators, switchboards, transformers, transmission lines, etc.).

Depreciation on miscellaneous buildings and machinery, such as Office, Machine Shop, Locomotive Crane, Filter Plant, etc., not included in any of the preceding groups should be prorated between Account No. 30, Grinding and Screening; Account No. 42, Cooking and Screening; Account No. 53, Machine Operating; and Account No. 60, Steam, on the basis of the relation of plant values in each to their total. This proration is added to the direct depreciation in these four departments.

ACCOUNT NO. 405—TAXES‡

Account No. 4405, Accrued Taxes, is charged, as paid, with all state, municipal, real and personal taxes on mill lands and buildings and further analyzed in the Tax Record (Form No. 11). Dominion, Federal, Provincial or State Income, Franchise and Capital Stock taxes should **not** be included unless paid in lieu of personal property taxes. The estimated amount accrued for the period is credited to Account No. 4405, Accrued Taxes, and charged to Account No. 405, Taxes, through the control Account 1400, Miscellaneous Expense. (See journal entry No. 2, page 32.) The monthly charge to Account No. 405, Taxes, is in turn transferred on the basis of the assessed valuation, to the same major operating accounts prescribed for Account No. 404, Depreciation.

ACCOUNT NO. 406—INSURANCE‡

Account No. 2406, Prepaid Insurance, is charged with all insurance premiums paid for Fire, Use and Occupancy, Boiler, Flywheel, Accident and Employees' Liability Insurance, both Stock and Mutual, and further analyzed in the Insurance Record, Form No. 10. The refunds on mutual policies are credited to Account No. 2406, Prepaid Insurance. The proportion of all premiums expiring within the period, as shown by the Insurance and Tax Record, is credited to Account No. 2406 and charged to Account No. 406, Insurance, through the control Account No. 1400, Miscellaneous Expense. (See journal entry No. 2, page 32.) This monthly charge to Account No. 406, Insurance, is, in turn, transferred on the basis of the insurable values in each department, to the major operating accounts prescribed for Account No. 404, Depreciation.

ACCOUNT NO. 407—SPECIAL REPAIRS

This account is charged and Account No. 2408 Jobs in Process, credited at the close of each period with the current month's write-off of repairs jobs to be absorbed in operating costs. This charge should be distributed to the particular departments for which the work has been done.

ACCOUNT NO. 408—WATER MEASUREMENT AND TOLL CHARGES

This account is charged with all expenses accruing from the measurement and use of water for power and is transferred to Account No. 61, Water Power.

ACCOUNT NO. 409—ROYALTIES

Any royalty charges accruing for the use of patents should be charged to this account and credited to Account No. 4409, Royalties Payable. At the close of the period this account is transferred to Account No. 80, Manufacturing Burden, and subsequently transferred under this heading to the processes benefited by the various appliances.

ACCOUNT NO. 410—PROFIT AND LOSS ON TOWNSITE

ACCOUNT NO. 411—PROFIT AND LOSS ON HOTELS

ACCOUNT NO. 412—PROFIT AND LOSS ON FARMS

These accounts contain the profit or loss on the operation of townsite, hotels and farms as posted from closing entry No. 2 on page 32. Account No. 80, Manufacturing Burden, is charged with the total profit and loss on these activities, since they are necessary to the manufacturing operations from the welfare point of view.

ACCOUNT NO. 413—OFFICE EXPENSE

(Stationery, Postage, etc.)

‡NOTE: It is recommended that the Depreciation, Taxes and Insurance applying to each accounting period be charged only to the seven major operating departments prescribed under Account No. 404 Depreciation. A more refined distribution to minor processes would spread these charges to such an extent that the difference in the cost per unit of these minor departments would not be enough to warrant the effort expended.

Ordinarily, the proportion charged off monthly would be one-twelfth of the annual figure, but when it is known from past experience that certain departments will not operate steadily every month the annual charge should be distributed between months on a more equitable basis. The proration for each department should be made on the basis of the relative anticipated production for each month operated to the total annual production, thereby reducing seasonal cost fluctuations that are beyond the control of the mill. The departments usually affected are Account No 61, Water Power, Account No. 30, Grinding and Screening, where dependant upon fluctuating water power, and Account No. 21, Barking, when the operation is irregular.

ACCOUNT NO. 414—TRAVELING EXPENSE

ACCOUNT NO. 415—TELEGRAPH AND TELEPHONE

ACCOUNT NO. 416—GENERAL EXPENSE

(Expense not otherwise classified)

The above accounts are charged with expenses as incurred during the period and classified as to manufacturing, selling, or administrative cost in the subsidiary voucher register (Form No. 4). At the close of the period these expenses are apportioned to Account No.80, Manufacturing Burden (see Burden departments on page 49); Account No. 92, Selling, and Account No. 93, Administration, according to the amount applicable to each.

ACCOUNT NO. 417—GENERAL OFFICE RENT

ACCOUNT NO. 418—LEGAL AND AUDITING EXPENSE

ACCOUNT NO. 419—ASSOCIATION DUES

ACCOUNT NO. 420—SUBSCRIPTIONS AND DONATIONS

ACCOUNT NO. 421—CAPITAL STOCK AND FRANCHISE TAXES

These purely administrative accounts are self-explanatory and are all charged to Account No. 93, Administration.

ACCOUNT NO. 422—WAREHOUSE CHARGES

This account is used when it is necessary to keep stocks of finished paper on hand near points of consumption, and the cost is charged to Account No. 91, Paper Storage.

ACCOUNT NO. 423—SALES OFFICE EXPENSE

ACCOUNT NO. 424—ADVERTISING

ACCOUNT NO. 425—COMMISSIONS

When it is necessary to keep these accounts, they are charged to Account No. 92, Selling.

FORM Nº 30

STEAM COST

PER 1000 LBS. DELIVERED F & A 212°F

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER 1000 LBS. D'L'D	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER 1000 LBS. D'L'D
	FUEL:						
60-210	COAL						
60-211	WOOD						
60-212	OIL						
60-62	ELECTRICITY						
	TOTAL FUEL						
	FUEL HANDLING.						
67-18	OPERATING LABOR						
67-70	LOCOMOTIVE CRANE						
60-67	TOTAL FUEL HANDLG						
	TOTAL FUEL COST						
	CONVERSION:						
60-18	OPERATING LABOR						
60-62	ELECTRIC POWER						
60-68	WATER SUPPLY						
60-303	BELTING						
60-304	LUBRICANTS						
60-305	SUPPLIES						
60-19	REPAIR LABOR						
60-306	REPAIR MATERIAL						
60-407	SPECIAL REPAIRS						
60-403	REPLACEMENT P&L						
60-404	DEPRECIATION						
60-405	TAXES						
60-406	INSURANCE						
	TOTAL CONVERSION						
	TOTAL COST						
60-401	STEAM PURCHASED						
	TOTAL STEAM COST						

DISTRIBUTION

Nº	ACCOUNT	1000 LBS	AMOUNT	POSTED	1000 LBS.	AMOUNT	POSTED
21	BARKING						
30	GRINDING & SCREENG						
	COOKING						
	HEATING & MISCL.						
42	COOKING & SCREENG						
52	BEATING & MIXING						
	DRYING & POWER						
	HEATG & VENTILATG						
	MISCL.						
53	MACHINE OPERATING						
62	ELECTRIC POWER						
80	MF'G. BURDEN						
94	SHUT-DOWN						
	TOTAL 1000 LBS. D'L'D						
	USED IN BOILER HOUSE						
	TOTAL 1000 LBS. GENERD						

FORM Nº 31

WATER POWER COST

PER H.P. HOUR

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH AMOUNT	MONTH PER H.P. HR	CUMULATIVE AMOUNT	CUMULATIVE PER H.P. HR.
61-18	OPERATING LABOR				
61-305	SUPPLIES				
61-19	REPAIR LABOR				
61-306	REPAIR MATERIAL				
61-407	REPLACEMENT P & L				
61-404	DEPRECIATION				
61-405	TAXES				
61-408	WATER MEASUREMENT & TOLL CHARGES				
	TOTAL				
61-400	WATER POWER PURCHASED				
	TOTAL				

DISTRIBUTION

ACCOUNT Nº	ACCOUNT NAME	MONTH H.P. HOURS	MONTH AMOUNT	MONTH POSTED	CUMULATIVE H.P. HOURS	CUMULATIVE AMOUNT	CUMULATIVE POSTED
20	SLASHING						
21	BARKING						
30	GRINDING & SCREENG						
31	GROUNDWOOD DECKERG						
32	GROUNDWOOD LAPPING						
52	BEATING & MIXING						
62	ELECTRIC POWER						
	TOTAL						

DETAILED OPERATING ACCOUNTS

(Controlled by General Ledger Account No. 3003
Pulp and Paper Mill Operations Control)

Accounts are provided for practically every department usually operated in connection with a pulp and paper mill. It may be unnecessary to use all the accounts listed, but the system is sufficiently elastic to permit the omission of any not considered necessary or for the inclusion of special operations not given without destroying the fundamental principles outlined. The accounts considered necessary for proper control should be opened in the cost ledger or on cost sheets according to the kinds of operations carried on by the company.

It is recommended that these operating accounts be opened on cost sheets similar to Forms No. 30 to 53, inclusive, and that this information need not be duplicated in a subsidiary cost ledger since the cost sheets themselves constitute a permanent cost ledger and also serve as working sheets for compiling the cost figures. These completed cost sheets may be furnished to executives in their original form. It is recommended, however, that they be considered a part of the permanent accounting records serving as a basis for compiling cost statements or analyses specially designed for executives, superintendents, foremen or the sales department, with all purely accounting features eliminated.

Although reference is repeatedly made to debits and credits in distributing the various operating accounts, this does not signify that pro-forma journal entries are necessary, since each cost sheet is provided with a distribution section from which charges are posted to the succeeding operating cost accounts. The charges made to Account No. 3003, Pulp and Paper Mill Operations Control in "Closing Entries No. 1 and No. 3," analyzed on the Consumption Record (Form No. 15) by detailed material and expense accounts, are charged to the following operating departments.

SERVICE DEPARTMENTS

These departments all contribute service of some nature to the actual manufacturing processes and are closed out at the end of the period without a residual inventory.

ACCOUNT NO. 60—STEAM

(See Form No. 30)

In most industries the power produced from steam is of prime importance, but in the paper industry the steam itself, or the heat in the steam, is the dominating factor—therefore, the title of this account is "Steam," rather than "Steam Power." The unit cost of production in this department should be calculated on the "1,000 lbs. Steam Delivered From and At 212° F," as described under "Production Units." (See page 31).

This department is charged with all material and expense used in the operation, from the point where the fuel is delivered to the boiler house bunkers to the point where the steam is metered at the boiler house walls as follows:

60-210 Fuel Coal.
60-211 Fuel Wood.
60-212 Fuel Oil.
60-62 Electricity (Electric Power used in Electric boilers).
60-18 Operating Labor.
60-67 Fuel Handling Expense.
60-62 Electric Power (Used by boiler house auxiliaries).
60-68 Water Supply.
60-303 Belting.
60-304 Lubricants.
60-305 Supplies.
60-19 Repair Labor.
60-306 Repair Material.
60-407 Special Repairs.
60-403 Replacement P. & L.
60-404 Depreciation.
60-405 Taxes.
60-406 Insurance.
60-401 Steam Purchased.

Steam should be distributed on the basis of **net heat units consumed** by each department calculated from flow meter readings. The **net heat units** may be figured in converting the original flow meter readings to the "From and At 212° F." basis by using a different factor of evapora-

tion based upon river water temperature, rather than average feed water temperature, for the departments which do not return condensate to the boiler house. An example of this form of distribution is given below.

This account is charged on the basis just described to the following operating departments:

Account No. 21, Barking (Hot pond and heating).

Account No. 30, Grinding and Screening (Heating, blowing screens).

Account No. 42 Cooking and Screening (Cooking, heating and blowing screens).

Account No. 52, Beating and Mixing (Warming stock).

Account No. 53, Machine Operating (Driving paper machine steam engines or turbines and for drying, heating and ventilating, blowing wires and screens).

Account No. 62, Electric Power (Driving turbo-generator or engine driving a generator).

Account No. 80, Manufacturing Burden (Misc. heating, mill office, etc.).

Account No. 94, Shut-down.

Shut-Down Time

When either the sulphite or paper mill is entirely or partially shut down, the cost per 1,000 lbs. of steam will be high owing to the reduced output, therefore actual consumption should be charged to the departments using steam at the normal average cost per 1,000 lbs. delivered and the excess cost charged to Account No. 94, Shut-down. When all departments are shut down, and a boiler is operated for fire protection only, the entire cost of operating the boiler house during such a period is charged to Account No. 94, Shut-down. Sundays and holidays are considered regular operating time and not included in the charge for idleness.

ILLUSTRATION OF STEAM DISTRIBUTION ON HEAT UNIT BASIS

(Sulphite charged with full value of steam; news mill and other departments are charged with net heat units consumed, by receiving credit for condensate returned to the boiler house)

DEPARTMENT	(A) Original Steam Flow- Meter Readings 1000 lbs.	(B) Factors of Evaporation	Adjusted Distribution (C) 1000 lbs.	(D) %	(E) Final Net Heat Unit Distribution per 1000 lbs. from and at 212° F.
Account No. 53, Machine Operating:					
Process (Prime Mover and Drying)	260,684	(a) 1.16	302,393	42.7	297,896
Heating and Ventilating	30,133	(a) 1.16	34,954	4.9	34,185
TOTAL	290,817		337,347	47.6	332,081
Account No. 42, Cooking and Screening:					
Process (Digesters)	89,255	(b) 1.275	113,800	16.1	112,322
Heating	4,441	(a) 1.16	5,152	.7	4,884
TOTAL	93,696		118,952	16.8	117,206
Account No. 30, Grinding and Screening:					
Heating, etc.	26,315	(a) 1.16	30,525	4.4	30,696
Account No. 62, Electric Power:					
Turbo-generators	190,594	(a) 1.16	221,089	31.2	217,667
TOTAL	601,422		707,914	100.0	
Total Steam delivered from and at 212° F. (601,422 x (a) 1.16 (Evap. Factor) =					697,650*

* This figure is distributed in column (E) by using percentages listed in column (D).

(a) Factors of evaporation based upon average feed water temperature.

(b) Factors of evaporation based upon average river water temperature 50° F.

ACCOUNT NO. 61—WATER POWER

(See Form No. 31)

When a unit cost for this department is desired, it may be calculated in horsepower hours, water wheel hours, or water wheel days, according to the unit most easily obtained.

This department is charged with all material and expense used in the development of power from water, from the original source of water supply to the point where the power is transferred from the water wheels to the consuming processes, as follows:

61-18 Operating Labor.
61-305 Supplies.
61-19 Repair Labor.
61-306 Repair Material.
61-407 Special Repairs.
61-403 Replacement P. & L.
61-404 Depreciation.
61-405 Taxes.
61-400 Water Power Purchased.
61-408 Water Measurement and Toll Charges.

This account is distributed to the following departments on the basis of the horsepower hours, water wheel hours or water wheel days consumed by each:

20 Slashing (Power for driving slasher saws, conveyors, etc.).
21 Barking (Power for driving barking drums, hand barkers, conveyors, etc.).
(20, 21 may be combined under Account No. 20, Wood Preparing).
30 Grinding and Screening (Power used in driving grinders, screens, pumps, etc.).
31 Groundwood Deckering (Power used in driving deckers).
32 Groundwood Lapping (Power used in driving wet machines, etc.).
52 Beating and Mixing (Power used in driving beaters, mixers, jordans, pumps, etc.).
62 Electric Power (Power used in driving hydro-generators).

ACCOUNT NO. 62—ELECTRIC POWER

(See Form No. 32)

When a unit cost is calculated for this operation, kilowatt hours should be used as the unit of production. This department is charged with all material and expense incurred in generating and delivering electric current. The maintenance and operation of electrical equipment, such as motors in the consuming departments should **not** be charged to this account, but should be included in the operating cost of the department using the current. This account is charged with:

62-18 Operating Labor.
62-61 Water Power.
62-60 Steam.
62-303 Belting.
62-304 Lubricants.
62-305 Supplies.
62-19 Repair Labor.
62-306 Repair Material.
62-407 Special Repairs.
62-403 Replacement P. & L.
62-404 Depreciation.
62-405 Taxes.
62-406 Insurance.
62-402 Electric Power Purchased.

The cost of operating this department should be distributed to consuming departments, preferably on the basis of meter readings. In the absence of meters, the distribution should be based upon H.P. rating of the motors in each department, weighted with the operating hours if possible. When power is purchased on a peak-load basis, the distribution should be in proportion to the H.P. rating of the motor equipment in the different departments for which this power is purchased.

As the major portion of electrical current is used for power purposes, the cost of current for lighting is consolidated with that used for power. The operating accounts charged with electric power on the basis described are as follows:

20 Slashing (Driving slasher saws, conveyors, etc.).
21 Barking (Driving splitter, barking drums, hand barkers, conveyors, etc.).
22 Stacking (Driving conveyors and stackers, etc.).
(Note: 20, 21 and 22 may be combined under Account No. 20, Wood Preparing.)
30 Grinding and Screening (Driving grinders and Screens, pumps, etc.).
31 Groundwood Deckering (Driving deckers, pumps, etc.).
32 Groundwood Lapping (Driving wet machines, etc.).
33 Groundwood Pressing (Operating hydraulic presses, etc.).
34 Groundwood Storage (Driving conveyors, etc.).
40 Chipping (Driving chippers, chip screens and chip conveyors, etc.).
41 Acid Making (Driving sulphur burners, pumps, etc.).

FORM Nº 32

ELECTRIC POWER COST

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH AMOUNT	MONTH PER K.W. HR.	CUMULATIVE AMOUNT	CUMULATIVE PER K.W. HR.
62-18	OPERATING LABOR				
62-61	WATER POWER				
62-60	STEAM				
62-303	BELTING				
62-304	LUBRICANTS				
62-305	SUPPLIES				
62-19	REPAIR LABOR				
62-306	REPAIR MATERIAL				
62-407	SPECIAL REPAIRS				
62-408	REPLACEMENT P. & L.				
62-409	DEPRECIATION				
62-405	TAXES				
62-406	INSURANCE				
	TOTAL				
62-402	ELECTRIC POWER PURCHASED				
	TOTAL ELECTRIC POWER COST				

DISTRIBUTION

ACCOUNT Nº	ACCOUNT NAME	MONTH K.W. HOURS	MONTH AMOUNT	MONTH POSTED	CUMULATIVE K.W. HOURS	CUMULATIVE AMOUNT	CUMULATIVE POSTED
20	SLASHING						
21	BARKING						
22	STACKING						
30	GRINDING & SCREENG						
31	GROUNDWD DECKER'G						
32	GROUNDWD LAPPING						
33	GROUNDWD PRESS'G						
34	GROUNDWD STORAGE						
40	CHIPPING						
41	ACID MAKING						
42	COOKING & SCREENG						
43	SULPHITE DECKER'G						
44	SULPHITE LAPPING						
45	SULPHITE PRESSING						
46	SULPHITE STORAGE						
50	FURN. MAT'L REHDL'G						
51	SHREDDING						
52	BEATING & MIXING						
53	MACHINE OPERATING						
54	FINISHING						
60	STEAM						
63	MACHINE SHOP						
68	WATER SUPPLY						
69	CORE MAKING						
80	MF'G BURDEN						
94	SHUT-DOWN						
	TOTAL						

FORM Nº 33

MACHINE SHOP COST

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH	CUMULATIVE
63-18	OPERATING LABOR		
63-62	ELECTRIC POWER		
63-303	BELTING LUBRICANTS		
63-304	LUBRICANTS		
63-305	SUPPLIES		
63-19	REPAIR LABOR		
63-306	REPAIR MATERIAL		
	TOTAL		

DISTRIBUTION

ACCOUNT Nº	ACCOUNT NAME	MONTH %	MONTH AMOUNT	CUMULATIVE %	CUMULATIVE AMOUNT
	TOTAL				

TRUCKS & TEAMS COST

ACCOUNT Nº	ACCOUNT NAME	MONTH AMOUNT	MONTH TRUCK HOUR	CUMULATIVE AMOUNT	CUMULATIVE TRUCK HOUR
66-18	OPERATING LABOR				
66-304	LUBRICANTS				
66-305	SUPPLIES				
66-19	REPAIR LABOR				
66-306	REPAIR MATERIAL				
	TOTAL				

DISTRIBUTION

ACCOUNT Nº	ACCOUNT NAME	MONTH TRUCK HRS	MONTH AMOUNT	MONTH POSTED	CUMULATIVE TRUCK HRS	CUMULATIVE AMOUNT	CUMULATIVE POSTED
	TOTAL						

FORM Nº 34

MAINTENANCE & ENGINEERING

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	DIRECT REPAIR LABOR	%	SALARIES ENGIN'G PLANN'G & DRAFT'G	TOTAL REPAIR LABOR	DIRECT REPAIR MATER'L	MACHINE SHOP	TOTAL REPAIR MATER'L
20	SLASHING							
21	BARKING							
22	STACKING							
23	REHANDLING (BARK)							
30	GRINDG & SCREENG							
31	DECKERING (GROUND)							
32	LAPPING "							
33	PRESSING "							
34	STORAGE "							
40	CHIPPING							
41	ACID MAKING							
42	COOKING & SCRNG							
43	DECKERING (SUL.)							
44	LAPPING "							
45	PRESSING "							
46	STORAGE "							
50	FUR MAT'L REHDLG							
51	SHREDDING							
52	BEATING & MIXING							
53	MACHINE OPERATG							
54	FINISHING							
60	STEAM							
61	WATER POWER							
62	ELECTRIC POWER							
66	TRUCKS & TEAMS							
67	FUEL HANDL'G EXP.							
68	WATER SUPPLY							
69	CORE MAKING							
70	LOCOMOTIVE CRANE							
71	SWITCHS & LOCO.							
72	SALVAGE DEPT.							
73	PRINTING SHOP							
80	MANUFACT'G BURD.							
90	SHIPPING							
	JOB Nº							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	" "							
	TOTALS							

42 Cooking and Screening (Driving sulphite screens, pumps, etc.).
(Note: 40, 41 and 42 may be combined under Account No. 42, Sulphite Conversion.)
43 Sulphite Deckering (Driving deckers, pumps, etc.).
44 Sulphite Lapping (Driving wet machines, etc.).
45 Sulphite Pressing (Operating hydraulic presses, etc.).
46 Sulphite Storage (Driving conveyors, etc.)
50 Furnish Material Rehandling (Driving conveyors, etc.).
51 Shredding (Driving shredders and conveyors, etc.).
52 Beating and Mixing (Driving beaters, mixers, jordans and automatic mixing and proportioning devices, pumps, etc.).
53 Machine Operating (Driving paper machines, pumps, etc.).
(Note: 51, 52 and 53 may be combined under Account No. 53, Paper Conversion.)
54 Finishing (Driving cutters for sheet finishing).
60 Steam (Electric current used in boiler house, separated as to the quantity used in electric boilers, and the quantity used for driving stokers, pumps, bark presses, etc.).
63 Machine Shop (Driving lathes, planers, etc.).
68 Water Supply (Driving pumps, etc.).
69 Core Making (Driving core machine).
80 Manufacturing Burden (Electrical current used in the mill offices).

Shut-Down Time

When the power house is operated at a substantially reduced capacity or is entirely idle due to lack of orders in the paper mill, or for a major breakdown, the actual current used should be charged to the consuming departments at a normal average cost per kilowatt hour and the excess cost charged to Account No. 94, Shut-down.

ACCOUNT NO. 63—MACHINE SHOP
(See Form No. 33)

This account is charged with the following expenses and materials if a separate account is considered necessary:

63-18 Operating Labor.
63-62 Electric Power.
63-303 Belting.
63-304 Lubricants.
63-305 Supplies.
63-19 Repair Labor (Machine shop, machinery and buildings).
63-306 Repair Material (Machine shop, machinery and buildings).

Where a large machine shop is operated, a job order cost system may be used for calculating the complete cost of jobs processed, including a proration of the shop burden. By this method a cost will be secured for each job processed, absorbing the entire cost of operating the machine shop. When each part is used, it is charged to the consuming pulp and paper mill department under "Repair Material" in the same manner prescribed for Repair materials purchased. The "Machine Shop" job order system mentioned is separate and distinct from the "Special mill job costs" on large repairs or construction work, as these are usually kept regardless of whether or not a job order system is used in the machine shop.

When a job cost system is not used, the machine shop labor may be distributed with the general repair crews, direct to the departments for which work is done on a time basis and the overhead of the machine shop prorated to all departments, as repair Material on the basis of the relative direct repair labor charges made to each. (See Account No. 64.)

ACCOUNT NO. 64—MAINTENANCE AND ENGINEERING
(See Form No. 34)

This account is provided for accumulating the repair labor, material and maintenance overhead before distribution to other service departments and processes or construction. Direct repair labor charges are posted from the payroll summary to form No. 34 in the column provided, and if a job order system is not used in the machine shop, this shop labor is included. The total salaries and expense of the engineering, drafting and planning departments is prorated in the column headed "Salaries Engineering Planning and Drafting" on the basis of the hours or amount of direct repair labor. The sum of both columns will represent the total repair labor charged to each department or construction job.

After entering the direct repair material, the Machine Shop Overhead, or total overhead for all miscellaneous shops when job order systems are not used, is prorated in the adjacent column on the same basis as "Salaries E. P. & D." and a total Repair Material charge for each department and construction job is extended.

ACCOUNT NO. 65—MISCELLANEOUS YARD CREW

This account classification is only included in the Service Department Section to provide a

FORM Nº 35

WATER SUPPLY COST

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH AMOUNT	MONTH PER GAL.	CUMULATIVE AMOUNT	CUMULATIVE PER GAL.
68-18	OPERATING LABOR				
68-62	ELECTRIC POWER				
68-303	BELTING				
68-304	LUBRICANTS				
68-305	SUPPLIES				
68-19	REPAIR LABOR				
68-306	REPAIR MATERIAL				
	TOTAL WATER SUPPLY COST				

DISTRIBUTION

ACCOUNT Nº	ACCOUNT NAME	MONTH GALLONS	MONTH AMOUNT	MONTH POSTED	CUMULATIVE GALLONS	CUMULATIVE AMOUNT	CUMULATIVE POSTED
30	GRINDING & SCREENING						
41	ACID MAKING						
42	COOKING & SCREENING						
52	BEATING & MIXING						
53	MACHINE OPERATING						
60	STEAM						
	TOTAL						

FINISHED CORE COST

ACCOUNT Nº	ACCOUNT NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER FOOT	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER FOOT
	FURNISH:						
170-135	UNFINISHED CORE PAPER						
170-308	FINISHING SUPPLIES						
	TOTAL FURNISH						
	CORE MAKING:						
69-18	OPERATING LABOR						
69-62	ELECTRIC POWER						
69-303	BELTING						
69-304	LUBRICANTS						
69-305	SUPPLIES						
69-19	REPAIR LABOR						
69-306	REPAIR MATERIAL						
170-69	TOTAL CORE MAKING						
	TOTAL COST FIN. CORES						

FORM Nº 36

LOCOMOTIVE CRANE COST

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH AMOUNT	MONTH PER HOUR	CUMULATIVE AMOUNT	CUMULATIVE PER HOUR
70-18	OPERATING LABOR				
70-210	FUEL COAL				
70-304	LUBRICANTS				
70-305	SUPPLIES				
70-19	REPAIR LABOR				
70-306	REPAIR MATERIAL				
	TOTAL LOCOMOTIVE CRANE COST				

DISTRIBUTION

ACCOUNT Nº	ACCOUNT NAME	MONTH HOURS	MONTH AMOUNT	MONTH POSTED	CUMULATIVE HOURS	CUMULATIVE AMOUNT	CUMULATIVE POSTED
	TOTAL						

SWITCHING & LOCOMOTIVE COST

ACCOUNT Nº	ACCOUNT NAME	MONTH AMOUNT	CUMULATIVE AMOUNT
71-18	OPERATING LABOR		
71-210	FUEL COAL		
71-304	LUBRICANTS		
71-305	SUPPLIES		
71-19	REPAIR LABOR		
71-306	REPAIR MATERIAL		
	TOTAL SWITCHING & LOCOMOTIVE COST		

DISTRIBUTION

ACCOUNT Nº	ACCOUNT NAME	MONTH AMOUNT	MONTH POSTED	CUMULATIVE AMOUNT	CUMULATIVE POSTED
	TOTAL				

code number covering the individual occupations in the yard crew for the use of timekeepers in making up payrolls. The distribution for cost purposes is made from the payroll summary under Account No. 18, Total Operating Labor for "Miscellaneous Yard."

ACCOUNT NO. 66—TRUCKS AND TEAMS

(See Form No. 33)

This account is charged with all material and expense incurred in operating motor trucks and horse-drawn vehicles as follows:

66-18 Operating Labor.
66-304 Lubricants.
66-305 Supplies (gasoline, tires, harness, horse feed, horse blankets, etc.).
66-19 Repair Labor.
66-306 Repair Materials.

This account may be subdivided between motor trucks and teams when a separate cost of each is desired.

This account is transferred to the processes benefited, and to the cost of bulk materials hauled to their original storage space, on the basis of the truck or team hours spent on each job. Any general trucking that cannot be definitely allocated, is transferred to Account No. 80, Manufacturing Burden.

ACCOUNT NO. 67—FUEL HANDLING EXPENSE

(See Form No. 30)

This account is charged with the expense of rehandling fuel from storage to the boiler house as follows:

67-18 Operating Labor.
67-70 Locomotive Crane.

This account is transferred in total to Account No. 60, Steam.

ACCOUNT NO. 68—WATER SUPPLY

(See Form No. 35)

When a separate cost is desired this account is charged with the cost of operating the pumps and filter plant as follows:

68-18 Operating Labor.
68-62 Electric Power.
68-303 Belting.
68-304 Lubricants.
68-305 Supplies.
68-19 Repair Labor.
68-306 Repair Material.

This account is distributed to the following departments on the basis of measured or estimated gallons of water supplied to each:

30 Grinding and Screening.
41 Acid Making.
52 Beating and Mixing.
53 Machine Operating.
60 Steam.

ACCOUNT NO. 69—COREMAKING

(See Form No. 35)

This account is used when cores are manufactured and is charged with:

69-18 Operating Labor.
69-62 Electric Power.
69-303 Belting.
69-304 Lubricants.
69-305 Supplies.
69-19 Repair Labor.
69-306 Repair Material.

This account is transferred to Account No. 170, Finished Cores.

ACCOUNT NO. 70—LOCOMOTIVE CRANE

(See Form No. 36)

If a locomotive crane is employed, this account may be opened and charged as follows:

70-18 Operating Labor.
70-210 Fuel Coal.
70-304 Lubricants.
70-305 Supplies.
70-19 Repair Labor.
70-306 Repair Material.

The cost of operating the locomotive crane should be charged to the Bulk Materials unloaded to their original storage space. When materials are rehandled from storage, the consuming departments receiving service are charged on the basis of the hours operated for each.

ACCOUNT NO. 71—SWITCHING AND LOCOMOTIVE

(See Form No. 36)

This account may be used when a switching engine is operated to place incoming cars and to switch empty or outgoing loaded cars. It is charged with:

71-18 Operating Labor.
71-210 Fuel Coal.
71-304 Lubricants.
71-305 Supplies.
71-19 Repair Labor.
71-306 Repair Material.

This account is charged to (1) the bulk materials switched to their original unloading space, (2) consuming departments when bulk materials are rehandled and (3) shipping when outgoing manufactured products are switched. The distribution is based upon the number of loaded cars switched for each material or department weighted with the distance moved, i.e., when a switch is about double the normal length, each car may be considered as two cars.

MANUFACTURING BURDEN COST

FORM N° 37

ACCOUNT N°	ACCOUNT NAME	TOTAL	TIME-KEEPING	WELFARE	FIRST AID	STORE-KEEPING	PURCHAS'G DEPT	MAN'F'G DEPT.	CHEMICAL LAB.	FIRE & POLICE PROTECTN	COST DEPT.	MILL OFFICE	GENERAL EXPLANATION	GENERAL AMOUNT
80-18	OPERATING LABOR													
80-60	STEAM													
80-62	ELECTRIC POWER													
80-303	BELTING													
80-304	LUBRICANTS													
80-305	SUPPLIES													
80-19	REPAIR LABOR													
80-306	REPAIR MATERIAL													
80-407	REPLACEMT P. & L.													
80-66	TRUCKS & TEAMS													
80-408	ROYALTIES													
80-410	P. & L. ON TOWNSITE													
80-411	P. & L. ON HOTEL													
80-412	P. & L. ON FARMS													
80-413	OFFICE EXPENSE													
80-414	TRAVELING EXPENSE													
80-415	TELEG. & TELEPHONE													
80-416	GENERAL EXPENSE													

DISTRIBUTION

SUB-ACCOUNT N°	SUB-ACCOUNT NAME	DIST. BASIS CODE	TOTAL	ACCT. N°30 GRINDING & SCREENING	ACCT. N°42 COOKING & SCREENING	ACCT. N°53 MACHINE OPERATING	ACCT. N°3001 LOGGING OPER. CONT.	ACCT. N°3002 SAWMILL OPER. CONT.		
	TIMEKEEPING									
	WELFARE									
	FIRST AID									
	P. & L. ON TOWNSITE									
	P. & L. ON HOTEL									
	P. & L. ON FARMS									
	TOTAL (DISTRIBUTED ON PAYROLL HOUR BASIS)	* A								
	STOREKEEPING									
	PURCHASING									
	TOTAL (DISTRIBUTED ON BASIS OF NO. REQ. FILLED)	† B								
	MANUFACTURING DEPARTMENT									
	CHEMICAL LABORATORY									
	FIRE & POLICE PROTECTION									
	COST DEPARTMENT									
	MILL OFFICE									
	GENERAL									
	TOTAL (DIST. ON BASIS OF DIRECT CHARGES)	‡ C								
	ROYATIES									
	TOTAL DIRECT BURDEN									
	TOTAL BURDEN									
	PAYROLL HOURS									
	%	* A	100%							
	NUMBER OF REQUISITIONS FILLED									
	%	† B	100%							
	DIRECT CONVERSION CHARGES (EXCLUDING BURDEN)									
	%	‡ C	100%							

ACCOUNT NO. 72—SALVAGE DEPARTMENT

When this department is operated for the purpose of salvaging old materials, it is charged with:

72-18 Operating Labor.
72-305 Supplies.
72-306 Repair Material.

Account No. 180, Scrap Material, is charged with the cost of operating this department, thereby placing a value on the salvaged material stocked for future use or sale.

ACCOUNT NO. 73—PRINTING SHOP

This account should be charged with the following Materials and Expenses:

73-18 Operating Labor.
73-305 Supplies.
73-19 Repair Labor.
73-306 Repair Material.

This account is transferred to Account No. 171, Printed Wrappers, or any other department receiving service.

ACCOUNT No. 80—MANUFACTURING BURDEN

(See Form No. 37)

This account should only be charged with manufacturing expenses that cannot be applied direct to service departments and processes.

In most industries the term "Burden" usually represents all manufacturing cost other than direct labor and material, but in the paper industry such items as Steam, Power, Depreciation, Insurance, Taxes, Repairs and Supplies are excluded from Burden and applied individually to direct manufacturing cost as described under "Detailed Material and Expense Accounts." Frequently, Burden in the paper industry represents a substantial percentage of the total cost of fabrication. This is caused by the construction of plants near the source of raw material and power making it necessary to import labor, provide appropriate housing facilities and recreation and to organize special auxiliary departments not generally required where mills are located near a center of population.

The materials and expenses charged to this account are as follows:

80-18 Operating Labor (Salaries of Officers and personnel assigned to Manufacturing, Purchasing Departments, Laboratory, Mill Office, etc.).

80-60 Steam (Heating Mill Offices).
80-62 Electric Power (Lighting Mill Offices).
80-303 Belting
80-304 Lubricants
80-305 Supplies
80-19 Repair Labor
80-306 Repair Material
80-407 Special Repairs
80-66 Trucks and Teams

(Portion Applicable to Burden Departments only).

80-409 Royalties.
80-410 P. & L. on Townsite.
80-411 P. & L. on Hotels.
80-412 P. & L. on Farms.
80-413 Office Expense (Mill office stationery, postage, etc.).
80-414 Traveling Expense (Portion expended by Manufacturing, Purchasing, Cost Departments, Chemical laboratory and Mill Office staffs).
80-415 Telegraph and Telephone (Portion applicable to the above departments).
80-416 General Expense (Any other direct mill general expenses not otherwise classified).

The first step in the distribution of manufacturing burden is the analysis of the above expenses by Burden departments (as illustrated on Form No. 37) under titles similar to those suggested below.

Timekeeping.
Welfare.
First Aid.
Storekeeping.
Purchasing Department.
Manufacturing Department.
Chemical Laboratory.
Fire and Police Protection.
Cost Department.
Mill Office.
General (All other expense not assigned to a burden department—itemized).

The second step in the distribution is to combine the preceding burden departments in three groups:

1. This group should contain all Burden department expense having a definite relation to the men employed, such as, Timekeeping, Welfare, First Aid, P. & L. on Townsite, P. & L. on Farms, P. & L. on Hotel, etc. The total expense in this group should be distributed to operating departments charged with Manufacturing Burden on the basis of the number of men employed, or the number of payroll hours

charged to each.

2. This group should contain all Burden department expense related to the purchase and issue of materials, such as Storekeeping and Purchasing. The total expense in this group should be distributed to operating departments charged with Manufacturing Burden on the basis of the relative value of materials consumed by each, or the number of requisitions filled by the storekeeper for each department during the period.
3. This group will consist of all other Burden departments and expense not included in the preceding groups, and it is recommended that the total expense in this group be distributed to operating departments charged with Manufacturing Burden on the basis of percentages determined from the **previous years' accumulative direct operating conversion costs, excluding "Burden."** This method is recommended because it provides a fair distribution, weighted with the cost of operating labor, steam and power used, conversion materials used and gives effect to the value of machinery and buildings used by the inclusion of Depreciation.

Manufacturing Burden should be distributed to the major operating departments which produce commodities for sale or that have periodical inventories or both. No direct benefits result from a more refined distribution, since the principal reason for splitting this charge to other than products sold is to avoid under-valuation of inventories and subsidiary products. It is recommended that Manufacturing Burden be charged to the following major processes:

Account No. 30, Grinding and Screening.
Account No. 42, Cooking and Screening.
Account No. 53, Machine Operating.

Where Sawmill, Logging Operations, or other analogous operations are carried on in conjunction with pulp and paper mill activities, and supervised by the same managerial staff, the following control accounts should also be charged with a portion of the Manufacturing Burden.

Account No. 3001, Logging Operations Control.
Account No. 3002, Sawmill Operations Control.

PROCESS ACCOUNTS

Process costs are treated separately from the products to which they are ultimately charged for the reason that one process may serve more than one product and consequently must be distributed. Usually, the process accounts represent an analysis of the cost of making each product, but when it is necessary to distribute between several products a separate cost sheet may be provided, i. e., Machine Operating, Finishing, etc.

It is customary in most companies to analyze the operating labor charges to each department by Superintendents, Direct (such as "Wood Handling," "Grinders," "Screens" under Account No. 30) and General labor, either on the face of the cost sheet or upon the reverse side. These analyses are assumed to be on the reverse side of the forms illustrated for conservation of space.

PREPARED WOOD PROCESSES

The cost of Prepared Wood includes all costs involved in preparing and handling wood for the groundwood and sulphite processes, from the time the wood is unloaded from cars or delivered to the mill boom, to the point where it is delivered prepared to the grinder and chipper rooms. If the subdivisions of the wood preparing processes provided are not desired, the cost elements included in these divisions may be combined under a single process entitled Account No. 20, Wood Preparing.

No credit should be made to the wood preparing processes when refuse from the wood preparing operation is used as fuel in the boiler house as a credit would tend to lower the cost, thereby capitalizing inefficiency. Account No. 60, Steam, should be charged only at the cost of reclaiming, i. e., handling from the wood room to the boiler house plus the cost of removing moisture.

The processes are arranged in the order given below as it is customary in modern mills to store pulpwood in the prepared state, to reduce decay losses and keep the fire hazard to a minimum. The order may be changed according to local conditions.

ACCOUNT NO. 20—SLASHING

This process is charged with the cost of cutting pulpwood logs into lengths or bolts suitable for use in the grinders or chippers. It commences with the jack ladders, ends at the point where the slashed wood is delivered to the barking process and is charged with:

20-18 Operating Labor.
20-61 Water Power.
20-62 Electric Power.
20-304 Lubricants.
20-305 Supplies.
20-19 Repair Labor.
20-306 Repair Material.
20-407 Special Repairs.

A section for this process is provided on the cost sheet (Form No. 40) for Account No. 101, Prepared Wood, to which the individual cost items listed above are directly posted.

ACCOUNT NO. 21—BARKING

This process is charged with the cost of removing bark and cleaning slashed pulpwood beginning at the point where the rough wood is delivered to the pond or barking equipment, and ending at the point where it is ready for stacking or delivery to the grinder or chipper rooms.

This process is charged with:

21-18 Operating Labor.
21-61 Water Power.
21-62 Electric Power.
21-60 Steam (Heating and hot pond).
21-304 Lubricants.
21-305 Supplies.
21-19 Repair Labor.
21-306 Repair Material.
21-407 Special Repairs.
21-403 Replacement P. & L.
21-404 Depreciation.
21-405 Taxes.
21-406 Insurance.

A section for this process is provided on the cost sheet (Form No. 40) for Account No. 101, Prepared Wood, to which the individual cost items listed above are posted.

Shut-Down Time

Where pulpwood is barked as used, and the barking plant is entirely or partially idle due to lack of orders for the paper mill or to a major breakdown, a proration of fixed charges—Replacement, P. & L., Depreciation, Taxes and Insurance, should be made between the operating costs and Account No. 94, Shut-down. This should be made on the basis of the relative operating and idle barking drum hours or days.

ACCOUNT NO. 22—STACKING

This process is charged with the cost of placing pulpwood on the storage piles commencing with the delivery of the wood to the stacking crew and ending with the delivery of the wood to the storage piles. This account is charged with:

22-18 Operating Labor.
22-62 Electric Power.
22-304 Lubricants.
22-305 Supplies.
22-19 Repair Labor.
22-306 Repair Material.
22-407 Special Repairs.

A section for this process is provided on the cost sheet (Form No. 40) for Account No. 101, Prepared Wood, to which the individual cost items listed above are posted.

ACCOUNT NO. 23—PREPARED WOOD REHANDLING

This process is charged with the cost of rehandling prepared wood from the storage piles to the grinder or chipper rooms, including the splitting operation. Where pulpwood is stored in the rough state, this process is charged with the cost of rehandling pulpwood from the storage piles to the barking plant. This process is charged with:

23-18 Operating Labor.
23-62 Electric Power.
23-304 Lubricants.
23-305 Supplies.
23-19 Repair Labor.
23-306 Repair Material.
23-407 Special Repairs.

A section is provided for this process on the cost sheet (Form No. 40) for Account No. 101, Prepared Wood, to which the individual items listed above are posted.

FORM Nº 40

PREPARED WOOD COST

MONTH ENDING_____

ACCOUNT Nº	NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER CORD	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER CORD
101-200	PULPWOOD						
	SLASHING:						
20-18	OPERATING LABOR						
20-61	WATER POWER						
20-62	ELECTRIC POWER						
20-304	LUBRICANTS						
20-305	SUPPLIES						
20-19	REPAIR LABOR						
20-306	REPAIR MATERIAL						
20-407	SPECIAL REPAIRS						
101-20	TOTAL SLASHING COST						
	BARKING:						
21-18	OPERATING LABOR						
21-61	WATER POWER						
21-62	ELECTRIC POWER						
21-60	STEAM						
21-304	LUBRICANTS						
21-305	SUPPLIES						
21-19	REPAIR LABOR						
21-306	REPAIR MATERIAL						
21-407	SPECIAL REPAIRS						
21-403	REPLACEMENT P&L						
21-404	DEPRECIATION						
21-405	TAXES						
21-406	INSURANCE						
101-21	TOTAL BARKING COST						
	STACKING:						
22-18	OPERATING LABOR						
22-62	ELECTRIC POWER						
22-304	LUBRICANTS						
22-305	SUPPLIES						
22-19	REPAIR LABOR						
22-306	REPAIR MATERIAL						
22-407	SPECIAL REPAIRS						
101-22	TOTAL STACKING COST						
	PREPARED WOOD COST						
	PREPARED WOOD USED						
	REHANDLING:						
23-18	OPERATING LABOR						
25-62	ELECTRIC POWER						
23-304	LUBRICANTS						
23-305	SUPPLIES						
23-19	REPAIR LABOR						
23-306	REPAIR MATERIAL						
23-407	SPECIAL REPAIRS						
101-23	TOTAL REHDLG COST						
	TOTAL COST PR WD USED						

DISTRIBUTION

110	GR. WD SCREENED PULP						
120	SUL. SCREENED PULP						
94	SHUT-DOWN						
	TOTAL						

FORM Nº 41

GROUNDWOOD SCREENED PULP COST

MONTH ENDING_____

ACCOUNT Nº	NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER TON	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER TON
110-101	PREPARED WOOD						
	GRINDING & SCREENG:						
30-18	OPERATING LABOR						
30-61	WATER POWER						
30-62	ELECTRIC POWER						
30-60	STEAM						
30-68	WATER SUPPLY						
30-300	PULPSTONES						
30-303	BELTING						
30-304	LUBRICANTS						
30-305	SUPPLIES						
30-19	REPAIR LABOR						
30-306	REPAIR MATERIAL						
30-407	SPECIAL REPAIRS						
30-403	REPLACEMENT P&L						
30-404	DEPRECIATION						
30-405	TAXES						
30-406	INSURANCE						
30-80	MANUFACTURE BURDEN						
110-30	TOT GRINDG & SCREENG						
	GR'DWOOD SCREENED PULP COST						

DISTRIBUTION

111	GR'D W/D DECK'D SLUSH						
112	GR'D W'D LAPS						
	TOTAL						

GROUNDWOOD DECKERED SLUSH COST

111-110	GR'D W'D SCR'D PULP						
	DECKERING:						
31-18	OPERATING LABOR						
31-61	WATER POWER						
31-62	ELECTRIC POWER						
31-301	WIRES						
31-304	LUBRICANTS						
31-305	SUPPLIES						
31-19	REPAIR LABOR						
31-306	REPAIR MATERIAL						
111-31	TOTAL DECKR'G COST						
	GR'DWOOD DECKERED SLUSH COST						

DISTRIBUTION

130	UNF'D NEWSP'T ROLLS						
131	UNF'D ROLLS						
132	UNF'D ROLLS						
133	UNF'D ROLLS						
	TOTAL						

GROUNDWOOD MANUFACTURING PROCESSES

Where uniform power is available throughout the year and no groundwood is manufactured for sale, it is necessary to use only the first two process accounts appearing below. If groundwood is manufactured for sale as well as for use, lapping, pressing and storage accounts should be provided.

ACCOUNT NO. 30—GRINDING AND SCREENING

(See Form No. 41)

Grinding and Screening is charged with the cost of grinding prepared wood and screening the resulting pulp, from the point where the Prepared Wood is delivered to the grinder-room to the point where the Groundwood Screened Pulp is delivered to either the deckers or wet machines for further processing. The activities included under this process are conveying, trucking and stacking prepared wood in the grinder-room, loading and operating magazine and pocket grinders, sharpening stones, oiling and cleaning, operating and cleaning bull screens, fine screens, refiners, rifflers, etc.

The account is charged with:

30-18 Operating Labor (Including extra labor necessary when changing stones).
30-61 Water Power.
30-62 Electric Power.
30-60 Steam.
30-68 Water Supply.
30-300 Pulpstones.
30-303 Belting.
30-304 Lubricants.
30-305 Supplies.
30-19 Repair Labor.
30-306 Repair Material.
30-407 Special Repairs.
30-403 Replacement P. & L.
30-404 Depreciation.
30-405 Taxes.
30-406 Insurance.
30-80 Manufacturing Burden.

A section is provided for this process on the cost sheet (Form No. 41) for Account No. 110, Groundwood Screened Pulp, to which the individual cost items, listed above, are posted.

Where the groundwood mill is dependent upon fluctuating water power during the year, the low water period is considered regular operation. Under these conditions the depreciation tax and insurance charges to Grinding and Screening and Water Power should be distributed by months on the pre-determined percentage basis described in the note on page 38.

Shut-Down Time

When the groundwood mill is idle, due to lack of orders for the paper mill, major breakdowns or other unusual circumstances, the cost contained in this process should be divided between productive and idle cost. The cost during the idle period consists of only the fixed charges—Replacement P. & L., Depreciation, Taxes, Insurance and Manufacturing Burden, since all other charges are directly applicable to the productive cost, including any repair or maintenance charges incurred during an idle period. When the entire groundwood mill is idle for an entire month, any repairs or maintenance should be charged to a Job number and closed out to the productive cost of future operating periods.

A proration of the fixed charges mentioned should be made between Account No. 110, Groundwood Screened Pulp, and Account No. 94, Shut-down, based upon the relation of the grinder days or hours operated and shut-down, respectively, to the total scheduled grinder days or hours. The method of disposing of this shut-down account is explained on page 71.

ACCOUNT NO. 31—GROUNDWOOD DECKERING

(See Form No. 41)

Groundwood Deckering is charged with the cost of thickening the Groundwood Screened Pulp on the deckers or thickeners, beginning at the point where the screened pulp is delivered to the deckers or thickeners and ending at the point where the deckered slush is delivered to the stock chests, storage tanks, beaters, mixers, or wet machines.

This account is charged with:

31-18 Operating Labor.
31-61 Water Power.
31-62 Electric Power.
31-301 Wires.
31-304 Lubricants.
31-305 Supplies.
31-19 Repair Labor.
31-306 Repair Material.

A section is provided for this process on the cost sheet (Form No. 41) for Account No. 111, Groundwood Deckered Slush, to which the individual cost items listed above are posted.

SAME FORMS USED FOR SULPHITE LAPPING, PRESSING AND STORAGE.

FORM Nº 42

GROUNDWOOD LAPPING

MONTH ENDING _____

ACCOUNT Nº	NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER TON	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER TON
32-18	OPERATING LABOR						
32-61	WATER POWER						
32-62	ELECTRIC POWER						
32-60	STEAM						
32-301	WIRES						
32-302	MACHINE CLOTHING						
32-304	LUBRICANTS						
32-305	SUPPLIES						
32-19	REPAIR LABOR						
32-306	REPAIR MATERIAL						
32-407	SPECIAL REPAIRS						
	TOT GR'DWOOD LAPS						
	DISTRIBUTION						
112	GROUNDWOOD LAPS						
114	GR'DWOOD LAPD SCRG						
	TOTAL						

GROUNDWOOD STORAGE

34-18	OPERATING LABOR						
34-62	ELECTRIC POWER						
34-304	LUBRICANTS						
34-305	SUPPLIES						
34-19	REPAIR LABOR						
34-306	REPAIR MATERIAL						
	TOT. GR'WD STGE COST						
	DISTRIBUTION						
112	GROUNDWOOD LAPS						
113	GR'WD PRESSED LAPS						
114	GR'WD LAPD SCRGS						
	TOTAL						

FORM Nº 43

GROUNDWOOD LAPS 'COST

MONTH ENDING

ACCOUNT Nº	NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER TON	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER TON
112-110	GR'WD SCR'D PULP						
112-32	GR'WD LAPPING						
112-34	GR'WD STORAGE						
	TOTAL GROUNDWOOD LAPS COST						
	DISTRIBUTION						
113	GR'WD PRESSED LAPS						
130	UNF'D NEWS'T ROLLS						
131	UNF'D ROLLS						
132	UNF'D ROLLS						
133	UNF'D ROLLS						
6000	COM'L COST OF SALES						
	TOTAL						

GROUNDWOOD LAPPED SCREENINGS COST

114-32	GR'WD LAPPING						
114-34	GR'WD STORAGE						
	TOTAL GR'WD LAPPED SCREENINGS COST						
	DISTRIBUTION						
134	UNF'D WRAPPERS						
135	UNF'D CORE PAPER						
6000	COM'L COST OF SALES						
	TOTAL						

GROUNDWOOD PRESSED LAPS COST

113-112	GROUNDWOOD LAPS PRESSING						
33-18	OPERATING LABOR						
33-62	ELECTRIC POWER						
33-304	LUBRICANTS						
33-305	SUPPLIES						
33-19	REPAIR LABOR						
33-306	REPAIR MATERIAL						
33-407	SPECIAL REPAIRS						
113-33	TOTAL PRESS'G COST						
113-34	TOTAL						
113-34	GR'WD STORAGE						
	TOTAL GROUNDWOOD PRESSED LAPS COST						
	DISTRIBUTION						
130	UNF'D NEWS'T ROLLS						
131	UNF'D ROLLS						
132	UNF'D ROLLS						
133	UNF'D ROLLS						
6000	COM'L COST OF SALES						
	TOTAL						

FORM Nº 44

SULPHITE SCREENED PULP

MONTH ENDING _____

ACCOUNT Nº	NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER TON	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER TON
120-101	PREPARED WOOD						
	CHIPPING:						
40-18	OPERATING LABOR						
40-62	ELECTRIC POWER						
40-303	BELTING						
40-304	LUBRICANTS						
40-305	SUPPLIES						
40-19	REPAIR LABOR						
40-306	REPAIR MATERIAL						
40-407	SPECIAL REPAIRS						
120-40	TOTAL CHIPPING COST						
	ACID MAKING						
41-201	LIMESTONE OR LIME						
41-202	SULPHUR						
41-18	OPERATING LABOR						
41-62	ELECTRIC POWER						
41-63	WATER SUPPLY						
41-303	BELTING						
41-304	LUBRICANTS						
41-305	SUPPLIES						
41-19	REPAIR LABOR						
41-306	REPAIR MATERIAL						
41-407	SPECIAL REPAIRS						
120-41	TOT ACID MAKING COST						
	COOKING & SCREENING:						
42-18	OPERATING LABOR						
42-60	STEAM						
42-62	ELECTRIC POWER						
42-303	BELTING						
42-304	LUBRICANTS						
42-305	SUPPLIES						
42-19	REPAIR LABOR						
42-306	REPAIR MATERIAL						
42-407	SPECIAL REPAIRS						
42-405	REPLACEMENT P&L						
42-404	DEPRECIATION						
42-405	TAXES						
42-406	INSURANCE						
42-80	MANUF'G BURDEN						
120-42	TOT COOKG & SCRG COST						
	SULPHITE SCREENED PULP COST						
	DISTRIBUTION						
121	SULPHITE DECK'D SLUSH						
122	SULPHITE LAPS						
	TOTAL						

SULPHITE DECKERED SLUSH

121-120	SULPHITE SCREEN'D PULP						
	DECKERING:						
43-18	OPERATING LABOR						
43-61	WATER POWER						
43-62	ELECTRIC POWER						
43-301	WIRES						
43-304	LUBRICANTS						
43-305	SUPPLIES						
43-19	REPAIR LABOR						
43-306	REPAIR MATERIAL						
121-43	TOTAL DECKERING COST						
	SULPHITE DECKERED SLUSH COST						
	DISTRIBUTION						
130	UNFINISHED NEWS ROLLS						
131	UNFINISHED ROLLS						
132	UNFINISHED ROLLS						
133	UNFINISHED ROLLS						
124	BLEACH DECKED SULPHITE						
	TOTAL						

FORM Nº 45

SHUT-DOWN COST

MONTH ENDING ___ ___ ___

ACCOUNT Nº	NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER UNIT	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER UNIT
	BARKING						
94-405	REPLACEMENT P&L						
94-404	DEPRECIATION						
94-405	TAXES						
94-406	INSURANCE						
	TOTAL						
	GRINDING & SCRG						
94-405	REPLACEMENT P&L						
94-404	DEPRECIATION						
94-405	TAXES						
94-406	INSURANCE						
	TOTAL						
	COOKING & SCRG						
94-405	REPLACEMENT P&L						
94-404	DEPRECIATION						
94-405	TAXES						
94-406	INSURANCE						
	TOTAL						
	MACHINE OPER'G						
94-405	REPLACEMENT P&L						
94-404	DEPRECIATION						
94-405	TAXES						
94-406	INSURANCE						
	TOTAL						
94-60	STEAM						
94-62	ELECTRIC POWER						
	TOT. SHUT-DOWN COST						

REMARKS

ACCOUNT NO. 32—GROUNDWOOD LAPPING

(See Form No. 42)

Groundwood Lapping is charged with the cost of lapping Groundwood Screened Pulp or Deckered Slush on wet machines or Rodgers presses beginning at the point where the slush is delivered to the wet machines or Rodgers presses and ending at the point where the laps or sheets are ready for shipment or storage.

This account is charged with:

32-18 Operating Labor.
32-61 Water Power.
32-62 Electric Power.
32-60 Steam (If wet machines are driven by a steam engine).
32-301 Wires.
32-302 Machine Clothing.
32-304 Lubricants.
32-305 Supplies.
32-19 Repair Labor.
32-306 Repair Material.
32-407 Special Repairs.

If a separate cost of lapping screenings is not calculated, the total lapping cost is prorated between Account No. 112, Groundwood Laps, and Account No. 114, Groundwood Lapped Screenings, according to the tonnage of each lapped.

ACCOUNT NO. 33—GROUNDWOOD PRESSING

(See Form No. 43)

Groundwood Pressing is charged with the cost of operating hydraulic presses, beginning with the delivery of laps to the presses and ending at the point where the pressed laps are ready for storage or shipment.

This account is charged with:

33-18 Operating Labor.
33-62 Electric Power.
33-304 Lubricants.
33-305 Supplies.
33-19 Repair Labor.
33-306 Repair Material.
33-407 Special Repairs.

A section is provided for this process on the cost sheet (Form No. 43) for Account No. 113, Groundwood Pressed Laps, to which the individual cost items listed above are posted.

ACCOUNT NO. 34—GROUNDWOOD STORAGE

(See Form No. 42)

Groundwood Storage is charged with the cost of storing either Groundwood Laps or Pressed Laps, beginning at the point where the laps are ready for storage and ending on the storage piles.

This account is charged with:

34-18 Operating Labor.
34-62 Electric Power.
34-304 Lubricants.
34-305 Supplies.
34-19 Repair Labor.
34-306 Repair Material.

This process is charged to Account No. 112, Groundwood Laps; Account No. 113, Groundwood Pressed Laps, and Account No. 114, Groundwood Lapped Screenings, according to the tonnage of each stored.

SULPHITE MANUFACTURING PROCESSES

It is customary in calculating the cost of manufacturing sulphite pulp to combine the Chipping, Acid Making and Cooking and Screening operations. These processes may be consolidated under the heading of Account No. 42, Sulphite Conversion. For the benefit of companies which desire more refined cost control, the detailed processes are described.

ACCOUNT NO. 40—CHIPPING

(See Form No. 44)

Chipping is charged with the cost of reducing Prepared Wood to chips, screening and conveying chips to the bins over the digesters, beginning at the point where the Prepared Wood is delivered to the chipper room and ending at the point where the chips are delivered to the bins.

This account is charged with:

40-18 Operating Labor (Including labor changing and sharpening chipper knives).
40-62 Electric Power.
40-303 Belting.
40-304 Lubricants.
40-305 Supplies.
40-19 Repair Labor.
40-306 Repair Material.
40-407 Special Repairs.

A section is provided for this process on the cost sheet (Form No. 44) for Account No. 120, Sulphite Screened Pulp, to which the individual cost items listed above are posted.

If a sulphate pulp mill is operated in addition to the sulphite mill, chipping costs are prorated between the two products on the basis of the relative quantities of Prepared Wood used in each.

ACCOUNT NO. 41—ACID MAKING

(See Form No. 44)

Acid Making is charged with the cost of making acid for the manufacture of sulphite pulp either by the milk of lime or limestone tower systems, beginning at the point where the lime or limestone and sulphur are taken from storage and ending at the point where the acid is delivered to the digesters. This process includes the operation of the acid towers, storage tanks, sulphur burners, lime slakers, acid cooling system, pumps, etc.

This account is charged with:

41-201 Limestone or Lime.
41-202 Sulphur.
41-18 Operating Labor.
41-62 Electric Power.
41-68 Water Supply.
41-303 Belting.
41-304 Lubricants.
41-305 Supplies.
41-19 Repair Labor.
41-306 Repair Material.
41-407 Special Repairs.

A section is provided for this process on the cost sheet (Form No. 44) for Account No. 120, Sulphite Screened Pulp, to which the individual cost items listed above are posted.

ACCOUNT NO. 42—COOKING AND SCREENING

(See Form No. 44)

Cooking and Screening is charged with the cost of cooking chips and washing and screening the resulting pulp, beginning at the point where the chips, acid, and steam are admitted to the digesters and ending at the point where the Sulphite Screened Pulp is delivered to the deckers, wet machines, Rodger presses or drying machines. This process includes the operation of digesters, blowpits, knotters, screens and rifflers, etc.

This account is charged with:

42-18 Operating Labor.
42-60 Steam.
42-62 Electric Power.
42-303 Belting.
42-304 Lubricants.
42-305 Supplies.
42-19 Repair Labor.
42-306 Repair Material.
42-407 Special Repairs.
42-403 Replacement P. & L.
42-404 Depreciation.
42-405 Taxes.
42-406 Insurance.
42-80 Manufacturing Burden.

A section is provided for this process on the cost sheet (Form No. 44) for Account No. 120, Sulphite Screened Pulp, to which the individual cost items listed above are posted.

If production is curtailed by extending the cooking time, the excess cost should be considered regular operation, and not included in shut-down cost.

Shut-Down Time

When the sulphite mill is idle, due to lack of orders for the paper mill, a major breakdown or other unusual circumstances, the cost contained in this process should be divided between productive and idle cost. The cost during the idle period consists of only the fixed charges—Replacement P. & L., Depreciation, Taxes, Insurance and Manufacturing Burden, since all other charges are directly applicable to the productive cost including any repair or maintenance charges incurred during an idle period. When the entire sulphite mill is idle for an entire month any repairs or maintenance should be charged to a job number and closed out to the productive cost of future operating periods.

A proration of the fixed charges mentioned should be made between Account No. 120, Sulphite Screened Pulp and Account No. 94, Shutdown, based upon the relation of the digester days or hours operated and shut-down, respectively, to the total scheduled digester days or hours. The method of disposing of this shutdown account is explained on page 71.

ACCOUNT NO. 43—SULPHITE DECKERING

(See Form No. 44)

Sulphite deckering is charged with the cost of thickening Sulphite Screened Pulp on the deckers or thickeners beginning at the point where screened pulp is delivered to the deckers, and ending at the point where the deckered slush is delivered to the stock chests, storage tanks, beaters, mixers or wet machines.

This account is charged with:
43-18 Operating Labor.
43-61 Water Power.
43-62 Electric Power.
43-301 Wires.
43-304 Lubricants.
43-305 Supplies.
43-19 Repair Labor.
43-306 Repair Material.

A section is provided for this process on the cost sheet (Form No. 44) for Account No. 121, Sulphite Deckered Slush, to which the individual cost items listed above are posted.

ACCOUNT NO. 44—SULPHITE LAPPING

(See Form No. 42)

Sulphite lapping is charged with the cost of lapping Sulphite Screened Pulp or Deckered Slush on wet machines or Rodger presses, beginning at the point where slush is delivered to the wet machines or Rodger presses and ending at the point where the laps or sheets are ready for shipment or storage.

This account is charged with:
44-18 Operating Labor.
44-61 Water Power.
44-62 Electric Power.
44-60 Steam (If wet machines are driven by a steam engine).
44-301 Wires.
44-302 Machine Clothing.
44-304 Lubricants.
44-305 Supplies.
44-19 Repair Labor.
44-306 Repair Material.
44-407 Special Repairs.

If a separate cost of lapping screenings is not calculated, the total lapping cost is prorated between Account No. 122, Sulphite Laps, and Account No. 125, Sulphite Lapped Screenings, according to the tonnage of each lapped.

ACCOUNT NO. 45—SULPHITE PRESSING

(See Form No. 43)

Sulphite pressing is charged with the cost of operating hydraulic presses beginning with the delivery of laps to the presses and ending at the point where the pressed laps are ready for storage or shipment.

This account is charged with:
45-18 Operating Labor.
45-62 Electric Power.
45-304 Lubricants.
45-305 Supplies.
45-19 Repair Labor.
45-306 Repair Material.
45-407 Special Repairs.

A section is provided for this process on the cost sheet (Form No. 43) for Account No. 123, Sulphite Pressed Laps, to which the individual cost items listed above are posted.

ACCOUNT NO. 46—SULPHITE STORAGE

(See Form No. 42)

Sulphite storage is charged with the cost of storing either Sulphite Laps or Pressed Laps beginning at the point where the laps are ready for storage and ending on the storage piles.

This account is charged with:
46-18 Operating Labor.
46-62 Electric Power.
46-304 Lubricants.
46-305 Supplies.
46-19 Repair Labor.
46-306 Repair Material.

This process is charged to Account No. 122, Sulphite Laps, Account No. 123, Sulphite Pressed Laps, Account No. 124, Machine Dried, and Account No. 125, Sulphite Lapped Screenings, according to the tonnage of each stored.

FORM Nº 50

FURNISH MATERIAL REHANDLING

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH QUANTITY	MONTH AMOUNT	MONTH PER UNIT	CUMULATIVE QUANTITY	CUMULATIVE AMOUNT	CUMULATIVE PER UNIT
50-18	OPERATING LABOR						
50-62	ELECTRIC POWER						
50-303	BELTING						
50-304	LUBRICANTS						
50-305	SUPPLIES						
50-19	REPAIR LABOR						
50-306	REPAIR MATERIAL						
	TOTAL						
	DISTRIBUTION						
130	UNF'D NEWS'T ROLLS						
131	UNF'D ROLLS						
132	UNF'D ROLLS						
133	UNF'D ROLLS						
	TOTAL						

SHREDDING

51-18	OPERATING LABOR						
51-62	ELECTRIC POWER						
51-303	BELTING						
51-305	SUPPLIES						
51-19	REPAIR LABOR						
51-306	REPAIR MATERIAL						
	TOTAL						
	DISTRIBUTION						
130	UNF'D NEWS'T ROLLS						
131	UNF'D ROLLS						
132	UNF'D ROLLS						
133	UNF'D ROLLS						

BEATING & MIXING

52-18	OPERATING LABOR						
52-61	WATER POWER						
52-62	ELECTRIC POWER						
52-69	WATER SUPPLY						
52-60	STEAM						
52-303	BELTING						
52-304	LUBRICANTS						
52-19	REPAIR LABOR						
52-306	REPAIR MATERIAL						
52-407	SPECIAL REPAIRS						
	TOTAL						
	DISTRIBUTION						
130	UNF'D NEWS'T ROLLS						
131	UNF'D ROLLS						
132	UNF'D ROLLS						
133	UNF'D ROLLS						
134	UNF'D WRAPPER ROLLS						
135	UNF'D CORE PAPER						
	TOTAL						

FORM Nº 51

UNFINISHED NEWSPRINT ROLL COST

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	MONTH QUANT	MONTH %	MONTH AMOUNT	MONTH PER TON	CUMULATIVE QUANT	CUMULATIVE %	CUMULATIVE AMOUNT	CUMULATIVE PER TON
	FURNISH:								
130-111	GRDWOOD DECK'D SLUSH								
130-112	GRDWD LAPS (O.M.)								
130-207	GRDW'D PURCHASED								
130-121	SULPHITE DECK. SLUSH								
130-122	SULPHITE LAPS (O.M.)								
130-208	SULPHITE PURCHASED								
130-209	WASTE PAPER PURCH.								
130-203	ALUM								
130-204	FILLERS								
130-205	SIZE								
130-206	COLOR								
	TOTAL								
130-50	FURNISH MAT'L RHNDL'G								
	TOTAL FURNISH COST								
130-51	SHREDDING								
130-52	BEATING & MIXING								
	MACHINE OPERATING:								
53-18	OPERATING LABOR								
53-60	STEAM								
53-62	ELECTRIC POWER								
53-69	WATER SUPPLY								
53-301	WIRES								
53-302	MACHINE CLOTHING								
53-303	BELTING								
53-304	LUBRICANTS								
53-305	SUPPLIES								
53-19	REPAIR LABOR								
53-306	REPAIR MATERIAL								
53-407	SPECIAL REPAIRS								
53-403	REPLACEMENT P&L								
53-404	DEPRECIATION								
53-405	TAXES								
53-406	INSURANCE								
53-80	MANUFACTURG BURDEN								
	TOT MACH OPER COST								
	TOTAL UNFINISHED NEWSPT ROLL COST								

FINISHED NEWSPRINT ROLL COST

140-130	UNF'D NEWS'T ROLLS								
	FINISHING								
54-18	OPERATING LABOR								
54-213	WRAPPERS								
54-307	CORES								
54-308	FINISHING SUPPLIES								
54-19	REPAIR LABOR								
54-306	REPAIR MATERIAL								
	TOTAL FINISH'G COST								
	TOTAL FINISHED NEWSPRINT ROLL COST								

PAPER MANUFACTURING PROCESSES

When separate costs are considered unnecessary for Shredding, Beating and Mixing, they may be consolidated with Machine Operating under the heading of Account No. 53, Paper Conversion. For the benefit of companies which desire more refined cost control, the detailed processes are described.

ACCOUNT NO. 50—FURNISH MATERIAL REHANDLING

(See Form No. 50)

This account is charged with the cost of rehandling furnish materials from storage to the consuming process from the point where the material is removed from its original storage to the point where it is delivered to the shredders or beating and mixing rooms. This expense does not increase the inventory value of furnish materials but does increase the cost of these materials to the paper mill.

This account is charged with:

50-18 Operating Labor.
50-62 Electric Power.
50-303 Belting.
50-304 Lubricants.
50-305 Supplies.
50-19 Repair Labor.
50-306 Repair Material.

If other grades are manufactured, in addition to news print, a proration of the cost of this department should be made to Account No. 130 to 135, inclusive, on the basis of the quantity of furnish material rehandled for each.

ACCOUNT NO. 51—SHREDDING

(See Form No. 50)

Shredding is charged with the cost of operating the shredding equipment from the point where the furnish material is delivered to the shredder room to the point where the shredded stock is delivered to storage tanks, or beaters and mixers.

This account is charged with:

51-18 Operating Labor.
51-62 Electric Power.
51-303 Belting.
51-305 Supplies.
51-19 Repair Labor.
51-306 Repair Material.

If other grades are manufactured in addition to newsprint paper, a proration of this account should be made on the basis of the quantity of stock shredded for each grade.

ACCOUNT NO. 52—BEATING AND MIXING

(See Form No. 50)

This account is charged with the cost of beating and mixing or otherwise preparing furnish materials for use on the paper machines from the point where the furnish material is delivered to the beating and mixing room, to the point where the mixed stock is delivered to the machine chests, and includes the operation of beaters, broke beaters, mixers, Jordans and automatic mixing and proportioning devices.

This account is charged with:

52-18 Operating Labor.
52-61 Water Power.
52-62 Electric Power.
52-68 Water Supply.
52-60 Steam.
52-303 Belting.
52-304 Lubricants.
52-19 Repair Labor.
52-306 Repair Material.
52-407 Special Repairs.

When other grades are manufactured, in addition to newsprint, a proration of the cost of this department should be made to Account No. 130 to 135 inclusive, on the basis of the actual time devoted to preparing stock for each.

Certain beaters are usually assigned to each machine, so that the cost of operating each group is segregated and charged to the grade run on the machine for which the stock is beaten. If more than one grade is run on a machine, the distribution should be based upon the machine hours run on each grade or the time each group of beaters spend in preparing stock for each grade.

ACCOUNT NO. 53—MACHINE OPERATING

(See Forms No. 51 and 52)

Machine operating is charged with the cost of operating the paper machines from the point where the stock is delivered to the machine chests to the point where the paper is delivered to the finishing room. This operation includes the wet end, dryers, calenders and winders of the paper machines and their turbines, motors or

MACHINE OPERATING COSTS

FORM Nº 52

MONTH ENDING _____

ACCOUNT Nº	ACCOUNT NAME	ALL MACHINES QUANTITY	ALL MACHINES AMOUNT	ALL MACHINES PER TON	MACHINES Nº 1 QUANTITY	Nº 1 AMOUNT	Nº 1 PER TON	Nº 2 QUANTITY	Nº 2 AMOUNT	Nº 2 PER TON	Nº 3 QUANTITY	Nº 3 AMOUNT	Nº 3 PER TON	Nº 4 QUANTITY	Nº 4 AMOUNT	Nº 4 PER TON
53-18	OPERATING LABOR															
53-62	ELECTRIC POWER															
53-68	WATER SUPPLY															
53-301	WIRES															
53-302	MACHINE CLOTHING															
53-303	BELTING															
53-304	LUBRICANTS															
53-305	SUPPLIES															
53-19	REPAIR LABOR															
53-306	REPAIR MATERIAL															
53-407	SPECIAL REPAIRS															
53-403	REPLACEMENT P & L.															
53-404	DEPRECIATION															
53-405	TAXES															
53-406	INSURANCE															
53-80	MANUFACTURING BURDEN															
	TOTAL															
53-60	STEAM															
	TOT MACHINE OPER'G COST															
	DISTRIBUTION	MACH HRS	AMOUNT	%	MACH. HRS	AMOUNT	%	MACH. HRS	AMOUNT	%	MACH. HRS	AMOUNT	%	MACH. HRS	AMOUNT	%
130	UNFIN. NEWSPRINT ROLLS															
131	UNFIN. ROLLS															
132	UNFIN. ROLLS															
133	UNFIN. ROLLS															
134	UNFIN. WRAPPER ROLLS															
135	UNFIN. CORE PAPER															
	TOTAL															

GRADE COSTS

ACCOUNT Nº	ACCOUNT NAME	ALL GRADES QUANT.	ALL GRADES %	ALL GRADES AMOUNT	ALL GRADES PER TON	UNFINISHED NEWSP'T ROLLS QUANT.	UNFINISHED NEWSP'T ROLLS %	UNFINISHED NEWSP'T ROLLS AMOUNT	UNFINISHED NEWSP'T ROLLS PER TON	UNFINISHED ROLLS QUANT	UNFINISHED ROLLS %	UNFINISHED ROLLS AMOUNT	UNFINISHED ROLLS PER TON	UNFINISHED ROLLS QUANT	UNFINISHED ROLLS %	UNFINISHED ROLLS AMOUNT	UNFINISHED ROLLS PER TON	UNFINISHED ROLLS QUANT	UNFINISHED ROLLS %	UNFINISHED ROLLS AMOUNT	UNFINISHED ROLLS PER TON
	FURNISH:																				
111	GROUNDWOOD DECKERED SLUSH																				
112	GROUNDWOOD LAPS (O.M.)																				
207	GROUNDWOOD PURCHASED																				
121	SULPHITE DECKERED SLUSH																				
122	SULPHITE LAPS (O.M.)																				
208	SULPHITE PURCHASED																				
209	WASTE PAPER PURCHASED																				
175	BROKE																				
203	ALUM																				
204	FILLERS																				
205	SIZE																				
206	COLOR																				
	TOTAL																				
50	FURNISH MAT'L REHANDLING																				
	TOTAL FURNISH COST																				
51	SHREDDING																				
52	BEATING & MIXING																				
	MACHINE OPERATING:																				
53	Nº 1 MACHINE																				
53	Nº 2 MACHINE																				
53	Nº 3 MACHINE																				
53	Nº 4 MACHINE																				
53	TOT MACHINE OPER'G COST																				
60	STEAM																				
	TOTAL UNFINISHED R'L COST																				

steam engines, heating and ventilating systems, savealls, etc.

This account is charged with:

53-18 Operating Labor (Including extra men for changing wires and clothing).
53-60 Steam.
53-62 Electric Power.
53-68 Water Supply.
53-301 Wires.
53-302 Machine Clothing.
53-303 Belting.
53-304 Lubricants.
53-305 Supplies.
53-19 Repair Labor.
53-306 Repair Material.
53-407 Special Repairs.
53-403 Replacement P. & L.
53-404 Depreciation.
53-405 Taxes.
53-406 Insurance.
53-80 Manufacturing Burden.

The cost of this process should be subdivided by machines, where there is more than one for better control over operating costs. The account symbols may be further elaborated to provide for this contingency by prefixing the number of the machine and a dash before the paper process symbol 53.

A section is provided for this process on the cost sheet (Form No. 51) for Account No. 130, Unfinished Newsprint Rolls, to which the individual cost items listed above are posted.

Where a cylinder machine is operated for the manufacture of wrappers and core paper, the cost of operating should be prorated between Account No. 134, Unfinished Wrappers and Account No. 135, Unfinished Core Paper on the basis of the number of machine hours devoted to the manufacture of each product.

Machine Costs (See Form No. 52)

Where other grades of coarse papers are manufactured in addition to newsprint paper, either on the same or on separate machines, it is recommended that separate costs be calculated on each machine for distribution to grades of paper. In the calculation of costs by individual machines, the timekeeper and the storekeeper must supply an analysis by machines of all the labor and materials chargeable to Account No. 53, Machine Operating. A similar analysis should be secured from the Steam and Electric Power departments from meter readings. The fixed charges, Replacement P. & L., Depreciation, Taxes, Insurance and Manufacturing Burden assigned for the period to Account No. 53, Machine Operating, are further subdivided by individual machines in the manner described for distributing these expenses to all departments, under the heading of "Detailed Material and Expense Accounts," on pages 36 to 38. Where separate process costs are not kept for Shredding, Beating and Mixing the individual and the total machine operating costs will include these processes.

Grade Costs (See Form No. 52)

Each machine should be treated separately in making cost distributions to grades. When a machine operates an entire month on a single grade, its total cost, including steam, should be charged to the unfinished cost of the grade made, Accounts No. 130 to 135, inclusive. If more than one grade is made on a machine the cost of operation, excluding steam, should be prorated on the basis of machine hours run on each grade. The steam consumption does not vary in direct proportion to the time run on each grade, therefore it should be distributed, preferably on the basis of flow meter readings, according to the quantity consumed in the manufacture of each grade.

When each machine is **not** equipped with a meter, the machine operating cost should be distributed to grades, exclusive of steam, on the basis of machine hours run on each, and the total cost of steam in the paper mill prorated to grades on the basis of the tonnage made.

Shut-Down Time

Whenever one or more machines are idle for an appreciable length of time, for a cause beyond the control of the machine crews such as lack of orders, a major breakdown, labor trouble, lack of power, or other unusual circumstances, provision should be made for charging the fixed charges for this period to Account No. 94, Shutdown. This charge for idleness should be based upon the relation of idle machine hours to the total scheduled hours for each machine, and applied before the proration between grades. It consists of only Replacement P. & L., Depreciation, Taxes, Insurance, and Manufacturing Burden, as all other charges are directly applicable to the operation of the machines. The method of disposing of Account No. 94, Shut-down, is described on page 71.

Any repair or maintenance charges incurred during an idle period should be considered as operating cost and not prorated to the shutdown account. If a machine is shut down for an entire month such repairs or maintenance may

FORM Nº 53

FINISHED PAPER COSTS

MONTH ENDING ____________

ACCOUNT Nº	ACCOUNT NAME	TOTAL QUANTITY	TOTAL AMOUNT	TOTAL PER TON	FINISHED ROLLS QUANTITY	FINISHED ROLLS AMOUNT	FINISHED ROLLS PER TON	FINISHED SHEETS QUANTITY	FINISHED SHEETS AMOUNT	FINISHED SHEETS PER TON	FINISHED COUNTER RLS QUANTITY	FINISHED COUNTER RLS AMOUNT	FINISHED COUNTER RLS PER TON
	ALL GRADES												
	UNFINISHED PAPER ROLLS												
54-18	FINISHING: OPERATING LABOR												
54-62	ELECTRIC POWER												
54-213	WRAPPERS												
54-307	CORES												
54-308	FINISHING SUPPLIES												
54-19	REPAIR LABOR												
54-306	REPAIR MATERIAL												
	TOTAL FINISHING COST												
	TOTAL FINISHED PAPER COST												
	NEWSPRINT PAPER												
	UNFINISHED NEWSPRINT ROLLS												
54-18	FINISHING: OPERATING LABOR												
54-62	ELECTRIC POWER												
54-213	WRAPPERS												
54-307	CORES												
54-308	FINISHING SUPPLIES												
54-19	REPAIR LABOR												
54-306	REPAIR MATERIAL												
	TOTAL FINISHING COST												
	TOTAL FINISHED NEWSPRINT COST												
	- - - - - - - - - PAPER												
	UNFINISHED - - - - - - - - - ROLLS												
54-18	FINISHING: OPERATING LABOR												
54-62	ELECTRIC POWER												
54-213	WRAPPERS												
54-307	CORES												
54-308	FINISHING SUPPLIES												
54-19	REPAIR LABOR												
54-306	REPAIR MATERIAL												
	TOTAL FINISHING COST												
	TOTAL FINISHED - - - - - - - - - COST												
	- - - - - - - - - PAPER												
	UNFINISHED - - - - - - - - ROLLS												
54-18	FINISHING: OPERATING LABOR												
54-62	ELECTRIC POWER												
54-213	WRAPPERS												
54-307	CORES												
54-308	FINISHING SUPPLIES												
54-19	REPAIR LABOR												
54-306	REPAIR MATERIAL												
	TOTAL FINISHING COST												
	TOTAL FINISHED - - - - - - - - COST												
	- - - - - - - - - PAPER												
	UNFINISHED - - - - - - - - ROLLS												
54-18	FINISHING: OPERATING LABOR												
54-62	ELECTRIC POWER												
54-213	WRAPPERS												
54-307	CORES												
54-308	FINISHING SUPPLIES												
54-19	REPAIR LABOR												
54-306	REPAIR MATERIAL												
	TOTAL FINISHING COST												
	TOTAL FINISHED - - - - - - - - COST												

be deferred until the following period by charging to a Job number.

ACCOUNT NO. 54—FINISHING

(See Form No. 53)

Finishing includes the cost of cutting, wrapping, weighing and marking unfinished paper from the point where the Unfinished Rolls are delivered to the finishing room to the point where the Finished Rolls or Sheets are ready for storage or shipment. Cores are considered a part of the finishing cost even though the rolls are actually wound on the cores in the machine room.

This account is charged with:

54-18 Operating Labor.

54-62 Electric Power (the power used on cutters when sheets are made).

54-213 Wrappers.

54-307 or 170 Cores.

54-308 Finishing Supplies.

54-19 Repair Labor.

54-306 Repair Material.

This process is charged to the various finished paper, Accounts No. 140 to 163, inclusive, according to grades finished and kinds of finishing on the following basis:

54-18 Operating Labor—This item is distributed on the basis of the actual time spent in finishing each grade by kinds of finishing.

54-62 Electric Power—This cost is distributed to the sheet finished grades according to the time spent in operating the cutters on each grade.

54-213 Wrappers, 54-307 or 170 Cores, 54-308 Finishing Supplies — These materials are distributed to products according to the quantities used in finishing each product.

54-19 Repair Labor, 54-306 Repair Material — These items are prorated between grades, by kinds of finishing, according to the tonnage of each finished.

MANUFACTURED PRODUCT ACCOUNTS

The preceding sections have dealt with the accumulation and the initial distribution of expenses to departments, the distribution of service departments to processes and the distribution of processes to products. This section is devoted to the final cost of manufacturing classified by products, the transfer of minor products to major products, the calculation of closing inventory values and the manufacturing cost of sales.

A cost sheet is provided for each manufactured product, containing the cost and quantities of raw materials used and the cost of fabricating, analyzed in detail by processes. These cost sheets serve as the cost ledger and permanent record of the final manufacturing cost of each product from which cost statements may be prepared for every purpose. The total manufacturing cost of each product calculated on these sheets is posted to the "Inventory Record" Form No. 16 to ascertain the average cost per unit of current production and opening inventories, and is used to price closing inventories and to calculate the manufacturing cost of sales.

ACCOUNT NO. 101—PREPARED WOOD

(See Form No. 40)

This product is charged with the following raw material and process costs, and a unit cost calculated, based upon the number of Prepared Cords produced, as described under "Production Units" on page 29.

101-200 Pulpwood.

101-20 Slashing, 101-21 Barking, 101-22 Stacking, 101-23 Rehandling — or 101-20 Wood Preparing when these processes are combined.

This account is credited with the quantity of Prepared Wood used during the period, at the average of the cost per prepared cord of produc-

tion and opening inventory for the period, leaving a balance representing closing inventory.

The following accounts are charged with the quantity of wood consumed by each during the period, at the average cost mentioned above:

Account No. 110 Groundwood Screened Pulp.

Account No. 120 Sulphite Screened Pulp.

ACCOUNT NO. 110—GROUNDWOOD SCREENED PULP

(See Form No. 41)

This product is charged with:

110-101 Prepared Wood.

110-30 Grinding and Screening.

The unit cost per ton should be based upon the tonnage of Groundwood Screened Pulp produced, as described under "Production Units" on page 29.

This account is credited with the cost of production and the following products are charged according to the tonnage used by each.

Account No. 111, Groundwood Deckered Slush.

Account No. 112, Groundwood Laps.

ACCOUNT NO. 111—GROUNDWOOD DECKERED SLUSH

(See Form No. 41)

This product is charged with:

111-110 Groundwood Screened Pulp.

111-31 Groundwood Deckering.

The unit cost per ton should be based upon the tonnage of Groundwood Deckered Slush produced, as described under "Production Units" on page 29.

This account is credited with the quantity and cost of Groundwood Deckered Slush consumed and charged to Account No. 130, Unfinished Newsprint Rolls. This charge should be made at the average of the cost per ton of production and opening inventory leaving a balance representing any existing inventory of deckered slush in storage tanks. If more than one grade of paper is manufactured, the consumption should be distributed to the various grades of paper made, Accounts No. 130 to 133, inclusive, according to the quantity used in each grade.

ACCOUNT NO. 112—GROUNDWOOD LAPS

(See Form No. 43)

This product is charged with:

112-110 Groundwood Screened Pulp.

112-32 Groundwood Lapping.

112-34 Groundwood Storage.

The unit cost per ton should be based upon the tonnage of Groundwood Laps produced as described under "Production Units" on page 30.

"Groundwood Laps" is credited with the tonnage of laps shipped and consumed in other products at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing inventory.

The following accounts are charged according to the tonnage sold or consumed:

Account No. 113, Groundwood Pressed Laps (the quantity delivered to the hydraulic presses).

Account No. 6000, Total Cost of Sales (the quantity sold, see closing entry No. 4, page 32).

Account No. 130, Unfinished Newsprint Rolls (the quantity consumed).

If other grades of paper are manufactured, the quantity consumed should be charged to grades according to the quantities used in each.

ACCOUNT NO. 113—GROUNDWOOD PRESSED LAPS

(See Form No. 43)

This product is charged with:

113-112 Groundwood Laps.

113-33 Groundwood Pressing.

113-34 Groundwood Storage.

The unit cost per ton should be based upon the tonnage pressed as described under "Production Units" on page 30. "Groundwood Pressed Laps" is credited with the quantity shipped and used at the average of the cost per ton of production and opening inventory for the period and the following accounts are charged according to the tonnage sold or consumed, leaving a balance representing closing inventory:

Account No. 6000, Total Cost of Sales (the quantity sold, see closing entry No. 4, page 32).

Account No. 130, Unfinished Newsprint Rolls (the quantity consumed).

If more than one grade of paper is manufactured, the quantity consumed should be distributed to grades according to the quantities used in each.

ACCOUNT NO. 114—GROUNDWOOD LAPPED SCREENINGS

(See Form No. 43)

"Screenings" is a waste product and may be eliminated by perfect grinding, screening and refining. Therefore, if mill wrappers or core paper is manufactured and unrefined screenings are used as raw material, they should be priced at the recovery cost only, which consists of a portion of the lapping cost as follows:

114-32 Groundwood Lapping.

114-34 Groundwood Storage.

This product is credited with the quantity sold and consumed at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing inventory.

The following accounts are charged according to the tonnage sold or consumed.

Account No. 6000, Total Cost of Sales (the quantity sold, see closing entry No. 4, page 32).

Account No. 134, Unfinished Wrappers (the quantity used in the manufacture of wrappers).

Account No. 135, Unfinished Core Paper (the quantity consumed in the manufacture of core paper).

ACCOUNT NO. 120—SULPHITE SCREENED PULP

(See Form No. 44)

Sulphite Screened Pulp is charged with:

120-101 Prepared Wood.

120-40	Chipping	or 120-201 Limestone or Lime.
120-41	Acid Making	120-202 Sulphur.
120-42	Cooking and Screening	120-40 Sulphite Conversion. (If 40, 41 and 42 are combined.)

The unit cost per ton should be based upon the tonnage of Sulphite Screened Pulp produced, as described under "Production Units" on page 29.

This account is credited at the cost of production and the following accounts are charged according to the tonnage of Sulphite Screened Pulp delivered to each:

Account No. 121, Sulphite Deckered Slush.

Account No. 122, Sulphite Laps.

ACCOUNT NO. 121—SULPHITE DECKERED SLUSH

(See Form No. 44)

This product is charged with:

121-120 Sulphite Screened Pulp.

121-43 Sulphite Deckering.

The unit cost per ton should be based upon the tonnage produced, as described under "Production Units," on page 29.

This account is credited with the quantity and cost of Sulphite Deckered Slush consumed, and charged to Account No. 130, Unfinished Newsprint Rolls. This charge should be made at the average of the cost per ton of production and opening inventory, leaving a balance representing any existing inventory of deckered slush in storage tanks.

If more than one grade of paper is manufactured, the consumption should be distributed to the various grades of paper made, Accounts No. 130 to 133, inclusive, according to the quantity used in each grade.

ACCOUNT NO. 122—SULPHITE LAPS

(See Form No. 43)

This product is charged with:

122-120 Sulphite Screened Pulp.

122-44 Sulphite Lapping.

122-46 Sulphite Storage.

The unit cost per ton should be based upon the tonnage lapped, as described under "Production Units" on page 30.

"Sulphite Laps" is credited with the tonnage sold and consumed in other products, at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing inventory.

The following accounts are charged according to the tonnage sold and consumed.

Account No. 123, Sulphite Pressed Laps (the quantity delivered to the hydraulic presses).

Account No. 6000, Total Cost of Sales (the quantity sold, see closing entry No. 4, page 32).

Account No. 130, Unfinished Newsprint Rolls (the quantity consumed).

If other grades of paper are manufactured, the quantity consumed should be distributed to grades according to the quantities used in each.

ACCOUNT NO. 123—SULPHITE PRESSED LAPS

(See Form No. 43)

This product is charged with:

123-122 Sulphite Laps.

123-45 Sulphite Pressing.

123-46 Sulphite Storage.

The unit cost per ton should be based upon the tonnage produced, as described under "Production Units" on page 30.

Sulphite Pressed Laps is credited with the quantity sold or used, at the average of the cost per ton of production and opening inventory for the period, and the following accounts are charged according to the tonnage sold or consumed, leaving a balance representing closing inventory.

Account No. 6000, Total Cost of Sales (the quantity sold see closing entry No. 4, page 32).

Account No. 130, Unfinished Newsprint Rolls (the quantity consumed).

If more than one grade of paper is manufactured, the quantity consumed should be distributed to grades according to the quantity used in each.

ACCOUNT NO. 124—SULPHITE MACHINE DRIED

(See Form No. 52)

If sulphite pulp is dried on a cylinder or wrapper machine, this account should be used and charged with:

124-121 Sulphite Deckered Slush.

124-53 Machine Operating.

The unit cost per ton should be based upon the air dry weight of the tons dried by this process.

This product should be credited with the quantity shipped at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing inventory. The quantity shipped should be charged to Account No. 6000, Total Cost of Sales. (See closing entry No. 4, page 32).

ACCOUNT NO. 125—SULPHITE LAPPED SCREENINGS

(See Form No. 43)

The cost of this product is charged only with the portion of the cost of lapping applicable to the quantity of screenings made for the reasons given under Account No. 114, Groundwood Lapped Screenings.

125-44 Sulphite Lapping.

125-46 Sulphite Storage.

This product is credited with the quantity shipped and consumed at the average of the cost per ton of production and opening inventory for the period and the following accounts are charged according to the tonnage consumed or sold, leaving a balance representing closing inventory:

Account No. 6000, Total Cost of Sales (the quantity sold, see closing entry No. 4, page 32).

Account No. 134, Unfinished Wrapper Rolls (the quantity used in the manufacture of wrappers).

Account No. 135, Unfinished Core Paper (the quantity consumed in the manufacture of core paper).

ACCOUNT NO. 130—UNFINISHED NEWSPRINT ROLLS

(See Form No. 51)

This product is charged with:

130-111 Groundwood Deckered Slush.

130-112 Groundwood Laps (own make).

130-207 Groundwood Purchased.

130-121 Sulphite Deckered Slush.

130-122 Sulphite Laps (own make).

130-208 Sulphite Purchased.

130-209 Waste Paper Purchased.

130-203 Alum.

130-204 Fillers.

130-205 Size.

130-206 Color.

130-50 Furnish Material Rehandling.

130-51 Shredding
130-52 Beating & Mixing
130-53 Machine Operating
} or 130-53 Paper Conversion (When these processes are combined).

The unit cost per ton should be based upon the tonnage of Unfinished Newsprint Rolls produced, as described under "Production Units" on page 30.

This product account is credited and the following accounts charged according to the tonnage of Unfinished Newsprint Rolls finished in each style, at the average of the cost per ton of production and opening inventory for the period, leaving a balance in the account representing closing inventory:

Account No. 140, Finished Newsprint Rolls.

Account No. 150, Finished Newsprint Sheets.

Account No. 160, Finished Newsprint Counter Rolls.

Grade Costs (See Form No. 52)

When other grades of paper are manufactured in addition to newsprint, separate cost sheets or accounts should be provided for each grade, as follows:

Account No. 131, Unfinished ..... Rolls.

Account No. 132, Unfinished ..... Rolls.

Account No. 133, Unfinished ..... Rolls.

These product accounts are charged with the same raw materials and processes listed under Account No. 130, Unfinished Newsprint Rolls with the possible addition of Nos. 131, 132, or 133-175, Broke. This item is necessary only when the Broke from one grade is used in the furnish of other grades. See Account No. 175 for the method of handling this item. If desired, a cost of separate runs or orders may be handled in the manner described for grades. Each of these product accounts is credited at the close of the period and the corresponding Finished Product accounts, listed below, are charged with the quantities delivered to the finishing room at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing inventory.

Account No. 141, Finished ..... Rolls.

Account No. 142, Finished ..... Rolls.

Account No. 143, Finished ..... Rolls.

Account No. 151, Finished ..... Sheets.

Account No. 152, Finished ..... Sheets.

Account No. 153, Finished ..... Sheets.

Account No. 161, Finished ..... Counter Rolls.

Account No. 162, Finished ..... Counter Rolls.

Account No. 163, Finished ..... Counter Rolls.

ACCOUNT NO. 134—UNFINISHED WRAPPER ROLLS

(See Form No. 52)

This product is charged with:

134-111 Groundwood Deckered Slush.

134-112 Groundwood Laps (own make).

134-207 Groundwood Purchased.

134-209 Waste Paper Purchased.

134-114 Groundwood Lapped Screenings.

134-125 Sulphite Lapped Screenings.

134-50 Furnish Material Rehandling.

134-51 Shredding
134-52 Beating and Mixing
134-53 Machine Operating
} or 134-53 Paper Conversion. (When these processes are combined.)

The unit cost per ton should be based upon the tonnage of Unfinished Wrapper Rolls produced during the period.

This product account is credited with the value of Unfinished Wrapper Rolls sold, used or further processed, at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing

inventory. The following accounts are charged according to the tonnage applying to each:

Account No. 54, Finishing (the quantity used in finishing each grade by kinds of finishing).

Account No. 90, Shipping (the quantity used in lining cars).

Account No. 6000, Total Cost of Sales (the quantity sold, see closing entry No. 4, page 32).

Account No. 171, Printed Wrappers (the quantity further processed by printing).

ACCOUNT NO. 135—UNFINISHED CORE PAPER

(See Form No. 52)

This product is charged with the same raw materials and processes listed under Unfinished Wrapper Rolls. The quantity of Core Paper consumed in the manufacture of Cores is credited to this account, at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing inventory and Account No. 170, Finished Cores is charged.

Roll Finished Products

(See Forms No. 51 and 53)

The unit cost per ton should be based upon the finished weight, as described under "Production Units" on page 30.

ACCOUNT NO. 140—FINISHED NEWSPRINT ROLLS

ACCOUNT NO. 141—FINISHED ..... ROLLS

ACCOUNT NO. 142—FINISHED ..... ROLLS

ACCOUNT NO. 143—FINISHED ..... ROLLS

If newsprint paper only is manufactured, Account No. 140 should be charged with:

140-130 Unfinished Newsprint Rolls.

140-54 Finishing.

The finished cost of any other grades of paper manufactured should be charged with the appropriate unfinished grade instead of the "Unfinished Newsprint Rolls" mentioned above.

These accounts are credited with the cost of the quantity sold, at the average of the cost per ton of production and opening inventory for the period and Account No. 6000, Total Cost of Sales, charged (see closing entry No. 4, page 32), leaving balances representing closing inventories.

Sheet Finished Products

(See Form No. 53)

The unit cost per ton of sheet paper should be based upon the "nominal weight," as described under "Production Units" on page 30.

ACCOUNT NO. 150—FINISHED NEWSPRINT SHEETS

ACCOUNT NO. 151—FINISHED ..... SHEETS

ACCOUNT NO. 152—FINISHED ..... SHEETS

ACCOUNT NO. 153—FINISHED ..... SHEETS

When newsprint sheets only are manufactured Account No. 150 should be charged with:

150-130 Unfinished Newsprint Rolls.

150-54 Finishing.

The finished cost of any other grades of paper manufactured should be charged with the appropriate unfinished grade, instead of the "Unfinished Newsprint Rolls" mentioned above.

Sheets are usually made from culled rolls in newsprint mills, and the anticipated waste in cutting is taken into consideration in calculating the production of Unfinished Newsprint Rolls, as described under "Production Units" on page 30. The cutting waste by this method is automatically absorbed in the Broke losses and not considered in the charge for Unfinished Newsprint Rolls made to Account No. 150, Finished Newsprint Sheets. When sheets are made from saleable rolls of newsprint or other grades of paper, the cutting waste should be weighed

and credited to the cost of manufacturing each grade of sheets, and a charge made to Account No. 175, Broke. This waste may be conservatively priced at the average cost per ton of total furnish materials, as prescribed for "Broke."

These accounts are credited with the value of the quantity sold at the average of the cost per ton of production and opening inventory for the period, and Account No. 6000, Total Cost of Sales charged (see closing entry No. 4, page 32), leaving a balance representing closing inventory.

Counter Roll Finished Products

(See Form No. 53)

The unit cost per ton should be based upon the finished weights, as described under "Production Units" on page 30.

ACCOUNT NO. 160—FINISHED NEWSPRINT COUNTER ROLLS

ACCOUNT NO. 161—FINISHED ..... COUNTER ROLLS

ACCOUNT NO. 162—FINISHED ..... COUNTER ROLLS

ACCOUNT NO. 163—FINISHED ..... COUNTER ROLLS

Account No. 160, Finished Newsprint Counter Rolls is charged with:

160-130 Unfinished Newsprint Rolls.

160-54 Finishing.

This account is credited with the quantity sold, at the average of the cost per ton of production and opening inventory for the period, and Account No. 6000, Total Cost of Sales is charged (see closing entry No. 4, page 32), leaving a balance representing closing inventory.

When other grades of paper are finished as counter rolls, Accounts No. 161, 162 and 163 are used and charged with the appropriate grade of unfinished paper and a portion of the finishing cost and closed out in the same manner prescribed for newsprint paper.

ACCOUNT NO. 170—FINISHED CORES

Finished Cores should be charged with:

170-135 Unfinished Core Paper.

170-308 Finishing Supplies (Glue, Tips).

170-69 Core Making.

The unit cost should be based upon the number of feet of cores made during the period.

This account is credited with the value of the quantity of cores sold and consumed at the average of the cost per foot of production and opening inventory for the period, leaving a balance representing closing inventory.

The following accounts are charged according to the quantity sold or consumed.

Account No. 54, Finishing (the quantity consumed in finishing paper).

Account No. 6000, Total Cost of Sales (the quantity sold, see closing entry No. 4, page 32).

ACCOUNT NO. 171—PRINTED WRAPPERS

(See Form No. 53)

This account is necessary when a print shop is operated by the paper mill for printing wrapper heads and labels. This product is charged with:

171-134 Unfinished Wrappers.

171-73 Printing Shop.

This product is credited with the quantity of printed wrapper heads consumed and Account No. 54, Finishing, is charged at the average of the cost per ton of production and opening inventory for the period, leaving a balance representing closing inventory.

ACCOUNT NO. 175—BROKE

Where newsprint paper only is manufactured, it is unnecessary to record the quantity of broke made, the anticipated cutting waste on culled rolls or completely culled rolls, since all such broke is returned to the beaters and not included in production. If more than one grade of paper is manufactured, all dry broke (including cutting waste and culls) should be weighed or estimated when transferred from one grade to another. This transfer will appear as a credit to the grade supplying the broke and as a charge to the grades using it, in the furnish section of the grade cost sheet (see Form No. 52). This broke should be priced at the average cost per ton of total furnish and unless an appreciable amount of broke is carried over from one period to another, this account will not carry an inventory.

ACCOUNT NO. 180—SCRAP MATERIAL

This account is provided for the purpose of carrying the inventory value of scrap material reconditioned by the salvage department for sale to outside parties or for re-use within the plant. It is charged with:

180-72 Salvage Department.

This charge is distributed to the pieces of material reconditioned on the basis of the time and material used on each. This account is credited with the reconditioned cost of salvage material sold or transferred to the storeroom, and charged to either Account No. 6006, P. & L. on Scrap Sales, or Account No. 1300, Stores, according to the value sold or transferred, leaving a balance representing inventory. Income derived from sales of scrap should be credited to Account No. 6006, P. & L. on Scrap Sales.

COMMERCIAL COST

The accounts included in this section are segregated from those dealing with the manufacturing operations since they do not represent production cost and therefore should not be included in the inventories of any of the products manufactured. Although these items are not manufacturing costs, they are an important part of the cost of doing business and must be considered before a profit or loss on sales can be determined.

ACCOUNT NO. 90—SHIPPING

(See Form No. 18)

This account is charged with:

90-18 Operating Labor.

90-213 or 134 Wrappers (when used for car lining).

90-305 Supplies.

90-309 Shipping Supplies.

90-19 Repair Labor.

90-306 Repair Material.

This account is credited, and Account No. 6000, Total Cost of Sales, is charged with its total cost at the end of each period (see closing entry No. 4, page 32). The charge made to Total Cost of Sales should be further analyzed by commodities shipped. The shipping expense in connection with groundwood or sulphite laps or pressed laps consists chiefly of labor and should be based upon the actual time spent in cleaning cars and loading each kind of pulp. The balance of the shipping expense should be charged to the Commercial Cost of paper and when more than one grade is manufactured, this balance should be prorated on the basis of the tonnage of each grade shipped.

ACCOUNT NO. 91—PAPER STORAGE

(See Form No. 18)

This account covers the labor and expense connected with the storage of paper, principally in warehouses located near the point of consumption, and contains the following charges:

91-18 Operating Labor.

91-422 Warehouse Charges.

This account analyzed by grades of paper, is credited at the end of each period with its total cost and Account No. 6000, Total Cost of Sales charged (see closing entry No. 4, page 32). When an actual distribution by grades is not available, this charge should be prorated according to the tonnage of each grade stored.

ACCOUNT NO. 92—SELLING

(See Form No. 18)

This account is charged with all expense connected with the marketing of paper products as follows:

92-18 Salaries.

92-413 Office Expense.

92-414 Traveling Expense.

92-423 Sales Office Expense.

92-424 Advertising.

92-425 Commissions.

This account analyzed by grades of paper, is credited at the close of each period with its total cost, and Account No. 6000, Total Cost of Sales, charged (see closing entry No. 4, page 32). The analysis by grades is made according to the total sales value of each grade sold, unless a more direct distribution based upon sales effort is available.

Paper mills seldom have pulp for sale except occasional surplus production which is usually disposed of without sales effort, therefore no selling expense should be charged to the Commercial Cost of either groundwood or sulphite pulp. If either groundwood or sulphite pulp is regularly manufactured for sale, the selling expense should be further distributed to the grades of pulp sold on the same basis described for paper.

ACCOUNT NO. 93—ADMINISTRATION

(See Form No. 18)

Administration is charged with all expense not connected with manufacturing, and not other-

wise classified in this Commercial Cost section, as follows:

93-18 Salaries (officers, executives and clerks not connected with manufacturing or selling operations).
93-413 Office Expense.
93-414 Traveling Expense.
93-415 Telegraph and Telephone.
93-416 General Expense.
93-417 General Office Rent.
93-418 Legal and Auditing Expense.
93-419 Association Dues.
93-420 Subscriptions and Donations.
93-421 Capital Stock and Franchise Taxes.

This account is credited at the close of the accounting period with its total cost and Account No. 6000, Total Cost of Sales, is charged (see closing entry No. 4, page 32), further analyzed by products sold, on the basis of the relative manufacturing cost of sales and selling cost of each to the total of all products.

ACCOUNT NO. 94—SHUT-DOWN

(See Form No. 18)

This account is classified under "Commercial Cost" since the shut-down expenses are not a part of the manufacturing cost of products fabricated during a part-time period, and therefore should not be included in the inventories of manufactured commodities.

This account is charged with the shut-down cost of the following departments:

94-60 Steam.
94-62 Electric Power.
94-21 Barking.
94-30 Grinding and Screening.
94-42 Cooking and Screening.
94-52 Machine Operating.

This cost is considered solely a charge to paper sold, since shut-downs are mainly caused by lack of orders for the paper mill which may curtail operations in the groundwood, sulphite, steam and other departments. At the close of each period, the total cost of this account, if small, is charged to Account No. 6000, Total Cost of Sales (see closing entry No. 4, page 32). If this cost is large, it may be prorated over several periods. This charge should be analyzed by grades of paper sold in proportion to the relative manufacturing cost of sales of each grade.

ACCOUNT NO. 6000—TOTAL COST OF SALES

(See Form No. 17)

This account, analyzed by commodities, is charged with the manufacturing cost of products sold, as follows:

6000-112 Groundwood Laps.
6000-113 Groundwood Pressed Laps.
6000-114 Groundwood Lapped Screenings.
6000-122 Sulphite Laps.
6000-123 Sulphite Pressed Laps.
6000-124 Sulphite Machine Dried.
6000-125 Sulphite Lapped Screenings.
6000-134 Unfinished Wrapper Rolls.
6000-140 Finished Newsprint Rolls.
6000-141 Finished ..... Rolls.
6000-142 Finished ..... Rolls.
6000-143 Finished ..... Rolls.
6000-150 Finished Newsprint Sheets.
6000-151 Finished ..... Sheets.
6000-152 Finished ..... Sheets.
6000-153 Finished ..... Sheets.
6000-160 Finished Newsprint Counter Rolls.
6000-161 Finished ..... Counter Rolls.
6000-162 Finished ..... Counter Rolls.
6000-163 Finished ..... Counter Rolls.
6000-170 Finished Cores.
6000-171 Printed Wrappers.

In addition to the manufacturing cost of sales listed above, this account should be charged with the following Commercial Cost items, analyzed by products:

6000-90 Shipping.
6000-91 Paper Storage.
6000-92 Selling.
6000-93 Administration.
6000-94 Shut-down.

After the Total Cost of Sales is determined in total and in detail for each product, on Form No. 17, the total is used to compile the fourth closing journal entry for controlling costs (see entry No. 4, page 32). General Ledger Account No. 6000, Total Cost of Sales is charged, and general ledger Account No. 3003, Pulp and Paper Mill Operations Control, credited with the total cost of sales, leaving a balance in Account No. 3003, representing the closing inventories of all manufactured products.

FORM Nº 60

BUDGET COSTS

DATA

PRODUCTION:	BUDGET	ACTUAL
STEAM	25,000 M.LBS.	26,950 M.LBS.
PREPARED WOOD	2,000 CORDS	2,100 CORDS
GROUNDWOOD DECK'D SLUSH	2,000 TONS	2,009 TONS
FINISHED NEWSPRT ROLLS	2,500 TONS	2,450 TONS

BULK MAT'LS USED:	BUDGET	ACTUAL
COAL	1,250 TONS	1,136 TONS
PULPWOOD	2,500 CORDS	2,470 CORDS
SULPHITE	625 TONS	647 TONS
SALES	2,600 TONS	2,685 TONS

OPENING INV:	BUDGET	ACTUAL
NEWSPRINT	200 TONS	200 TONS
CLOSING INV:		
PREPARED WOOD	—	150 CORDS
NEWSPRINT	100 TONS	25 TONS

STEAM COST (UNIT = 1000 LBS)

ACCOUNT	BUDGET QUANTITY TOTAL	BUDGET QUANTITY PER UNIT	BUDGET COST TOTAL	BUDGET COST PER UNIT	ACTUAL QUANTITY TOTAL	ACTUAL QUANTITY PER UNIT	ACTUAL COST TOTAL	ACTUAL COST PER UNIT	VARIATIONS DUE TO: ALL CAUSES QUANTITY TOTAL	ALL CAUSES QUANTITY PER UNIT	ALL CAUSES COST TOTAL	ALL CAUSES COST PER UNIT	† DIFFERENCE IN QUANTITY PRODUCED QUANTITY	† DIFFERENCE IN QUANTITY PRODUCED AMOUNT	‡ EFFICIENCY OF OPERATION QUANTITY	‡ EFFICIENCY OF OPERATION AMOUNT	RATES AND ‡ PRICES AMOUNT
DR. COAL	1250 TONS	10/1LB	10,000	.40	1136 TONS	8.4 LB	9,088	.34	114 TONS	1.6 LB	912	.06	* 97.5 TONS	* 780	216.5 TONS	1,692	
CONVERSION COST			2,500	.10			2,290	.08			209	.02				209	.25
TOTAL COST	PROD 25,000 M.LB		12,500	.50	PROD 26,950 M.LB		11,378	.42	1,950 M.LB		1,121	.09					
CR. TRANSFERS	25,000 M.LB		12,500	.50	26,950 M.LB		13,475	.50	1,950 M.LB		975			975			
DEPARTMENT GAIN OR LOSS	—		—		—		2,096	.25			2,096	.25		195		1,901	.25

PREPARED WOOD COST (UNIT = CORD)

ACCOUNT	BUDGET QUANTITY TOTAL	BUDGET QUANTITY PER UNIT	BUDGET COST TOTAL	BUDGET COST PER UNIT	ACTUAL QUANTITY TOTAL	ACTUAL QUANTITY PER UNIT	ACTUAL COST TOTAL	ACTUAL COST PER UNIT	VARIATIONS DUE TO: ALL CAUSES QUANTITY TOTAL	ALL CAUSES QUANTITY PER UNIT	ALL CAUSES COST TOTAL	ALL CAUSES COST PER UNIT	† DIFFERENCE IN QUANTITY PRODUCED QUANTITY	† DIFFERENCE IN QUANTITY PRODUCED AMOUNT	‡ EFFICIENCY OF OPERATION QUANTITY	‡ EFFICIENCY OF OPERATION AMOUNT	RATES AND ‡ PRICES AMOUNT
DR. PULPWOOD	2,300 CDS.	1/5 CD	34,500	17.25	2,470 CDS.	1/4 CD	37,050	17.65	* 170 CDS.	* .25 CD	* 2,550	.40	* 115 CDS.	* 1,725	* 55 CDS	* 825	
CONVERSION COST			6,000	2.50			4,725	2.25			2.75	.25				2.75	
TOTAL COST	PROD 2,000 CDS		39,500	19.75	PROD 2,100 CDS.		41,775	19.90			* 2.25	.15					
OPENING INVENTORY																	
CR. CLOS'G INVENTORY					150 CDS.		2,962	19.75	150 CDS.		2,962	.50		2,962	.50		
TRANSFERS	2,000 CDS.		39,500	19.75	1,950 CDS.		38,512	19.75	* 50 CDS.		* 987	.50		* 987	.50		
DEPT. GAIN OR LOSS	—		—				* 300	* .15			* 300	* .15		250		* 550	

GROUNDWOOD DECKERED SLUSH COST (UNIT = TONS)

ACCOUNT	BUDGET QUANTITY TOTAL	BUDGET QUANTITY PER UNIT	BUDGET COST TOTAL	BUDGET COST PER UNIT	ACTUAL QUANTITY TOTAL	ACTUAL QUANTITY PER UNIT	ACTUAL COST TOTAL	ACTUAL COST PER UNIT	VARIATIONS DUE TO: ALL CAUSES QUANTITY TOTAL	ALL CAUSES QUANTITY PER UNIT	ALL CAUSES COST TOTAL	ALL CAUSES COST PER UNIT	† DIFFERENCE IN QUANTITY PRODUCED QUANTITY	† DIFFERENCE IN QUANTITY PRODUCED AMOUNT	‡ EFFICIENCY OF OPERATION QUANTITY	‡ EFFICIENCY OF OPERATION AMOUNT	RATES AND ‡ PRICES AMOUNT
DR. PREPARED WOOD	2,000 CDS	1 CD	39,500	19.75	1,950 CDS.	.97 CD	38,512	19.75	.50 CDS.	.03 CD	987	.50	* 9 CDS	* 177	.59 CDS	1,165	.25
CONVERSION COST			18,000	9.00			17,280	8.86			1.90	.10				1.79	.90
TOTAL COST	PROD 2,000 TONS		57,500	28.75	PROD 2,009 TONS		56,392	28.08	9 TONS		1,107	.40					
CR. TRANSFERS	2,000 TONS		57,500	28.75	2,009 TONS		57,759	28.75	9 TONS		265	.75		259	.75		
DEPT. GAIN OR LOSS					1,366	.65	1,366	.65			1,366	.65		81		1,285	.65

FINISHED NEWSPRINT ROLL COST (UNIT = TONS)

ACCOUNT	BUDGET QUANTITY TOTAL	BUDGET QUANTITY PER UNIT	BUDGET COST TOTAL	BUDGET COST PER UNIT	ACTUAL QUANTITY TOTAL	ACTUAL QUANTITY PER UNIT	ACTUAL COST TOTAL	ACTUAL COST PER UNIT	VARIATIONS DUE TO: ALL CAUSES QUANTITY TOTAL	ALL CAUSES QUANTITY PER UNIT	ALL CAUSES COST TOTAL	ALL CAUSES COST PER UNIT	† DIFFERENCE IN QUANTITY PRODUCED QUANTITY	† DIFFERENCE IN QUANTITY PRODUCED AMOUNT	‡ EFFICIENCY OF OPERATION QUANTITY	‡ EFFICIENCY OF OPERATION AMOUNT	RATES AND ‡ PRICES AMOUNT
DR. GROUNDW'D DECK'D SLUSH	2,000 TONS	.80 TN	57,500	28.75	2,009 TONS	.82 TN	57,758	28.75	* 9 TONS	* .02 TN	* 258	.75	* 40 TONS	1,150	* 49 TONS	* 1,408	.75
SULPHITE PURCHASED	625 "	.25 TN	31,250	12.50	647 "	.26 TN	32,350	13.20	* 22 "	* .01 TN	* 1,100	.70	18.5 "	625	* 34.5 "	* 1,725	
STEAM	25,000 M.LB	10.000	12,500	.50	26,950 M.LB	.0267	13,475	.550	* 1,950 M.LB	* .267	* 975	.50	500 M.LB	250	* 2,450 M.LB	* 1,225	
OTHER CONVER'N COSTS			33,750	13.50			33,687.50	13.75			62.50	* .25				85.00	* .22.70
TOTAL COST	PROD 2,500 TONS		133,000	54	PROD 2,450 TONS		137,271	25.56	* .50 TONS	* .02	* 2,271	2.50	* 200				
OPENING INVENTORY	200 "		10,000	50	200 "		10,000	50									
	2,700 "		145,000	53.75	2,650 "		147,271	28.53									
CR. CLOS'G INVENTORY	100 "		5,375	53.75	25 "		1,325	53.75	* 75 "		* 4,031	.25		* 4,031	.25		
TRANSFRS (MFG. COST SALES)	2,600 "		139,625	53.75	2,625 "		141,093	53.75	25 "		1,469	.75		1,468	.75		
DEPT. GAIN OR LOSS	—		—				* 4,833	.75			* 4,833	.75		* 537	.50	* 4273	.55	* 22.70

BULK MATERIAL GAIN & LOSS

ACCOUNT	BUDGET (MEMO. ONLY) QUANTITY	BUDGET (MEMO. ONLY) AMOUNT	BUDGET (MEMO. ONLY) PRICE	ACTUAL QUANT @ BUD. PRICE QUANTITY	ACTUAL QUANT @ BUD. PRICE AMOUNT	ACTUAL QUANT @ BUD. PRICE PRICE	ACTUAL @ ACTUAL AMOUNT	ACTUAL @ ACTUAL PRICE	VARIATIONS AMOUNT	VARIATIONS PRICE
PULPWOOD	2,300 CORDS	34,500	15	2,470 CORDS	37,050	.15	37,050	.15	—	—
COAL	1,250 TONS	10,000	.8	1,136 TONS	9,088	.8	8,520	.750	568	.50
SULPHITE PURCHASED	625 "	31,250	.50	647 "	32,350	.50	32,967.50	.52.50	* 1,617.50	* 2.50
TOTAL					78,488		79,537.50		* 1,049.50	

DEPARTMENTAL GAINS & LOSSES

DEPARTMENT	TOTAL	QUANTITY PRODUCED	EFFCY OF OPERATION	RATES & PRICES
BULK MATERIALS (PURCHASED)	* 1,049.50			* 1,049.50
STEAM	2,096.25	195 —	1,901.25	
PREPARED WOOD	* 300 —	250 —	* 550 —	
GROUNDWOOD DECKERED SLUSH	1,366.15	81 —	1,285.15	
FINISHED NEWSPRINT ROLLS	* 4,833.75	* 537.50	* 4,273.55	* 22.70
TOTAL TRANSFERRED	* 2,720.85	* 1150	* 1,637.15	* 1,072.20

TOTAL COST OF SALES

ACCOUNT	BUDGET QUANTITY	BUDGET AMOUNT	BUDGET PER TON	ACTUAL QUANTITY	ACTUAL AMOUNT	ACTUAL PER TON	VARIATIONS QUANTITY	VARIATIONS AMOUNT	VARIATIONS PER TON
MFG. COST OF SALES	2,600 TONS	139,625	53.75	2,625 TONS	141,093	53.75	* 25 TONS	* 1,468.75	—
SHIPPING		1,000	.38		975	.37		25	.01
SELLING		4,000	1.54		4,200	1.60		* 200	* .06
ADMINISTRATION		8,000	3.08		7,875	3.00		125	.08
SHUT DOWN		10,000	3.85		12,500	4.76		* 2,500	* .91
DEPARTMENTAL GAIN OR LOSS		—			* 2,720.85	1.04		* 2,720.85	* 1.04
TOTAL COST OF SALES	2,600 TONS	162,625	62.60	2625 TONS	169,364.60	64.52	* 25 TONS	* 6,739.60	* 1.92
SALES	2,600 "	195,000	75.00	2,625 "	196,875	75	25 "	1,875	
PROFIT OR LOSS		32,375	12.40		27,510.40	10.48	—	* 4,864.60	* 1.92

NOTES

* LOSSES (RED FIGURES)

† DETERMINED BY MULTIPLYING THE PRODUCTION VARIATION IN ANY DEPARTMENT BY THE COST PER UNIT OR QUANTITY USED PER UNIT FOR ANY ITEM ACCORDING TO WHETHER THE QUANTITY OR AMOUNT VARIATION IS DESIRED. EXAMPLE: (STEAM) 1950 M. LBS. STEAM X 100 LBS. COAL PER M. LBS (K 2000 LBS PER TON) = * 97.5 TONS AND: 1950 M. LBS. STEAM X $.40 = $780.00

‡ DIFFERENCES BETWEEN VARIATIONS FOR "ALL CAUSES" AND THE SUM OF VARIATIONS DUE TO "DIFFERENCE IN QUANTITY PRODUCED" AND "RATES AND PRICES". EXAMPLE: (NEWSPRINT) GR'WOOD LOSS "ALL CAUSES" * 9 TONS, PLUS 40 TONS GAIN FOR "DIF IN QUANT. PROD." = * 49 TONS LOSS FOR "EFFCY OF OPER." OR: * $1408.75 FIGURED BY THE SAME METHOD IN AMOUNT INSTEAD OF QUANTITY.

* ONLY CALCULATED ON THE LARGE CONVERSION COST ITEMS. (NOT SHOWN IN DETAIL) REPRESENT DIFFERENCES BETWEEN BUDGET AND ACTUAL PRICES MULTIPLIED BY THE QUANTITIES INVOLVED. EXAMPLE: (NEWSPRINT) 454 LBS DRYER FELT @ 6¢ = $22.70

Budget Costs

The term "Budget," as used in this system, means a pre-determined estimate of the cost of doing business for a future period, based upon past performance and anticipated conditions during the period budgeted, against which the actual cost is to be measured. This interpretation of the term is similar to the definition of a Budget as applied to the fiscal operations of municipal, state, and federal governments and should not be confused with the frequently mis-named "Budget" used for prorating expenses equally over a number of accounting periods.

All companies or individuals use budgets in some form, even though they are only mental calculations, in planning their financial operations. This principle may be systematically applied to every operation or activity of an organization as a yard-stick, or attainable standard, by which the actual performance of every department may be measured. The budget should be prepared in advance for a particular period, with the assistance of the departmental heads. A budget, so prepared, is a better standard than the actual costs of previous periods for comparison with current costs, since it anticipates operating conditions for the period involved.

The budget should be an integral part of the general accounting and cost finding systems, thus making it imperative that the budget be maintained. It may be in memorandum form and not "tied in" with the regular system, but this is not recommended since such a budget is often neglected.

Where a budget system is "tied in" with the general accounting and cost finding systems, each department is treated as a separate business which sells its product to other departments or processes. The production is transferred to the consuming departments at a budgeted or predetermined cost and if producing departments are able to manufacture at lower costs, "Departmental gains" will result which will automatically signal the management that they are operating efficiently.

The same accounts may be used as those listed in the Card of Accounts with the addition of a Departmental Loss and Gain Account for each department. Such accounts will show the variations between actual and budgeted costs as a book loss or gain between departments. Since sales govern production, the first step in the preparation of a complete budget is to forecast the volume and value of sales. The production in the various producing and service departments may be pre-determined from these figures.

The next step is to anticipate the quantities and value of "Bulk Materials" necessary to manufacture the pre-determined productions in the various departments. A "Loss and Gain" account should be opened for "Bulk Materials" in which variations based upon the differences between the actual purchase and transfer prices on the actual quantity used is carried, thereby eliminating the price factor from departmental costs.

Having pre-determined sales, production and bulk materials, budgets for each production department in the entire plant may then be prepared with the assistance of the department heads. The budget should be compiled, itemized under the same classifications used for actual costs, and will usually be based upon past performances anticipating all factors outside the control of department heads. They may then be held responsible for the loss or gain in operating their departments. The price of "Bulk Materials" having been fixed and since manufactured products are transferred between departments at budget prices, differences between the budget and actual cost will be due to variations in production, quantities of material, steam and power consumed or manpower used.

The "Loss and Gain" account for each department is charged with the opening inventory and the actual cost of operating, which includes the quantities of Bulk Material, Manufactured Products, Steam and Power at budget prices. It is credited with the quantities of product transferred to the next succeeding process and in closing inventory at the budgeted cost per unit, leaving a difference between actual and budgeted cost representing a "Departmental Loss or Gain." This Loss or Gain is analyzed on the cost sheets, by listing the budgeted and actual cost items in adjacent columns and extending the differences for intelligently studying the operating results. These Departmental Loss and Gain accounts are consolidated at the end of the period in one "Manufacturing Loss and Gain" account, which is charged to Account No. 6006, Total Cost of Sales, and divided between products sold on the basis of the relative Manufacturing Cost of Sales of each. Form No. 60 illustrates the principles described.

The budget system thus briefly outlined is a simple and effective method for controlling the cost of operating, because each department head is given a definite attainable standard, and variations from these standards are forcefully called to the attention of the management without the necessity of studying a mass of detailed figures.

FORM Nº 70

GRINDER ROOM REPORT

DATE _____ TOUR _____ HEAD _____ TAIL RACE _____

LINE Nº	STONE Nº	TIME RECORD: HOURS RUN	HOURS DOWN	CAUSES	PREPARED CORDS USED	TONS PRODUCED	OPERATING CONDITIONS: PRESSURE	TEMP. FRONT	SPEED R.P.M.	% GATE OPEN	H.P.	H.P. PER TON
TOT & AVGE.												

FREENESS TESTS

TIME	STONES 1	2	3	4	5	6	7	8	9	10	11	12	13	DECKER	JIGGS
AVERAGE															

REMARKS

FOREMAN _____

FORM Nº 71

SULPHITE COOKING REPORT

DIGESTER Nº _____ COOK Nº _____
COOK _____ HELPER _____ DATE _____

HOURS AFTER STEAMING	TEMP.	PRESSURE: GAUGE	STEAM	GAS	SO_2
1					
1½					
2					
2½					
3					
3½					
4					
4½					
5					
5½					
6					
6½					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

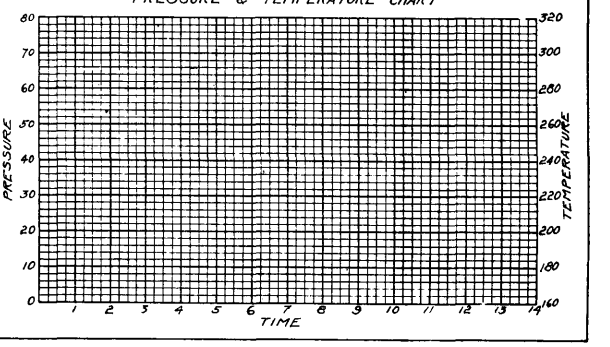
TIME RECORD: OPERATION	HOUR	ELAPSED TIME
PREVIOUS BLOW		
FILLED, COVERED & SOAKING		
SOAKING		
STEAMED		
STEAMING		
BLOWN		
TOTAL		
TIME TO PRESSURE AFTER STEAM ON		

ACID WHEN FILLED

TOTAL SO_2	
FREE SO_2	
COMBINED SO_2	
TEMPERATURE	
LBS. CHIPS OR CDS. PREPARED WOOD USED	
PRODUCTION	

REMARKS

PRESSURE & TEMPERATURE CHART



FORM Nº 72

BEATING & MIXING REPORT

TOUR _____ FOREMAN _____ DATE _____

MIXING & PROPORTIONING SYSTEM

MATERIALS USED	METER READINGS: BEGINNING	END	DIFFERENCE	FACTOR	POUNDS USED	TIME RECORD: RUN	DOWN	CAUSE
GR'D'D DECK'D SLUSH								
SULPHITE " "								
ALUM								
FILLER								
SIZE								
COLOR								

BEATERS & MIXERS

BEATER OR MIXER Nº	DUMP Nº	HOURS MIXED	GRADE	MATERIALS USED: TOTAL	GR'D'D DECK'D SL.	GR'D'D LAPS	SULPHITE DECK'D SL.	SULPHITE LAPS	ALUM	FILLERS	SIZE	COLOR

GRADE SUMMARY

	TOTAL	UNF NEWS	UNF ____	UNF ____	UNF ____
BEATER OR MIXER HOURS					
GROUNDWOOD DECKERED SLUSH					
GROUNDWOOD LAPS					
SULPHITE DECKERED SLUSH					
SULPHITE LAPS					
ALUM					
FILLERS					
SIZE					
COLOR					

FORM Nº 73

PAPER MACHINE REPORT

TOUR _____ DATE _____
MACHINE TENDER _____ BACK TENDER _____ INSPECTOR _____
OPERATING CAPACITY TRIM _____ INCHES SPEED BEGINNING TOUR _____ R.P.M.
ACTUAL AVERAGE TRIM _____ INCHES SPEED END OF TOUR _____ R.P.M.
LOSS IN TRIM _____ % AVERAGE SPEED _____ F.P.M.

REEL Nº	ORDER Nº	WEIGHT	ROLL SIZES: DIA	WID	GRADE	BASIS WEIGHT: F	M	B	AVE	MOISTURE %: F	M	B	AVE	STRENGTH: E	M	B	AVE	FORMATION	FINISH
TOT & AVGES																			

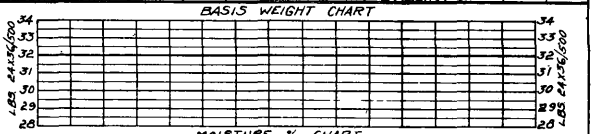
TIME LOSSES

CAUSES	HOURS	%
POWER		
BREAKDOWNS		
LACK OF ORDERS		
OTHER CAUSES		
TOTAL TIME LOSSES		
ACTUAL OPERATING TIME		
SCHEDULED OPERATING HOURS		

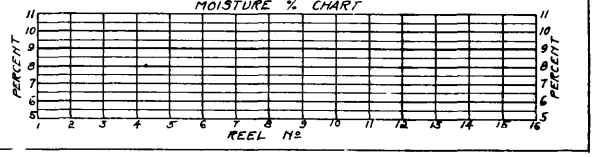
PRODUCTION LOSSES

CAUSES	HOURS	TONS	%
FELTS & WIRES			
WASH-UPS			
CULLS			
BROKE			
TOTAL PRODUCTION LOSSES			
ACTUAL PRODUCTION			
CAPACITY PRODUCTION			
LOSS IN TRIM			
MACHINE CREW EFFICIENCY			

BASIS WEIGHT CHART



MOISTURE % CHART



Operating Control

In large plants, it is impossible for the operating executive to personally supervise every operation, therefore it is necessary for him to delegate authority and responsibility to others. Intimate control over the various departments under these circumstances may be facilitated by the use of regular daily, weekly and monthly reports dealing with the physical operation of machinery; the use of materials, steam and power; the use of manpower, and the volume, quality and uniformity of production. Such reports together with cost analyses, furnish the operating executives with valuable tools for the control of operations.

• Charts may be advantageously used to show operating results, because the graphic method of presentation gives a clearer and more comprehensive mental picture than a statement of tabulated figures. Whenever possible, the current results should be measured against a standard performance curve and used as an incentive for better operation.

MANPOWER CONTROL

Control over the number of men employed in each department may be secured from daily summaries compiled by the timekeeper showing the actual number of men employed or "Man Hours," compared with previous periods or with an established standard for each department. If a comparison is desired between several mills of unequal productive capacities, the "Man Hours" per unit of Production by departments, will give the desired information.

STEAM

The control of the cost of steam in Manufactured Products is divided between the departments responsible for its **generation** and **utilization.** Standard recording instruments, i. e., meters, weighing apparatus, thermometers, gauges, etc., should be used to control the generation of steam in the boiler house.

The original information obtained from these instruments should be correlated and consolidated to determine the operating results.

Form No. 79, Steam Plant Efficiency Report, which is based upon the 1923 A. S. M. E. Boiler Test Code, is recommended for analyzing the results obtained in the boiler house. The "Overall Plant Efficiency Percentage" shows the relation between "Heat Input," i. e., the heat value in the fuel fired, and the "Heat Output," represented by the heat value in the steam generated. There is a definite relation between this "Plant Efficiency" and the "Cost per 1000 lbs. of Steam," because an increase in efficiency will decrease the quantity of fuel burned to generate a specific quantity of steam, and consequently lower the cost per 1000 lbs. of steam.

All steam should be metered to consuming departments, so that each department head, rather than the steam plant, is held responsible for consumption of steam. The efficient or inefficient utilization of steam is measured by dividing the total consumption by the tonnage produced in each department.

GROUNDWOOD MILL

The well recognized statement that "Paper is made in the Groundwood Mill," emphasizes the necessity of controlling quality as well as quantity of production. Form No. 70 illustrates a daily groundwood mill report containing a record of the quality established from regular "Freeness and Temperature" tests, in addition to the usual information regarding the quantity of wood ground and the horsepower used.

SULPHITE

Form No. 71 provides for systematically recording the numerous major elements that influence the quality of product, which is an important factor in the sulphite mill. Standard curves for digester pressures and temperatures may be shown on the chart section of the form to guide the operators during the cooking cycle.

Similar standard curves for control purposes may be plotted on the charts for the recording instruments used in the digester room.

Steam may represent as much as one-third of the total sulphite conversion cost, consequently the quantity consumed should be carefully controlled to minimize waste.

PAPER MILL

A beater room report (Form No. 72) is necessary to record and control the consumption of furnish materials and provide a basis for cost distribution.

FORM Nº 74

MACHINE REPORT

Machine No. ____ MILL ____ Month ____ 192

Date	Actual Operating Hours	Mill Losses in Hours—Due to: Break-downs	Power	Orders	Misc.	Scheduled Operating Hours	Actual Average Speed (Feet)	Actual Average Trim (Inches)	Operating Capacity Trim (Inches)	Actual Production (Tons)	Machine Production Losses: Felts, Wires, Etc. (Hours)	Wash-ups (Hours)	Broke & Cuts (Tons)	Capacity Production (Tons)	Actual Basis Weight (Lbs.)	% Moisture in Paper	Date
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
1																	1
2																	2
3																	3
4																	4
5																	5
6																	6
7																	7
8																	8
9																	9
10																	10
11																	11
12																	12
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21																	21
22																	22
23																	23
24																	24
25																	25
26																	26
27																	27
28																	28
29																	29
30																	30
31																	31
Total																	Total
% Average																	% Average

W O R K S H E E T

NOTE—Total of Columns 1, 2, 3, 4 and 5=Column 6.

FORM Nº 75

Mill ____ PAPER MILL OPERATING REPORT Month February 1925

	MACHINES No. 1	No. 2	No.	No.	No.	No.	No.	No.	Month	Cumulative
1. Scheduled Operating Hrs.	600	600							1200	2400
2. Actual Operating Hrs.	590	580							1170	2310
3. Operating Hrs. %	98.35	96.70							97.52	96.27
4. Mill Loss — Breakdowns %	1.65	1.20							1.43	3.20
5. Power %		2.10							1.05	.53
6. Lack of Orders %										
7. *Miscellaneous %										
8. Total %	1.65	3.30							2.48	3.73
9. Actual Average Speed (Ft.)	620	700							x x x	x x x
10. Operating Capacity Trim (Inches)	146.1	146.8							292.9	291.4
11. Actual Average Trim (Inches)	140.5	143.6							284.1	282.8
12. Loss in Trim %	3.83	2.18							3.00	2.95
13. Capacity Production (Tons per Day)	58.15	66.30							124.45	122.4
14. Actual Production (Tons per Day)	52.37	58.32							110.69	107.1
15. MACH. CREW EFFICIENCY %	93.88	90.14							91.94	90.45
16. Mach. Prod. Loss—Felts, Wires %	1.04	1.48							1.26	2.06
17. Wash-ups %	1.10	1.24							1.17	1.14
18. Broke and Cuffs %	3.98	7.14							5.63	6.35
19. Total %	6.12	9.86							8.06	9.55
20. PLANT EFFICIENCY %									86.73	84.24
21. Actual Basis Weight (Lbs.)	32.12	32.24							32.18	31.95
22. Actual Lbs. per Inch Trim.	745	812							779	758
23. Lbs. per Inch Trim (32 lb. Basis)	742	806							775	759
24. Trim Speed Production Factor	119.5	115.1							117.3	115.3
25. Materials—Sulphite %									28.1	28.6
26. Groundwood %									77.3	77.4
27. Other Fibres %									1.1	0.5
28. Fillers %									0.6	.8
29. Total %									107.1	107.3
30. Moisture in Paper %									9.46	9.21
31. Dry Fibre in Sheet to Dryers %									32.1	31.2
32. Lbs. Steam per Ton of Paper									8467	9110

Special Note*

FORM Nº 76

FELT RECORD

Mill ____ Machine No. ____

Make	Date Received	Felt Number	Style	Size	Weight	Cost of Felt	Put On	Taken Off	Time in Service	Tons Paper Made	Tons Paper Per Unit	Felt Cost Per Ton

W O R K S H E E T

FORM Nº 77

Mill ____ REPORT OF MACHINE CLOTHING AND WIRES Month ____ 192

		MACHINE No.	No.	No.	No.	No.	No.	No.	No.	TOTAL	AVERAGE
WIRES	Number of Wires for Period										
	Total Sq. Ft. of Wires for Period										
	Tons Paper per Unit (Sq. Ft.)										
	Cumulative No. Wires to date										
	Cum. Sq. Ft. of Wires to date										
	Cum. Tons Paper per Unit (Sq. Ft.)										
JACKETS	Number of Jackets for Period										
	Total Lbs. of Jacket for Period										
	Tons Paper per Unit (Lb.)										
	Cumulative No. Jackets to date										
	Cum. Lbs. of Jackets to date										
	Cum. Tons Paper per Unit (Lb.)										
1ST FELTS	Number of 1st Felts for Period										
	Total Lbs. of 1st Felts for Period										
	Tons Paper per Unit (Lb.)										
	Cumulative No. 1st Felts to date										
	Cum. Lbs. 1st Felts to date										
	Cum. Tons Paper per Unit (Lb.)										
2ND FELTS	Number of 2nd Felts for Period										
	Total Lbs. of 2nd Felts for Period										
	Tons Paper per Unit (Lb.)										
	Cumulative No. 2nd Felts to date										
	Cum. Lbs. of 2nd Felts to date										
	Cum. Tons Paper per Unit (Lb.)										
3RD FELTS	Number of 3rd Felts for Period										
	Total Lbs. of 3rd Felts for Period										
	Tons Paper per Unit (Lb.)										
	Cumulative No. 3rd Felts to date										
	Cum. Lbs. of 3rd Felts to date										
	Cum. Tons Paper per Unit (Lb.)										
TOP DRYERS	Number of Top Dryers for Period										
	Total Lbs. of Top Dryers for Period										
	Tons Paper per Unit (Lb.)										
	Cumulative No. Top Dryers to date										
	Cum. Lbs. Top Dryers to date										
	Cum. Tons Paper per Unit (Lb.)										
DRYERS BOTTOM	Number of Bot. Dryers for Period										
	Total Lbs. of Bot. Dryers for Period										
	Tons Paper per Unit (Lb.)										
	Cumulative No. Bot. Dryers to date										
	Cumulative Lbs. Bot. Dryers to date										
	Cum. Tons Paper per Unit (Lb.)										

The paper machine crews are responsible for three major factors that affect the cost of production. These three factors are physical wastes which may be reduced to a minimum through proper control.

1. Machine production losses.
2. Steam losses.
3. White Water losses.

1. The paper machine operation may be controlled by accumulating daily information on Form No. 74. The operating efficiency of each machine and the total of all machines may be determined from these data on Form No. 75, which distinguishes between the machine losses for which the crew is responsible and the time losses which, to a large extent, are under the control of the management. This "Paper Mill Operating Report" is compiled in accordance with the standard code adopted by practically all newsprint mills in North America.

Form No. 76 is a record used to show the life of each wire or piece of clothing removed from a paper machine. It is especially useful in comparing the adaptability of any particular make of wire or clothing on a single machine.

The life of wires and clothing is compared between machines of different widths and speeds by reducing the operating results to "Tons of Paper Per Unit." Form No. 77 is used for this comparison and where paper of the same basis weight is made, the standard unit measures the combined operating effectiveness of the clothing and the wear on felts, etc., due to the condition of the machines.

2. Steam may amount to as much as one-third of the total newsprint paper conversion cost; therefore it is essential that the quantity used should be correctly determined and adequately controlled. The quantity consumed should be analyzed between drying, ventilating and driving prime movers, ascertained from flow meter readings, and expressed in terms of net heat units consumed. These figures furnish a basis for calculating the "1,000 lbs. of steam per ton of paper" which is a measure of the effective utilization of steam by the operating crews.

3. White water losses can be greatly reduced by the re-use of the white water on the paper machines, as well as in the beaters and mixers, by the methods recommended by the Committee on Waste of the Technical Association of the Pulp and Paper Industry.

Samples should be taken from every reel or set removed from the paper machines and carefully tested for moisture content and basis weight. The results of these tests should be compared with established standards to secure uniformity of production. Form No. 73 has been found useful to guide machine crews in maintaining uniform moisture and basis weight by graphically plotting the tests against the standards.

There are many other forms used for controlling operations, varying according to the physical layout of the mill and the information desired by the management. However, the forms illustrated and described are necessary adjuncts to proper operating control and have been adopted by a majority of mills in the newsprint paper industry.

FORM Nº 78

DAILY BOILER HOUSE REPORT

DATE _____

FEEDWATER

	METER READINGS			TEMPERATURES		
TOUR	BEGINNING OF TOUR	END OF TOUR	AMOUNT USED	MAKE-UP	ECONOMIZER	BOILER
1ST TOUR						
2ND TOUR						
3RD TOUR						
TOTAL						

BOILER METER READINGS

	BOILER NUMBER						
TOUR	1	2	3	4	5	6	7
1ST TOUR							
2ND TOUR							
3RD TOUR							
TOTAL							

DISTRIBUTION METER READINGS

	BOILER HOUSE AUXILIAR'S	PAPER MACHINE Nº 1	PAPER MACHINE Nº 2	TURBINE	SULPHITE MILL	GROUND-WOOD MILL	HEATING & VENTILAT'G	TOTAL
END OF 24 HOURS								
BEGINNING OF 24 HOURS								
STEAM USED								

FUEL USED

TOUR	COAL	WOOD	OIL
1ST TOUR			
2ND TOUR			
3RD TOUR			
TOTAL			

BOILERS OPERATED

STEAM PRESSURE

TEMPERATURE OF AIR: IN BOILER HOUSE ____ °F, OUTSIDE ____ °F.

TEMPERATURE OF FLUE GASES: LEAVING ECON. ____ °F, LEAVING BOILERS ____ °F.

_____ STEAM SUPT

FORM Nº 79

STEAM PLANT EFFICIENCY REPORT

Month February 192 5

	Period	Cumulative
1 Steam Pressure (Lbs. per Sq. In.)	147	146
2. Temperature of Steam	520	516
(a) Quality of Steam (Degrees Superheat or % Moisture)	158	151
3. Feedwater (a) Temperature Entering Boilers	250	252
(b) Temperature Entering Economizers	150	154
(c) Increased Temperature Due to Economizers	100	98
4. Flue Gas (a) Temperature Leaving Boilers	560	554
(b) Temperature Leaving Economizers	400	396
(c) Decrease of Temperature due to Economizers	160	158
5. Fuel Used, (as fired) (a) Coal	14,696,700	29,482,000
(b) Wood (Actual Lb.) Equiv. Coal Basis		
(c) Fuel Oil (Actual Lb.) Equiv. Coal Basis		
6. Equivalent Dry Fuel Used (Total)	14,079,439	28,159,880
7 Total Weight of Water Fed to Boilers (Feedwater Meter)	122,544,000	284,651,000
8. Total Weight of Steam Generated (Flow Meters)	117,965,000	238,144,000
9. Factor of Evaporation for Water Entering Economizers	1.199	1.191
10. Total Equivalent Evaporation from and at 212°	141,440,000	271,996,000
11. Equivalent Evaporation from and at 212° per Lb. Equivalent Dry Fuel Used	10.07	9.67
12. Equivalent Evaporation from and at 212° per 10,000 B. t. u.	7.56	7.25
13. Per cent Rating Developed	138	145
14. EFFICIENCY OF BOILER, FURNACE AND GRATE	67.7	67.1
15. EFFICIENCY OF PLANT WITH ECONOMIZERS	73.2	70.3
16. Final Coal Analysis		
(a) Moisture (As fired)	4.25	4.58
(b) Volatile Matter (Dry)	30.90	32.10
(c) Fixed Carbon (Dry)	57.20	54.80
(d) Ash (Dry)	11.90	13.10
B. t. u. per Lb. (Dry)	13,290	13,340
17. Combustible in Ash %	25.18	26.85

REMARKS

All Temperatures in degrees Fahrenheit.
All Pressures are Gauge Pressures.

All Weights in Pounds.
1 Boiler H. P.—10 Sq. Ft. Heating Surface.

FORM Nº 80

COMPARATIVE BALANCE SHEET

ACCOUNT	1925 AMT	1925 %	1926 AMT	1926 %	1927 AMT	1927 %	1928 AMT	1928 %	1929 AMT	1929 %
ASSETS										
CURRENT										
CASH										
ACCOUNTS RECEIVABLE										
NOTES RECEIVABLE										
INVENTORIES										
TOTAL CURRENT ASSETS										
PROPERTIES										
FORESTS										
RIPARIAN RIGHTS										
LANDS										
BUILDINGS										
EQUIPMENT										
TOTAL PROPERTY										
LESS DEPR & DEPL.										
PRESENT PROP VALUE										
INVESTMENTS										
DEFERRED CHARGES										
TOTAL ASSETS										
LIABILITIES										
CURRENT:										
ACCOUNTS PAYABLE										
NOTES PAYABLE										
ACCRUED PAYROLL										
TOTAL CURRENT LIABIL'S										
NET WORKING CAPITAL										
WORKING CAPITAL RATIO										
BONDS OUTSTANDING										
NET WORTH:										
PREFERRED STOCK										
COMMON STOCK										
RESERVES										
APPROPRIATED SURPLUS										
SURPLUS										
TOTAL NET WORTH										
TOTAL LIABILITIES										
STATISTICS										
SALES										
NET PROFIT OR LOSS										
% EARNED ON NET WORTH										
% " " COM. STOCK										
% PROFIT ON SALES										
NET WORTH PER SHARE COMMON STOCK										

FORM Nº 81

INCOME STATEMENT

MONTH ENDING _____

EXPLANATION	MONTH AMOUNT	MONTH PER TON SOLD	CUMULATIVE AMOUNT	CUMULATIVE PER TON SOLD
SALES				
TOTAL COST OF SALES				
OPERATING PROFIT OR LOSS.				
NON-OPERATING INCOME & EXPENSE.				
WASTE MATERIAL SALES				
INTEREST				
DISCOUNT				
INCOME FROM INVESTMENTS				
BOND INTEREST				
TOTAL NON-OPERAT'G INCOME & EXP.				
NET PROFIT OR LOSS				
APPROPRIATED SURPLUS:				
INCOME TAXES				
BOND AMORTIZATION				
PREFERRED STOCK DIVIDENDS				
COMMON STOCK DIVIDENDS				
CONTINGENCIES				
TOTAL APPROPRIATED SURPLUS				
UNAPPROPRIATED SURPLUS				
TOTAL				
STATISTICAL:				
EARNINGS PER SHARE COM. STOCK				
TURNOVER OF TOTAL CAPITAL USED				
TURNOVER OF INVENTORIES.				
COAL				
STORES				
PULPWOOD				
MFD PRODUCTS				

REMARKS:

FORM Nº 82

EXECUTIVE'S COST STATEMENT

COST PER TON OF FINISHED NEWSPRINT SOLD

EXPLANATION	JAN-MAY-SEPT.		FEB-JUN-OCT		MAR-JUL-NOV		APR-AUG-DEC.	
	MO	CUM	MO	CUM	MO.	CUM.	MO.	CUM.
FURNISH MATERIAL								
CONVERSION								
FINISHING								
TOTAL MFG. COST								
SHIPPING								
SELLING								
ADMINISTRATION								
SHUT-DOWN								
TOTAL COST OF SALES								
SALES								
PROFIT OR LOSS ON SALES								
FINANCIAL COST:								
SCRAP SALES								
INTEREST								
DISCOUNT								
BOND INTEREST								
BOND AMORTIZATION								
INCOME TAXES								
PREFERRED STK DIV.								
TOTAL FINANCIAL COST								
NET PROFIT OR LOSS								
STATISTICS								
PAPER MILL								
% OPERATING								
TOTAL TONS PRODUCED								
AVGE. TONS PER DAY								
LBS. STEAM PER TON								
GALS. WATER " "								
AVGE. MOISTURE %								
MACH. CREW EFF. %								
PLANT EFF. %								
FURNISH:								
GROUNDWOOD								
SULPHITE								
OTHER FIBRES								
FILLERS								
TOTAL								
SULPHITE MILL:								
% OPERATING								
TOTAL TONS PRODUCED								
AVGE. TONS PER DAY								
AVGE TIME PER COOK								
LBS. STEAM PER TON								
GALS. WATER " "								
YIELD PER PREP CORD								
GROUNDWOOD MILL:								
% OPERATING								
TOTAL TONS PRODUCED								
AVGE. TONS PER DAY								
H.P. PER TON								
YIELD PER PREP CORD								
STEAM PLANT:								
TONS COAL OR GALS OIL								
" WOOD								
EVAP. PER 10,000 B.T.U.								
OVERALL EFF. %								

FORM Nº 83

FOREMAN'S COST STATEMENT

DEPARTMENT _____ PROCESS _____

FOREMAN _____ PERIOD _____

ACCOUNT	BUDGET COST		ACTUAL COST		VARIATIONS			
	AMT	PER	AMT	PER	TOTAL	PER	PRODUCTION VOLUME	EFF'CY
BULK MAT'LS USED:								
TOTAL B'LK MAT'L								
CONVERSION COST:								
LABOR								
STEAM								
WATER POWER								
ELECTRIC POWER								
REPAIR LABOR								
REPAIR MATERIAL								
SPECIAL REPAIRS								
SUPPLIES								
BELTING								
LUBRICANTS								
PULPSTONES								
WIRES								
MACHINE CLOTHING								
TOTAL DIRECT CONV.								
OVERHEAD								
TOTAL COST								
TRANSFERS								
DEPT. GAIN OR LOSS								
QUANTITY OF MAT'L								
STATISTICAL:								
PRODUCTION								
LBS. STEAM PER UNIT								
H.P.H. OR K.W.H. " "								
MAN HOURS " "								

REMARKS.

The Use of Cost and Efficiency Data

Costs and supporting data are of the greatest value when they are used for the elimination of waste and the reduction of costs. By comparing properly classified information for each period, with standards, budgets or the results obtained in previous periods, efficiency can be determined and faulty operation rectified.

In order to use cost data effectively they should be prepared on statements designed to suit the needs of the individuals responsible for the control of operations. For this reason, cost records are divided into four groups as follows:

1. Permanent accounting records.
2. Statements for administrative executives.
3. Statements for the operating executives.
4. Statements for department heads or foremen.

1. PERMANENT ACCOUNTING RECORDS

The general accounting system, covered by the card of accounts, furnishes a permanent historical record from which all statements and analyses may be prepared for administrative or operating executives and department heads.

The cost sheets or cost ledger are designed primarily from the accountant's viewpoint, but contain all the information necessary to compile the special summaries and analyses described below.

2. STATEMENTS FOR ADMINISTRATIVE EXECUTIVES

Since administrative executives are chiefly concerned with finances and the final results of operating, they need not be burdened with detailed cost statements, unless specifically requested. They should be supplied with balance sheets and profit and loss statements, supported by clearly compiled summaries of the cost of products and operations, all of which should be prepared in comparative form to facilitate the study of the changes in the financial position and the results obtained between periods. Forms No. 80, 81 and 82 are examples of such statements.

Form No. 82 is an analysis of the unit cost of finished product sold, therefore, all cost items should be converted to this basis, regardless of the tonnage manufactured, making it possible to obtain a total cost by a single addition.

Administrative executives are interested in the **overall** profit and loss by products, regardless of accounting theory, therefore the special cost summary illustrated contains a group of items from the general profit and loss statement under the heading of "Financial Cost." Where more than one grade or product is sold, the "Financial Cost" may be prorated upon the basis of the relative manufacturing and selling cost of each to the total of all.

3. STATEMENTS FOR OPERATING EXECUTIVES

Operating executives are interested in causes for good or bad operation of the plant, therefore they should be supplied with complete detailed product and process cost sheets, eliminating only bookkeeping features that are not essential in analyzing results. Statements should be prepared in comparative form, supported, if possible, by charts and by all detailed cost and operating data having any bearing on the results.

4. STATEMENTS FOR DEPARTMENT HEADS OR FOREMEN

Few companies give any information to the department heads or foremen, although they are held responsible for the results obtained. The foremen supervise the expenditure of company funds and are the logical men to help save money by eliminating waste. Their interest is stimulated and more effective results are accomplished when they are supplied with information showing their progress or "Score," compared with a budget, standard performance or with past performance.

Summaries of the forms described under "Operating Control" are recommended for keeping the department heads or foremen informed of their results and in addition, they should be periodically supplied with statements showing the costs for which they are directly responsible. Form No. 83, suggested for this purpose, may be used in all departments. Where the production units are difficult to determine or if the foreman supervises more than one process, his cost sheet should represent a "Room Cost," or con-

solidated cost of all processes under his jurisdiction. For example, where screens, deckers and wet machines are all under the same foreman, the cost for the room in total dollars will give the foreman a better picture of his results than is possible when unit costs for several processes are shown.

The men, and particularly the department heads or foremen, should be taken into the confidence of the management and given all the information regarding costs and operating data that they can use, in the intelligent operation of their department for the elimination of waste and the reduction of costs.

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