

Output,
Inventory
Systems

OUTPUT RECORD

Daily reports are sent in from each grinding and filling department showing complete detail of the output as outlined in the G Department Office System. This information is compiled on grinding slips, Form s B 1 and 2, showing the number of batches mixed, the number of the mill and the number of hours grinding, together with the number of packages filled and the can used. These grinding slips are made out in the office at the same time as the formula is written up and sent out to the department. They are filed in R number order according to departments, thus retaining in the office a memorandum of all R's which are out in the factory. As soon as all work on the R is completed the slip is returned to the office showing any modifications which might have been made, the number of batches which were mixed, the weight per gallon and any stock which might have been left over. These slips should invariably be turned in the day when the run is completed.

The grinding slip which was retained in the office is then taken from the live file and the information contained thereon is checked up with the R slip and the R is then figured. After the R is figured an entry is made on A 22 output card showing the date of the last manufacture of the run, slip number, the number of pounds or gallons in each size package and the cost per hundred pounds or gallons. Also the total cost of material the total quantity of output and the total value of the entire output including packages. This total material cost is entered for the purpose of facilitating the average cost at the end of the year, at which time the total quantity of output is divided into the total material cost to determine the bulk cost per hundred pounds or gallons. The total value of the formula is at the same time entered in the formula value journal book #12 under appropriate headings to distribute these formulas under the same classifications as is shown on G 9 report. The monthly value of output report is thus worked up by taking the total from the output cards for each classification, which total must check with the footings of all R's entered under the corresponding heading in the formula value journal.

The daily output report Form A 1 b is made up from the total quantity as shown on the grinding report and entered in the daily output report book #21 V. The monthly output report is made up by taking the footings of the output on the A 22 card and assembling them under the proper headings on the A 4 output report, which report must balance with the totals of the daily output report book.

A consolidate report of the output and a consolidated report of the value is made up in the General Superintendent's office showing the total output and value for all factories.

The official file of formulas is kept in the office on A 1 c card, a duplicate record being kept in the General Manager's office on A 1 g card. A register of all formula numbers is kept in book #16. As new formulas are made up they are generally written up on an estimate slip Form A 18. The first time the goods are made they are made on an experiment blank. Thus the R number is not assigned until the goods are made in a regular way. When the R number is assigned, proper notification is sent out on the A 1 e slip to the various departments of the Cleveland Factory. At the end of each week a bulletin is issued from the General Superintendent's office showing all Experiment numbers and R numbers which have been assigned during the past week.

LINSEED OIL MANUFACTURE

The flax seed is received in steamers from the Northwest and put into the storage tanks which have a total capacity of about 400,000 bushels. The seed is taken up into these tanks through a marine leg and is not handled except by machinery. In manufacturing into oil the seed is first cleaned by putting through a revolving cylinder covered with wire cloth with oblong mesh. All waste and larger grain is collected at the end of cylinder and is disposed of as screenings. The seed is next taken through a conveyor to a bin placed above the crushing rolls where it passes between five revolving rolls so placed that the weight of each roller rests on the one below and the bottom roller bears the weight of the four above it. From there it is conveyed to a screw conveyor and a chain and bucket elevator into the steam jacketed hopper, which by the use of live steam heats this meal up to 190 degrees which darkens it considerably. The soft cakes are then formed in a camel hair cloth and are put on the plates in the hydraulic press. On top and bottom of each of these plates is a corrugated hair mate. The plates are held in place in a heavy frame by links so placed that they all hang from the top plate. After a cake has been put on each plate the pressure is started with about 500# per square inch. When this pressure is reached it changes automatically to the higher pressure, running up to 3300# per square inch, which continues for 55 minutes. There are six pressings made on six presses per hour, thus the pressure is applied for a little under one hour on each press.

The oil is drawn from the press to weighing tanks, then filtered and pumped to the storage tanks where it is kept for several months. The cakes go to the trimmer and after all soft cake is trimmed from the edges they are packed into bags for export holding about 350#. The output of a bushel of seed is 36# of cake containing 5½ to 6% of oil and 20# of oil. The press room has a capacity of pressing 2400 bushels of seed in 24 hours getting an output of 125 barrels of oil and 45 tons of cake. For this output it requires two outfits consisting of three crushing rolls, one heater, one cake former, six presses and one cake trimmer for the two outfits. This machinery requires a building about 40' x 80'. It requires a storage capacity of about 9000 barrels to care for this output.

These presses are operated by one superintendent who works 12 hours, two shifts working 12 hours composed of seven press men at 2.25 per week, one cake packer 2.25, one engineer - 3.00 for day engineer and 2.50 for night engineer, one fireman at 2.00. In addition to this force there is employed in the day time for ten hours one laborer caring for the seed at 1.85, one cooper at 2.00, one laborer pumping, blowing and boiling oils 12 hours at 2.50, one millwright 10 hours at 3.50, one janitor 10 hours at 1.75, six laborers 10 hours at 1.75, one office clerk 10 hours at 1.50 and one night watchman 12 hours at 2.10. There are also six other men employed in the work of refining oils and making Black Varnishes who are not included in the above complement of 34 men which is the entire force necessary to run the mill for 24 hours.

COLD PRESSED OIL

In the manufacture of Cold Pressed Linseed Oil the whole seed is fed into the press. This press consists of a broken worm inside of a cylinder made of chilled steel bars with a very narrow slit between the bars. The cake is worked against a plug in the end which adjusts the pressure. The oil cozes out between the bars and is collected in a trough. The cake works out of the end. The power is applied to these presses through a tight and loose pulley run from a line shaft requiring about 7 to $7\frac{1}{2}$ H.P. per press. A pressure of about 10,000# per square inch is attained. The output per press is about 150 bushels of seed in 24 hours. The yield is $7\frac{1}{2}$ barrels of oil averaging from $17\frac{1}{2}\%$ to $18\frac{1}{2}\%$ of oil per bushel. The cold pressed cake contains 12 to 14% of oil.

These presses occupy much less floor space than the pot presses, requiring a space of about 15' long by 10' wide. In a building 50' x 90' there will be a capacity for 36 presses. The outfit just installed consists of two small rolls, 10 presses and heaters combined which will give an output of from 75 to 80 barrels of oil in 24 hours, it requiring only one man to operate these 10 presses on each shift. This newer press requires that the seed be warmed slightly to about 140 to 160 degrees after the seed has been crushed somewhat. The heaters are open and are a part of the presses. Through its use a much better yield can be secured, getting 20% of oil per bushel and leaving 17% of the oil in the cake.

The particular advantage in the cold pressed oils is that the cake is not discolored and consequently both the cake and oil are very much lighter and the oil can be heated up to the flash point of at least 800 degrees without any sign of breaking.

In the manufacture of blown oils this cold pressed oil also takes up more body than the hot pressed. It can be readily bleached through the blowing process, making a very fine bleached oil for use in white paints.

BLOWN OIL

Our blowing tanks hold about 60 barrels and are 7' diameter and 10' high. These tanks were originally intended for storage tanks and we are only able to blow about 20 barrels to advantage. A shallow tank preferred.

Steam Coil - Square coil made from 1" pipe and 10 coils high. Use live steam.

Air Pipe - We took a 2" pipe and ran it within 2" of bottom of tank, plugged the end and drilled 20 - $\frac{1}{8}$ " holes at the extreme end.

Put in 20 barrels of (197) or (2), a much lighter and clearer oil can be made with (197). Turn on steam and air heating to 140 degrees. Turn off steam and watch carefully to see that it does not run higher as excessive heat will darken the oil. When the oil is once heated it requires very little steam to keep it warm enough. If temperature rises while steam is turned off the air should be stopped until sufficiently cooled. It takes about 300 hours to make (213) from (197).

BOILED OIL

Tank holds about 60 Barrels and is 7' diam. by 10' high.

Steam and Air Coils - Same as for Blown Oil

We pump 41 barrels of (2) into tank, turn on steam and heat to 180 degrees (10 or 20 degrees more will not hurt it) then add 5% of (5) which has been previously heated to about 180 degrees. The air is then turned on to thoroughly mix the oil and drier and is continued until all taken up which will be in about one hour.

The boiled oil will be much improved if allowed to settle a few weeks before sending out to customers.

LITHOGRAPHERS VARNISH

This can be made from (43) or (197) - Cold Pressed. *Cold pressed much preferred.

When made from (197) the varnish is much clearer and lighter in color. We have sent out both kinds and have good reports on both so that I think it is immaterial which one is used. "The British Oil and Cake Mills", London, have bought some of the Anderson presses which are now running so that you may be able to get the same quality of oil from them as used by us.

We put 125 gallons of (43) or (197) into a copper kettle. Put it on the fire and run it 590 degrees as soon as possible, take from the fire a few minutes and if temperature does not raise put on the fire again and let it go to 600 degrees. Take it off the fire and let cool to 560 degrees and hold at that temperature until the desired body is obtained. We do not burn our oil at present. When we did burn our Litho Varnish it was heated at least to 560 degrees when we put a lighted stick into the oil, if it does not take fire then we run it higher until it does but not above 600 degrees unless (197) is used. It may take a few degrees higher heat. It will burn with a blue flame for 3/4 of an hour when made from (43). When the flame grown yellow and stronger a cover should be put on the kettle and left for a short time. If (197) is used the oil cannot be burned much over fifteen minutes. In making the heavy Nos. 4 and 5 which cannot be made in one day, care must be taken to have it off the fire an hour or so before quitting time, stirring it continuously so that it will not rubber in the kettle over night.

* 1/16 Mr. Carson says he had trouble with (197) burning up.

Bulletin No.

July 6

1906

Subject YEARLY INVENTORY

For H. W. R. R. R.

The method to be pursued in taking the inventory at the close of each business year is as follows:

- 1 The inventory will be taken on the morning of Sept. 1st, and all business up to and including August 31st, is to go into the year's accounts.
- 2 At some time within the week before the inventory is taken, one of the small A-26a blanks should be made out for each item of goods in stock- one lot only to each slip. (Case goods should be counted and tagged at least two weeks prior to taking of inventory). If any goods are removed from the lot after the slip is made out, a correction must be made on the slip accordingly.
- 3 On the morning set for taking of inventory, these slips must be carefully checked as to quantities, sizes and Rx No's and collected by one of the office staff working with the foreman of the department.
- 4 When collected, sort up the slips in Rx number order and enter the particulars on the A-26 Inventory sheet.
- 5 In collecting the A-26a Inventory slips, see that:
 - A slip is taken for each lot of goods.
 - No goods are missed.
 - No items duplicated.
- 6 Preserve the A-26a slips until October 1st, for reference in case of questioning.

In writing up the A-26 Inventory sheets:
- 7 Write but one item on each line of the sheet and leave one blank line between Rx numbers.
- 8 Separate the different classes of goods; one class to a page, or leave several blank lines before starting another classification.
- 9 For paste Paint, O.D. Colors, Leads, etc., specify the kind of package as well as size, whether P.C., cans, pails, kegs, etc.
- 10 Keep Rx's in numerical order and keep the varnish numbers separate from and following the paint numbers.
- 11 Make but one entry for all lots of the same size package where they belong to the same Rx number.
- 12 Show smallest size packages of each Rx first; if there is no stock of any size, do not omit, but mark "Out".

Forward

GENERAL ACCOUNTING Department

Bulletin No.

July 6, 1906

Subject YEARLY INVENTORY (Continued)"2"

For

- 13 For quantity on Paste Paints, show both number of packages and pounds.
- 14 For quantity on Liquid Paints, Half Goods and Varnishes, show only number of packages - except for barrels and half barrels, when total quantity in all barrels or half barrels must be shown. Individual gauges are not required.
- 15 All tubes must be shown in packages and not in pounds.
- 16 Leaky packages and unsalable stock are to be shown as if in good condition, and repaired and taken care of after inventory. Such goods positively must not be returned to factories until after inventory.
- 17 Number all sheets consecutively and fill in all headings - marking the final sheet "Last sheet."
- 18 The initials of the parties writing up, checking, pricing, etc. these sheets, must be shown in the lower left-hand corner as provided for.
- 19 Goods in transit should be entered exactly as on the memorandum of shipments you receive.
- 20 Unmanufactured goods should be inventoried separately, and must be priced.
- 21 In pricing, costs on manufactured goods should be stated at the nearest 10, i.e. \$19.83 would be priced \$19.80; \$9.98 would be \$10.00 and so on; raw material, and all unused supplies of a present marketable value. These must be priced at cost before being sent in.
- 22 Inventory separately all raw materials, and such items as fuel, packing materials, and all unused supplies of a present marketable value. These must be priced at cost before being sent in.
- 23 In making up the final expense report for the factories, only such packing materials and supplies as have been used will be taken into consideration, or in other words, the amount of the inventory will be deducted from the total charges for the year.

[Factory Supts. should try to keep as much as possible of their sundry supplies in the store-room account, leaving little, if any, outside of store-room or distributed around the factory needing to be inventoried].
- 24 Divisions (and Factories, so far as they have such items) will inventory their unexpired building or Warehouse Rent, Insurance, Taxes, Telephone Rental, and any other items of similar expense which have been paid but are not entirely expired. Likewise, if there are items of that class due to be paid at the present or some future time, they must be charged to the proper accounts in August and credited to a personal or suspense account until the bills are received and paid.

Forward

GENERAL ACCOUNTING Department

Bulletin No.

190

Subject YEARLY INVENTORY (Continued) "3"

For

- 25 Divisions must take complete inventories of all Advertising and Stationery stocks, postage stamps and other items of expense for the purpose of verifying or making necessary adjustments of those items on their 39-X General Expense Reports and 39-C Consolidated Expense Report. (See Accounting No. 4*.)
- 26 Unused Lunch Room supplies and provisions will not be inventoried, as they are of too small and transitory a value to be taken into account.
- 27 Every possible effort should be made to have no more goods in transit at inventory time than is absolutely necessary, although stocks should not be allowed to run down too low. In many previous years the Manufacturing Dept. at Cleveland has been considerably inconvenienced on account of the many rush shipments ordered immediately after inventory.
- 28 It is better in compiling these A-26 sheets to have them typewritten, that a carbon copy may be taken and kept for reference after the original sheets are sent in here. The carbon copy should, however, be on plain paper, and not on Inventory blanks.
- 29 We request that all possible care be used in writing up the sheets so that it may not be necessary for us to correspond about doubtful entries, and also request that every effort be used to forward the sheets at the earliest possible moment - mailing them by special delivery, addressed to the Auditor personally.
- 30 If these instructions are carefully followed, it will enable us to compile the inventory in a uniform manner with the least amount of labor and in the shortest possible time.
- 31 A-26 and 26-a Inventory forms will be ready for distribution about July 15th and all requisitions should be sent to the Dept. of Publicity by that date for whatever quantity is required.
- 32 ALL Factories, Divisions and Depots should, by August 10th, see that they have received the necessary inventory sheets and slips, so that they will not find at the last minute that something is lacking in their preparations.
- 33 The various depots will be supplied with forms as follows:
- | | |
|------------------------|----------------------------|
| Buffalo and Cincinnati | By Central Division |
| Minneapolis | " Chicago Factory Supt. |
| Savannah | " Newark " " |
| Dallas | " Southwestern Division |
| Portland | " Central Pacific Division |
| San Diego | " Southern " " |
| Toronto & Winnipeg | " Montreal Factory Supt. |

Forward

GENERAL ACCOUNTING Department

Bulletin No.

190

Subject

YEARLY INVENTORY (Continued) "4"

For

- 34 Divisions having local distributing stocks, such as the Central Division at Detroit and Pittsburg, the Middle West Division at Omaha and the Southwestern Division at Salt Lake City will see that the inventories are furnished on the regular sheets in the same manner as for ~~anxious~~ stocks in warehouses. These inventories should be carefully checked in the Division offices before sending to the General Accounting Dept., and must reach that Dept. ~~before Sept. 5th. Be especially careful of goods in transit to such points.~~
- 35 When the figuring of the inventory has been completed, the amount of freight paid on the goods in stock at warehouses will be figured and advice given each division so that they can deduct from Transportation expense and carry forward to the next year's Transportation account the portion of that account covering goods remaining on hand at time of inventory.
- 36 It has been possible for most of the warehouses, during the past two or three years, to mail their sheets complete on the days the inventory is taken, and all should, therefore, be particular to mail their sheets early, as all the Cleveland figures will be compiled by the night of Sept. 1st., and the General Accounting Dept. will be ready and waiting for the sheets from the other warehouses on the morning of Sept. 2nd.
- 37 We desire each year to establish a new record on inventory work, in both accuracy and speed, and although the present record is an excellent one, it can be beaten and everyone should do the best he can towards the accomplishment of that result.
- 38 The 1904 Inventory covered 840 sheets, with from 25,000 to 35,000 items and represented ~~some 1500 hours' work on the part of the office staff and comptometer operators.~~ It was started on the 1st of September and completed on the 10th, requiring ten days; the 1905 inventory covered 901 sheets and was finished by Sept. 7th, three days better than the previous year.
- 39 You can appreciate what it would mean in this work if all the warehouses did not respond generously with their support in getting the sheets to Cleveland promptly and correctly, and you are looked to for the same hearty co-operation rendered in the past.
- 40 Any points not sufficiently clear, will be explained in greater detail on request addressed to the General Accounting Dept.

W. J. Dangle

INVENTORY SYSTEM

No later than July 1st all blanks which will be required for the inventory work should be ordered. These should be in the Factory Office no later than the 1st of Aug. and better by the 15th of July. At some date from the 15th of July to the 1st of Aug. a bulletin should be written to each warehouse setting the exact date to take the stock. This bulletin should outline the method of taking inventory in detail so as to insure all reports coming to the office in uniform manner. The attention of the warehouses should be particularly called to the fact that the stock should not be allowed to run away down below the limit on account of inventory and precautions should be taken to not have any more goods in transit at inventory time than are absolutely necessary. The matter of distributed stocks at other warehouses should be carefully looked into and definite arrangements made to report these stocks. Next all of the A9a cards should be prepared, making out one card for each item which has been manufactured during the year for the purpose of consolidating all inventories.

The A 9 sheets should be written up showing the last year inventory in the first column. These are used later to compile the information about manufacture at different factories, inventory at the end of the year and the sale. The average costs for all manufacture up to Aug. 1st should be figured. These must all be completed by the 25th of Aug. It will require about 100 hours work for the costs of 2000 formulas. All average costs for varnishes filled must be figured as well. The average cost book should be written up with the R numbers and names so that after the first of the month it will be necessary to merely write in the costs for the full year. Arrange definitely to have all of the package additions used at the other factories so as to have all necessary information when figuring the average costs. The A 22 Output Card, B 16 Stock Card, A 25 Pay Roll Cards and all other such card systems for the new year should be prepared before Sept. 1st.

Arrangements should be made for the services of a sufficient number of comptometer operators to figure the inventory. The work will require the services of three expert operators who should start work on the 1st as experience shows that their best output is about four complete sheets per hour. This includes the extensions and footing and checking of both.

Definite arrangements should be made to get all of the work which can be completed before the 1st of Sept. done before that time. It is particularly true of the Returned Goods records of Cleveland and the other factories, which is likely to be overlooked. A short time before the 1st of Sept. a memorandum should be made of all items which have just been received and not yet invoiced and the Purchasing Dept. should make particular effort to get all such invoices in promptly. It is well to see the foreman of every department and arrange to get all R's turned in very promptly, cleaning up at that time all that is possible.

About the 15th of Aug. the A 23 a inventory slips should be sent out to the different departments in the factory and it is well to see each foreman personally and instruct him as to just how the detail of the inventory should be handled. Also arrange definitely for the taking of the sundries in the G.O.

Now that these preliminary instructions have been issued the office force should be well organized. All vacations should be finished before Sept. 1st if possible or if not, none should be allowed until the latter part of Sept. It is not well to have too many clerks away on vacations during the month of Aug. It should be arranged to get as much assistance as possible from the department clerks. The office force should consist of somewhere from 16 to 20 clerks in addition to the comptometer operators. The extra time which applied on this inventory work should begin the night before taking inventory and should be definitely arranged that this work should continue until 10 oclock, the ladies all to be excused at 9. This extra work must extend over Saturday afternoons and on Labor Day. This night work should not be continued any longer than is absolutely necessary and at the earliest possible moment it should be stopped altogether.

In the taking of stock the most satisfactory method has been found to definitely arrange to have all stock of manufactured goods counted and ready late in the afternoon of Aug. 31st. Four clerks will be able to collect all slips for manufactured goods between 4 and 5:30 P.M. These slips should be sorted up and entered on the A 9 cards at once and it will be possible for the force to get almost all of them entered that evening. The next morning (Sept. 1st) at least six of the best clerks should take the stocks in all departments. This should take from 15 to 20 hours of work, thus taking all stock of manufactured goods and raw materials in from 20 to 25 hours. A definite plan can be arranged for the clerks to meet the foremen at a certain definite hour. During this time the Chief Clerk should remain in the office to be able to direct the force in the office and to handle the material just as soon as it comes in. Particular effort should be made to get the information on these slips transcribed to the A 26 sheets or the A 9 cards at the earliest possible moment so that all items may be checked before the stock has been disturbed. It is also very important that all of this Cleveland stock be written up in permanent shape by the night of Sept. 1st so as to have this mass of papers out of the way at the time when the sheets begin to arrive from the other warehouses, which will be at least on the morning of the 2nd. The stock from the Store Room and Mechanical Dept. should be written up complete on the A 26 sheets by the department office. The pricing of these A 26 sheets should also be done immediately and enough sheets of manufactured goods should be priced on the night of Aug. 31st so as to have something for the comptometer operators to start on when they report on the morning of the 1st.

In pricing the inventory the cost should be reduced to the nearest even 5 or 10 to get even figures, thus: Cost \$19.98 should be priced \$20.00 - Cost \$19.33 should be priced \$19.80. All stock at the warehouses should be priced with the cost of the factory supplying them, thus: Boston stock would be priced at Newark costs. The cost to be used for the other warehouses should be decided upon before the 1st of the month and average costs on all goods manufactured at other factories should be reported to Cleveland office no later than the 25th of August. When the inventory at each warehouse is figured an item should be added to the total covering the cost of freight shipping this stock to the warehouses.

As the work is progressing the initials of each clerk working on a sheet should be noted in the space provided for this purpose. Care should be taken that this is not overlooked on any sheets from the start. Every sheet should be approved personally by some one in authority. (Proper space should be provided on the sheet for - Approved ----- This did not appear on 1904 sheets.) As soon as the sheets are priced and entered on the A 9 cards the A 9 cards should be footed and entered on the A 9 sheet. This work should be crowded forward as rapidly as possible as it reveals any errors which may exist and these must be settled promptly so as not to delay the closing of the inventory. Where ever necessary it is worth while to get any doubtful entry explained by telegraph.

The taking of inventory requires about 9 days work. In 1904 it required six clerks 20 hours to take all stock in the Cleveland Factory. It required about 725 hours on the part of 16 clerks to compile all of this information on the sheets. The figuring was done in 225 hours by three comptometer operators. The work covered 840 sheets representing from 25,000 to 30,000 items. It was started on the 1st of Sept. and entirely completed on the 10th, requiring 9 days. In order to accomplish this it requires the close concentrated effort of every one connected with it until it is completed. Everything possible must be prepared before the 1st of Sept. so that nothing which might have been finished before that time remains to be done. With a good organization and the right kind of energy put into the work, the inventory can be completed without exhausting the office force. As soon as it is complete the same energy should be continued on the annual work which should require perhaps seven or eight days longer. By organizing this part of the work and setting a definite date for the completion, all of the inventory work and most of the annual work can be completed in two weeks time with the entire force. After that time it may require another week or perhaps a little longer on the part of half a dozen of the best clerks working, say Monday, Tuesday, Thursday and Friday nights. It will be found difficult to keep up the interest in the annual work after the inventory is finished, though by setting a definite date for the completion of this work the interest can be kept up and the night work stopped earlier.

As soon as the inventory itself is completed the sales and output, A 9, should be finished up at the earliest possible moment. The output records from the Newark and Chicago factories should be received in this office no later than the 10th or 12th of the month. This information is then transferred to the Cleveland output record cards and the average cost on the entire manufacturing at all factories figured. The Newark and Chicago output cards should be returned just as soon as possible. It is quite important that the average costs be finished promptly so that the statements showing the costs compared with the selling price can be completed by the 1st of Oct. In order to do this the statements showing the lists and selling prices should be received from the Sales Office no later than the 15th of Sept. At this same time the statement showing the packages filled in each department should be compiled for use in figuring the filling expense on the General Expense Sheets. In compiling this statement particular care should be used to balance each line with the output report carefully as the work is proceeding. A statement showing the net cost of manufactured goods sold should receive prompt attention. This necessitates the early completion of the Returned Goods Record from Cleveland and other factories. Work on the General Expense Sheets should be begun promptly and they ought to be completed by the 30th of Sept. The new system of G.S. reports renders this very much easier than it has been in the past. The package additions ought to be finished by the 30th of Sept. as should the consumption of raw material. This makes it possible to start figuring limits on raw material and manufactured goods by the 1st of Oct. The A 9 sheets showing the sales of manufactured goods and the A 9 a cards should now be carefully checked over by the stockkeeper with some competent clerk, the manufactured goods limit made up and the overstock carefully put on record and disposed of as much as possible.

Pay 1211
System

THE SHERWIN-WILLIAMS CO. RULES

Governing Time Keeping of Factory Employees.

In Effect February 1st, 1901 - Revised December 6th, 1904.

Rule I -

The time-keeper will be required to be in his office at 6:00 A.M. each day, and remain until 6:30 A.M.

Rule II -

The time-keeper will not be permitted to hand out or receive any time cards to or from any employee of The Sherwin-Williams Co. except the one bearing the number upon the pay-roll assigned to that employee. The only exception to this rule would be in case of accident or sudden illness where it would be impossible for the employee to hand in his or her card.

Rule III -

When the time-keeper leaves his office he will take with him to the Factory Office all time cards not already given out and all employees coming in late will be required to apply there for time cards.

Rule IV -

The time-keeper will be required to be in his office from 5 P. M. to 5:30 P.M. each day except Saturday, when he will be there from 11:30 A.M. to 12 M., to receive and properly stamp the cards as they are turned in each day. He will then redistribute and place them in the boxes or pigeon-holes assigned to the different departments of the factory so that they may be secured by the foremen of these departments as they come in the following morning.

Rule V -

The time-keeper will not enter any time on the pay roll until the cards are approved by the foremen of the departments and by the Superintendent.

Rule VI -

The time-keeper will not enter any over-time on the pay roll except such as is recorded and turned in on regular "Overtime" cards. FRACTIONS OF HOURS, except such as may be approved as overtime, will not be allowed.

Rule VII -

Employees leaving the factory for any cause before the day's work is completed, will be required to get permission from and turn in their time cards to their foreman, who will mark the time turned in, approve and send such cards direct to the desk of the Superintendent, with explanation.

Rule VIII -

Employees entering the factory late will lose one hour, and persistent tardiness will be deemed sufficient cause for dismissal from the service of The Sherwin-Williams Co.

Rule IX -

No overtime will be allowed except such as may be absolutely necessary from time to time, and for the best interest of the Company. "Overtime Cards" will be provided for the foremen of each department.

Rule X -

The periods of pay will close on the evening of the 15th and the last day of the month and the pay day will be on the 17th and 2nd of the month. When the 15th or the last day of the month falls on Saturday it will require the following Monday and Tuesday to make up the pay roll and at such times employees will be paid on Tuesday evening.

PAY ROLL SYSTEM

For each employee entering the service of this Company, a notice of the employment is sent to the Factory Office on Form 47 Hx showing the complete information about the residence, occupation, rate per hour, etc., of the new employee. This name is then entered on a card index which is used as the directory of all employees. A check number is assigned to this new employee and the name is then entered on the pay roll card Form A 25.

To record the time worked by all employees a time card is used having different blanks for different departments - E 5 - E 6 - E 7 - E 8. A time card for every employee is made out and sent to the timekeepers office the last thing each afternoon. In the morning as the employees come in, each card is stamped with a time stamp to show the time the employee has entered. After the starting time such cards have not been called for are recorded on the daily report of employees absent and tardy which is used as a basis for our Promptitude Report system. These time cards are filled out by the individual as explained further in the cost basis, distributing the time to the material worked on. As the employees pass out in the evening these cards are left in the timekeepers office and are again stamped with the time out.

The cards for each department are then assembled and are given to the foremen the first thing the following morning. They are then approved by the foreman and returned to the Factory Office promptly. All piece work is carefully checked up with the department reports and the time is then entered on the pay roll card, distributing it between the various service accounts and showing the total amount of pay for that day.

The pays close on the 15th and last days of the month and the pay day is invariably two days after that. Nothing is ever allowed to interfere with the regularity of the pay day and the only case in which it is more than two days after the close of pay would be that if the pay closed on Friday night or just before a holiday, it is three days after the close as it requires a day and a half or two days to make up the pay roll. If the pay closed on Thursday the pay day is invariably Saturday at noon.

In making up the pay roll the A 25 card is first footed and the footings carefully checked. The comptometer is not used for this. Two sets of pay envelopes, Form 30 b are then written up showing the check number and the date and on one set the gross amount of pay. At the same time the pay roll receipt is written up on Form 37 b. To determine the total amount of the pay roll the A 25 cards are footed on the comptometer, classifying for each department, recording the total for each department on Pay Roll Summary Form A 24. These totals are checked by footing the amounts shown on the pay roll receipts on the comptometer in the same way. These two footings must balance showing that the work is correct. Next the pay receipts are enclosed in the set of envelopes showing only the check number, comparing the amounts with the amount shown on the other set of pay envelopes.

Next the amount of benefit dues is entered in the ledger for recording these, two clerks working together, one calling the total amount of the pay from the envelope, the other calling the amount of dues (1% of the wages up to \$10.00 per week or half pay roll period) in this ledger back to the first clerk who notes this amount of dues on the pay envelope, there being no other receipt made. All charges for paint, store room items or any other charges against any employee are noted on the envelope. These various deductions are then taken from the gross amount of pay to determine the net amount of cash to be paid to each individual. The total amount of charges of various kinds to all individuals is deducted from the gross amount of the pay roll to determine the net amount of cash to be paid. The net pay to each employee is then checked up against the net total and on balancing it proves that there has been no errors in making up the roll. The pay envelopes are then sent to the cashier who puts the cash into the envelopes, making the total amount of cash put up balance with the Pay Roll Summary statement Form A 24. A few minutes before closing time the pay-master gets the envelopes from the cashier, taking them to the time office to be prepared to pay off the moment the factory closes. The workmen present their receipts, Form 37 b which they have signed, to the pay-master who compares the check number and amount with the pay envelope and gives the envelope to the man. This method of paying has proven eminently satisfactory and through its use the pay-master with one assistant, can pay off without the slightest difficulty 100 men in 5 minutes

Immediately after the pay it is the duty of the pay roll clerk to distribute the amount of service to the various accounts and to write up a Form A 25 b for each department which shows the check number, name, hours worked, the total amount paid and the amount distributed between the various accounts at which the man worked. The first and second pay are both shown on the same sheet. At the end of the month the amount of monthly pay is added to determine the total paid to all employees in each department. This also shows the number of employees in the department and the average rate of wages per hour. From this is made up a summary report of wages, Form G 23. The total of the A 25 b pay roll statement is assembled in the old pay roll journal book now void to determine the total amount of service to be charged to each service account. From this is written up the monthly Service Report, Form A 17 a showing the total for the month, year to date and last year to date.

When an employee leaves the service for any reason a notice of this dismissal is sent to the office on Form 47 Hx showing the date and cause for dismissal or resignation. These are filed in the pay roll clerks desk in date order. The directory card is then taken from the file of present employees and put into the file of past employees. The pay roll card is taken from the cards in use and put into the file in alphabetical order, care being taken to keep all cards for each individual together in date order, thus making a complete record of all information regarding each employee on a few cards, requiring only two cards for a years record. This file is consulted at the time when making any adjustment in wages and presents the employees record in the most condensed possible form.

MONTHLY REPORT OF PROMPTITUDE & ATTENDANCE

A very careful record is kept of the Promptitude & Attendance of all factory employees. Every morning just after starting time the timekeeper makes up a list on Form A 19 showing the men who have not called for their time cards. These names he can readily determine from the fact that the time cards which had been numbered the day before had not been called for. This list is then sent to the Superintendent thereby giving him immediate advice of the men absent or tardy in each department. This report comes back to the timekeeper during the day and he then finds out from the foremen the cause of the tardiness or absence using the following letters to designate the various reasons:

T	Tardy
AX	Absent-excused
S	Sick
H	Hurt
LO	Laid off
Q	Quit

Each day this report is drawn off on Form A 19 and thus compiling all of the information for the month. Promptly on the 1st of the month the figures are compiled in the following manner:

The number of actual working days in the month (deducting Sundays and Holidays) is figured. Then is figured the number of days each man appears on the pay roll. In case a man is discharged or laid off before the end of the month or his employment does not begin until during the month some time, only the exact number of days during which his name was on the roll is used. In this way the correct possible number of working days for each department is determined.

Next is figured the percentage of attendance by deducting from the possible days worked the number of days missed on account of absence. This shows the actual days worked which is figured as a percentage against the possible days. The actual days worked is then taken as the basis for figuring the promptitude report. The number of cases of tardiness are deducted from the actual days worked and thus is figured the percentage of promptitude. Note - this is figured against the actual days and not the possible days worked. This information is shown on Form A 19 b. For the benefit of the men a copy of this report is sent out by the Superintendent showing the order in which the department stands each month and all of the data regarding the number of men late, percentage, etc. This report is pasted up on the bulletin boards by the foremen for the general information of the workmen.

A consolidated report is made out in the General Superintendent's office on Form A 19 c showing the record of all factories. The promptitude of the employees in all of our factories is something remarkable. This has been attained largely through the use of this report. During the past year our record has never fallen below 98% in all factories and almost every month was over 99%, June 1904 being 99.4% of promptitude for 12403 working days. A record of the office people and foremen is kept on a Bundy time recorder and compiled on an A 19 b blank.