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NATIONAL ASSOCIATION
of
COST ACCOUNTANTS



Official Publications

Vol. II

JULY 15, 1921

No. 17

Coal Production Costs

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130 WEST 42nd STREET, NEW YORK

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BUSH TERMINAL BUILDING
130 WEST 42ND STREET, NEW YORK CITY

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**NATIONAL ASSOCIATION OF
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JULY 15, 1921

National Association of Cost Accountants

COAL PRODUCTION COSTS*

Up until a few years ago the accounting systems of the majority of the coal operators of this country were extremely crude, and in many cases practically worthless. Very few of the smaller operators knew what it cost them to produce coal. They did not know whether they were making money or losing money until the end of the year, and then only by the increase or decrease in assets over liabilities. Unfortunately, in a great number of instances, the liabilities were greater than the assets, and as a result a large proportion of the coal companies of this country have gone through some form of financial reorganization. Up to about 1916 the majority of them were practically in the hands of their bankers. They had to have money to meet payrolls, and in order to get money they had to sell coal. As a result, the buyer, in many cases, got the coal at his own price and on his own terms.

Another prevalent idea among the operators in those days was that it was cheaper to run at any price than to shut down. It is unquestionably true that there is a certain amount of expense in connection with closing down a mine. This expense depends largely on the amount of pumping that has to be done, the amount of ventilation, physical conditions such as bad roof, the supports of which must be looked after constantly, and similar items. If this expense of closing down the mine temporarily, which has been estimated to vary from 10c. to 40c. per ton on the average daily output, is greater than the loss per ton incurred by running and selling at a low price, then it is less costly to run than to close down. The class of operators referred to above, however, had no means of knowing which was the less expensive course to pursue. They did not know what their goods cost them and in quite a number of cases they could not even make an estimate. There have been operators whose only method of figuring cost was to take the mining rate,† add 50% to it and call the result cost. This method, of course, was ridiculous then, and is still more so now, but fortunately, I do not believe that any operator today is so short-sighted as to follow such a method.

*This article is based upon a paper read before the Pittsburgh Chapter.

†The mining rate is the rate per ton paid to the miner for cutting and loading coal.

DEPARTMENTAL USES OF COST DATA

In the management of a coal producing business there are three departments which need and should use the information supplied by a proper accounting system, and the needs and uses of the two departments of lesser importance must give way to the needs and uses of the one of prime importance. To my mind the department of prime importance is the operating department. An operating department which does not have the proper information is absolutely at sea. The head of the operating department may know that his product is costing too much money but he cannot put his finger on the leak. The only way that he can gather any information is through conversation with his foremen, or possibly the mine superintendent. These men are nearly all practical men, and as a result of their training and experience are prone to discredit figures and to rely on personal observation when they have to make decisions. Moreover, superintendents and foremen are not alone in taking this view. Many operators in this country are practical men who have come up from the ranks and who know the operating game from start to finish. It is always hard to convince such men that figures are more reliable than their own judgments. There have been many instances when practical men have positively refused to believe figures which were presented to them, although the figures were susceptible of proof. But, as stated before, conditions have changed and the operating men of today are depending more and more on statistics to guide them, with beneficial results, not only to themselves but to the whole industry.*

The second department that needs the information which is supplied by a proper accounting and cost system is the sales department. No matter how efficient the operating department may be, all its good work will be for naught if the sales department does not know the price that it must obtain for coal in order to avoid a loss. It is true that coal is a commodity, the price of which is governed by the law of supply and demand to a greater extent than almost any other commodity. When in-

*The necessity of detailed cost analyses for the operating executive of a mine is mentioned in the system of the National Coal Association, a summary of which may be found in the appendix to this article.

"The operating executive should have a report from each mine, which, read in the light of his knowledge of the property, will be a comprehensive narrative of what has been done, and reflect the physical conditions met with during the period covered by the report, and exhibit a clear statement of the cost of labor and material expended, classified in accordance with the natural subdivisions of the work that has to be done in and about a mine, so that the economy and efficiency with which each thing has been done can be critically studied."

"In the majority of cases the natural subdivisions of the work in and around a coal mine are as follows: Mine office, superintendence, engineering, mining, timbering, deadwork, tracklaying, drainage, ventilation, haulage and hoisting, dumping and tallying, preparation, railroad car loading and yard expense, power, repairs to buildings and permanent structures, and sundries."

dustry needs coal it will have coal regardless of price, and when it does not need coal it will not purchase, no matter how low the price or how advantageous the terms. When the supply is largely in excess of demand, prices are bound to drop. There is, however, a wall which should prevent prices from going too low, and that wall is the knowledge of the cost of production. In fixing sales prices the sales department may sometimes, as mentioned above, make a low price even though they may lose a little money, on the ground that it is cheaper to sell at a small loss than to shut down. But such prices ought to be made with a full knowledge of what the actual loss is. To make them on any other basis is pure guess work and may lead to serious consequences.*

The third department which needs the assistance of a proper accounting system is the financial department. However, this department does not need the information as promptly as the other two, and the old method of ascertaining the financial status of the business at intervals, sometimes of a year, answered the purpose satisfactorily.

Entirely too much stress has been laid on the importance of the purely financial uses of accounting systems. It is a very nice thing for the treasurer to prepare statements for the directors and stockholders showing the entire operation of the company, and how much money they have made, but this does not help to make more. The operating department by reducing costs when it knows what the items are, can save. The sales department by refusing to make prices which are too low, can save. It is these two departments combined that can enable the financial department to make statements which will meet with the approval of the directors and stockholders.

PAYROLL ANALYSIS

To get down to details, the first analysis of expenditures that must be made is the payroll. Here the accountant is confronted with a stumbling block, in the form of traditional practice. Years ago, probably because inside men and outside men drew different rates of pay, the only sub-division of labor was between inside labor and outside labor. In the light of modern accounting methods this practice appears rather ridiculous. A coal mining operation is very much like any manufacturing business, with the exception that the operator must buy all of his raw material at one time, whereas the ordinary manufacturer can buy his raw material as he needs it, and can renew his stocks from time to time.

The principles of accounting for mining are exactly the same as in any other business, and the distribution of labor in mining should be arranged along exactly the same lines as the distribu-

*Some suggestions as to price-making are set forth on page 20 of the system of the National Coal Association.

tion of labor in a manufacturing plant. Operators must abandon the idea that the place where a man works has any bearing on the account to which his salary should be charged. The purpose for which the man is employed and the effect of his work on the general operation of the business should be the determining factors in the distribution of his pay. The first main division of labor in a mining plant, as in any other plant, is direct or productive labor. In mining operations, the direct laborer is the man at the face* who is paid on a tonnage basis. He is the real producer in the mine and all other labor is incidental to his work. Consequently the first division of labor is mining. The second main division of labor, which is called indirect labor, is that which is necessary to enable the direct laborer to do his work. The operator can have as many subdivisions of his indirect labor as he sees fit. For example, he may subdivide it into timbering, track laying, drainage, ventilation, haulage, hoisting, dumping, tallying, preparation, and into as many other subdivisions as he wants.

The third main division of labor is that engaged in maintenance and repair work. This division is composed of the men who maintain the mine in working condition. Under this heading should be included development work,** and to a great extent yardage† and dead work.‡ In some mines, of course, a large proportion of yardage and dead work is incidental to mining, that is, if there is a thin vein and the miner is required to take down a certain amount of roof, that labor constitutes part of the mining cost. But where yardage or dead work is done in connection with development work, it should not be included in the

*The face is the point at which the coal is dug. The face gradually moves away from the bottom of the shaft as the coal is removed.

**In getting coal out of a mine, especially in the early stages, it is necessary to drive a number of main entries in which the track is laid for hauling the mine cars which are used to move the coal from the face to the bottom of the shaft, or to the opening, if it is a drift mine. The cost per ton of coal removed from these main entries is very much higher than the cost of coal produced in the regular way, because the roof must be more strongly supported and the track must be laid as the entry is driven. When a mine is new, it is on what is known as a development basis which means that practically all of the coal produced is mined under the above conditions.

†Yardage is a term applied to the money paid to miners when they are paid by the yard. Where the seam is thin, and it is necessary for the miner, in addition to the coal he cuts down, to cut down dirt or rock, he is paid a price per yard for this extra work in addition to the rate per ton for the coal that he produces. This payment is known as yardage. In development work where it is necessary to take down dirt or rock in addition to coal, he is also paid on a yard basis. This is also true of a number of other conditions in the mine which call for the removal of foreign matter.

‡Dead work is the work which is necessary to enable the miner to get at the coal. It brings no return to the company, as there is little or no coal produced. When coal is produced, it is paid for on a per diem basis.

mining cost, but should be a part of the third division of labor, maintenance and repairs.*

In considering the use of figures from a distribution of labor† such as outlined, it will be readily seen that the superintendent or head of the operating department has no control over the cost per ton of the first division of labor, mining cost, because the miners are paid at a certain specified rate per ton which remains the same irrespective of the quantity mined. However, he has a very decided control over the second and third divisions. The second division, or indirect labor, is the item where in most business concerns the greatest leaks occur. In this respect the coal mining industry is not an exception. The total of this division does not bear a direct relation to the amount of production. It varies to some extent with production, because the more direct labor you have, the more indirect labor must necessarily be done. But in some operations an increase of 25% can be made in the production without any appreciable difference in the cost of indirect labor. The indirect laborer must be ready to do his work when the coal comes up, and if sufficient coal is not coming up he waits until the coal is ready to move. This condition applies to practically all of the men grouped under indirect labor.

If the contention of many well-known statisticians that increases in wages frequently result in lessened efficiency on the part of the men—because they either do not work as hard or they do not work as steadily—is true, then the direct labor, which is paid on a tonnage basis, will not reflect this feature, but the indirect labor unquestionably will. Irregular work on the part of direct labor is shown by an increase in the tonnage cost of indirect labor, because indirect labor, which is paid by the day, must be on the job at all times ready to do its work. Irregular work on the part of the direct labor means the production of a smaller number of tons per day. If production is reduced and the indirect labor cost remains the same per day, the cost per ton will necessarily increase. Inefficiency on the part of indirect labor will also cause an increase in the cost of this item per day, because it takes more inefficient men to do the same amount of work. The superintendent when he gets his payroll analysis on this basis is at once put on notice when his costs are getting too high.

*The following statement in regard to dead work appears in the uniform cost system of the National Coal Association: "As every mine presents physical conditions peculiar to itself, no two mines being alike, and as the physical conditions fluctuate as the work progresses, in order to work out comparable statements and records, dead work should be classified in accordance with its nature, such as yardage, premium for narrow work, shooting rock, lifting bottom, taking down top, stowing and dumping gob, cleaning up falls and retimbering after them, handling squeezes, mine fires, or any other work imposed by adverse physical conditions."

†The system of the National Coal Association is supplemented by a suggested form for distribution of mine labor in conformity with the principles advanced in the system.

There are several other forms of labor which appear on the payroll and which are more or less fixed; in fact, they practically do not fluctuate at all with production. These items are the salaries of the mine superintendent, the mine office and the power department. These items are really indirect labor, but they should be kept separate because they cannot be controlled. It is advisable to know what it costs to produce power, and for this reason the labor cost of power employees should be grouped separately.

DISTRIBUTION OF SUPPLIES

The next question that arises is the distribution of supplies. Supplies should be distributed in the same way as labor. Although it may not be practical in a small operation, it is unquestionably desirable that the superintendent have this information. He cannot very well cut down his consumption of supplies unless he knows what supplies are used and where they are used. The old method of handling supplies was to charge everything to a supply account when it was purchased and to keep no record of its consumption. Consequently, the superintendent was forced to work absolutely in the dark so far as this important element of his costs was concerned.

The two items which have just been discussed are the ones that necessitate the greatest amount of clerical labor, and present the most difficult problems. But too much stress cannot be laid on the fact that without the detailed distribution of these two items any accounting system will fail to accomplish the principal purpose for which it should be used, namely, the reduction of the costs of operation. That is where the operator should get his real profit from a cost system. There are few operators who would hesitate to spend money for improved machinery. It is, however, a very difficult task to convince these operators that an investment in improved methods of accounting will yield actual returns in many cases even greater than they can secure from improved machinery.

OVERHEAD

The first item of overhead is what may be called strictly mine overhead. It includes superintendence, engineering and mine office expense. These items require no explanation. The next item of mine overhead is power.* Under this item should be

*In the system of the National Coal Association, power is treated at some length on page 13. It is stated that "the generation and transmission of power is about the only expense about a coal mine that is not in total directly chargeable to some one subdivision of operating work." "The cost of coal to the operator for his own consumption is what he could get for it in the market. If an unmerchantable product is used under the boilers, it should be charged at its cost of production. If cost of fuel is not included in cost of power, the accounts do not exhibit true cost."

charged the full expense of the power department, including all supplies used by that department. Boiler fuel is a subject that has given rise to a great deal of discussion, because opinions differ as to the rate at which it should be charged into the power account. It is obvious that if no charge is made to power for boiler fuel, and the amount of coal sold is considered as the total production, the cost of the boiler fuel will be absorbed. But it will be absorbed in a way that does not show the true cost of developing power. The best way, in the writer's opinion, to handle this item is to charge it into the cost of production in the current month at the average cost for the preceding month. This method will not be exactly accurate, as the cost varies somewhat from month to month, but in my judgment it is the closest approximation which can be used.

The items discussed above are those over which the mine superintendent has some control, and the cost figures for these items should be given to the mine superintendent each month. The other items of cost are those over which he has no control, and it is not necessary that he should have information in regard to them.

ROYALTY, DEPLETION, DEPRECIATION AND OBSOLESCENCE

Royalty is a definite charge per ton. In some instances there is a specified minimum amount which must be paid whether an amount of tonnage sufficient to earn the minimum amount is mined or not. If this royalty is defined under the contract as advance royalty or as a payment on coal to be mined later, it can be carried as an asset in a deferred charge account, provided there is sufficient reason to believe that it can be worked out within the time specified. If, however, it is a definite payment by the month or by the year with no possible chance of recovery, the minimum amount should be charged into cost with the result that the royalty will be increased over the amount per ton required to be paid by the contract.

Depletion is a charge similar to royalty, except that the amount of money represented by the depletion reserve is retained by the business instead of being paid to some outside party. In this case the total cost of the coal lands less the value of the surface should be divided by the estimated recoverable amount of coal, the resulting figure giving the depletion charge per ton. This estimate should be a very conservative one, so as to insure that when the coal is worked out there will be no assets shown on the books.

Depreciation is another item which has been the subject of much discussion, and accountants differ widely in their opinions as to the way in which it should be treated. Most of them agree

that the value of the plant and equipment when the coal is worked out is practically nothing. The problem, therefore, is how to charge the depreciation in such a way as to amortize the whole investment during the life of the mine. Some advocate determining the rate of depreciation in the same manner as depletion is determined, that is, at a rate per ton. The objection to this plan is, that where a considerable quantity of coal land is held, large parts of the plant may wear out or become obsolete long before the coal is exhausted. The answer to this objection depends largely on the question as to when a mine is a mine. Some people contend that a mine is a mine and that charges to capital should cease when you begin to hoist coal from the rooms.* Others take the position that the mine is on a development basis until coal can be produced at a cost not more than the market price. The latter idea, I believe, is erroneous, because in periods of depression the mine may be fully developed and yet may not be producing coal at the market price. Another method which, in my judgment, produces more accurate results, is to assume that the development period is over when a mine reaches a certain percentage of the output which the engineers have planned for that mine. If this method is followed, the tonnage method of charging depreciation can be adopted, but it is necessary that all charges for new equipment or replacements should be made against operating cost.†

CHARGES TO CAPITAL

At this point it might be well to consider the question of charges to capital, because these are generally so interwoven with the charges to maintenance and the question of depreciation as to frequently lead to some confusion.‡ All development work

*A room is the particular portion of a mine assigned to each miner. The size of the room varies with the conditions under which mining is carried on, but in many cases the miners can work together in a room. The term really means a man's working place, and as the men are paid only when the coal reaches the surface, they frequently have a great deal of coal cut down and quite an amount of preparatory work done for which they will receive no pay until the coal has reached the surface. This makes it necessary that each room be considered as the exclusive property of the miner who did the preparatory work, because if some other miner were allowed to go into that room and load the coal which the first man had cut down, the first man would lose the pay for the preparatory work that he had done while the second man would reap the benefit.

†The system of the National Coal Association contains a discussion of depletion, depreciation and obsolescence, with excerpts from the Federal tax regulations bearing on these problems of accounting.

‡The system of the National Coal Association (page 8) contains the following statement on this point: "The drawing of distinctions between capital and operating expenditures, in the accounting involved in permanent enterprises, is a favorite field for discussion among accountants, but in the case of coal mining or other wasting enterprises, experience teaches that the field for discussion, if indeed there be any, is extremely limited." Some additional comments in regard to capital and operating charges appear in the system.

after the mine is a mine is a proper charge against the cost of operations. This statement is based on the theory that no charges should be made to capital account unless the expenditure either results in an increased production or decreased cost. This same statement holds true in regard to the laying of additional track, to the extension of the ventilating system, to the purchase of new mine cars, or even additional mine locomotives. The mere fact that the operation of the mine has resulted in the face being further removed from the mouth of the mine or the bottom of the shaft, does not increase the value of the mine one cent. It is plain that if a mine with one mile of main entries can transport all the coal produced with a certain number of mine cars and mine locomotives, when the mine entries have reached two miles, it will take more mine cars and more mine locomotives to get out the same quantity of coal, and yet the value of the mine is not increased. The cost of production has gone up instead of coming down, due to the increased haul, while the production is practically the same.

INSURANCE AND TAXES

Insurance and taxes need no explanation, but the practice of charging these items when paid is not sound practice, as it will cause the cost figures to show large fluctuations which really do not exist.

The coal mining business is unquestionably a hazardous one. The risk of some unforeseen happening which will cause a loss, and against which it is impossible to insure, is always present. In the past operators have attempted to take care of this risk by having the sales department consider it in making prices, with the result that it was often ignored. The present recommendation is that a certain fixed amount per ton be charged into cost to cover this risk and be credited to a contingent reserve account. The credit balance in this account would represent the amount of premium paid for insurance if it were possible to get insurance. As conditions force the operator to carry his own insurance, he is perfectly justified in setting up such a reserve. No sane business man would attempt to carry his own fire insurance or his own compensation insurance without setting up some reserve, and the mining risk would seem to come within the same class. The cost of contingencies which should be charged against this account would cover any extraordinary happening which causes a loss, such as an extra heavy fall,* a squeeze,† an unex-

*A heavy fall is a fall of the roof. Light falls, when a few pounds of dirt and rock drop down, take place frequently, but a heavy fall means the drop of a substantial portion of roof, which must be removed at a considerable expense.

†A squeeze is a gradual settling of the roof, which frequently involves a heavy expense.

pected fault,* or any loss which the insurance is not sufficient to cover.†

The other general expenses of the business, such as salaries of officers, salesmen and clerks, rent, etc., should be divided between general expense and selling expense. The salaries of any person, whether officer, salesman or clerk, who devotes his time to that branch of the work is charged to selling expense, and the balance to general expense. This, of course, does not apply to the general operating department, the salaries and expenses of which should be charged to operating, although this figure should not be given to the mine superintendent.

MAINTENANCE RESERVE

The establishment of a maintenance reserve is something which has not as yet been considered by a majority of the operators. Maintenance starts as soon as the mine begins operation, although there may be no expenditures for this purpose until some time later. If a maintenance reserve is built up at a predetermined rate in cents per ton, and charges made to this reserve as expenditures occur, it will have a tendency to avoid artificial fluctuations in cost. For example, a tipple‡ must be painted from time to time. One painting will last for two or three years. If the cost of painting the tipple is charged in one month, the cost for that month will be out of proportion, while if the maintenance reserve method is followed there will be a reserve against which this cost can be charged. The same holds true in regard to replacements. The best method in general use at the present time is to handle such items through a deferred charge account and spread it over the ensuing period of two, three, four, six or any number of months which may seem advisable. Unless the charge is very large in amount this method will not result in heavy fluctuations, and as a certain number of expenses of this kind are sure to be necessary sooner or later, conservative accounting would seem to demand that provision be made for them in advance rather than to wait until the expenditure has been made. Another point in this connection is, that when equipment is new, expenditures for maintenance are bound to be light and the cost figures will necessarily be low. This condition would enable a new mine to undersell an older mine, whereas this would not be the case if proper provision had been made from the time the mine began operations to take care of the inevitable charges to maintenance.

*A fault may be defined as an unexpected irregularity in the seam which results in loss, such as when a seam of coal breaks off suddenly and it is necessary to go through thirty or forty feet of rock or dirt before striking the main seam again.

†The necessity of carrying a contingent reserve account on the books is emphasized on page 14 of the system of the National Coal Association.

‡The tipple is the structure at the mouth of the mine to which the coal is hoisted and from which it is dumped into railroad cars after being weighed.

The coal coming from the new mine would pay the same share of maintenance as the coal coming from the same mine when the mine was several years old.

The Treasury Department will not allow any reserves except depletion and depreciation to be deducted from income. This ruling, however, need not prevent the operator from carrying these items on his books for his own protection. On the other hand, the Treasury Department allows interest on borrowed money as a charge against income, while in determining costs this item cannot be taken into consideration.

THREE CLASSES OF EXPENSE

In the analysis of all the items of expense which comprise the cost of production, those items which are fixed on a per ton basis, and which are not affected by production, including labor as well as other expenses, should be kept in one class. A second class would consist of those items which are only slightly affected by production, and the third class of those items which are practically fixed on a monthly or annual basis and are affected in direct ratio to increases or decreases in production. This subdivision of expenses will be found to be of incalculable value to the sales department in the determination of a fair selling price.

In conclusion, one word of advice might be offered to any accountant who is called upon to operate or install a system for a mining company, or to make any changes in a system already established. In the first place, he must thoroughly familiarize himself with the practical side of the business, particularly from an operating standpoint. He must make up his mind which of the departments is going to make the greatest practical use of the cost system and plan his work so as to give that department the information it needs, as promptly as possible, and in the most serviceable form. He should not provide for securing any information unless he has a very well defined idea in his own mind as to the purpose for which that information is to be used and its value to the company. Finally, in making up statements showing the operation of the business and its condition, he should be careful to avoid the mistake that so many have made, and are still making, of grouping different classes of items under the same general heading. Statements have been used which have included under one head items properly chargeable against cost, items chargeable against income before net income is determined for taxation purposes, and items such as income and excess profits taxes, which must necessarily be deducted from net income.

APPENDIX

Research Department National Association of Cost Accountants

NATIONAL COAL ASSOCIATION'S UNIFORM SYSTEM

The National Coal Association is composed of a number of local associations. It represents probably between sixty and seventy per cent of the entire bituminous coal production in the United States. The major portion of the tonnage not included in the Association consist of mines owned by the railroads or steel corporations.

The National Coal Association has adopted a uniform cost system which was originally presented as the Report and Suggestions of the Committee on Standard System of Accounting and Analysis of Cost of Production at the annual convention of the Association in 1919. Approximately sixty per cent of the tonnage represented in the Association is now using this system.

The purpose of the system, as stated in the report of the Committee, was "to propose a standard system of accounting under which all coal operators, so far as the particular circumstances of each case will permit, will classify their operating expenses for labor and material in the same way, to the end that true, detailed and comparable statements of cost of production may be readily obtained; and also that all operators shall make the same distinctions between capital and operating expenditures; so that the vital matters of depreciation and depletion and obsolescence may be treated with uniform consistency in accordance with law."

The system has been published in a 26-page pamphlet, 9 x 11½. The first part of the system is devoted to the presentation of some "preliminary considerations," or basic principles, which should be borne in mind in connection with such subjects as capital and operating charges, depletion, depreciation, obsolescence and cost units. It is pointed out that the differentiation between capital and operating charges is not as difficult a problem in coal mining or in other enterprises with wasting assets as it is in other lines of industry, and some principles and examples which should be followed in distinguishing between capital and operating charges are mentioned. Sections of the Federal tax regulations dealing with depletion, depreciation and obsolescence are quoted.

In a coal mine the exact unit for the measurement of production is the ton of coal mined. As a general rule, this unit is also the correct one to use in measuring depletion and depreciation, except in the case of some leaseholds. The use of time as the measure of depreciation is fallacious (except in the case of some leaseholds), because "a completely equipped mine could be

maintained indefinitely without depletion or wear and tear if no coal were mined, by minor repairs.”

Throughout most cost literature the need of presenting cost information in concise and intelligent form but with enough detail to allow costs to be controlled and analyzed is being stressed more and more. This point is also brought out in the system.

The subdivisions of the work of a coal mine which were considered in devising the system are mentioned. Reference to these has already been made in a footnote on page 4.

Coal mining costs, especially such items as obsolescence, are likely to be high and rather difficult to estimate on account of the hazardous nature of the enterprise. For this reason the necessity of maintaining an adequate contingent reserve is emphasized.

Some other points treated in the system are: Method of determining invested capital; bookkeeping in connection with the voucher register and sales register; charges and credits to be made to the revenue accounts and the expense accounts; some suggestions as to price making; and a few skeleton ledger accounts.

The last section contain sample financial statements (without figures).

The system is supplemented by a cost sheet known as the Report (monthly) of Cost, Income and Tonnage, and a suggested form for the distribution of mine labor.*

COST SYSTEM OF THE ANTHRACITE COAL OPERATORS

The Anthracite Coal Operators also have a cost system. This system has been published in two parts, Uniform Classification of Accounts for Anthracite Coal Operators—Text, and Uniform Classification of Accounts for Anthracite Coal Operators—Monthly Report. The system was adopted by a number of operators in December, 1919. An introductory letter at the beginning of the Text states that the chief objects of the system are: to show the cost of producing fresh mined coal; to show, in logical order, the income and profit and loss transactions; to show the financial condition of the operators; and to facilitate the compiling of federal income and excess profits tax returns.

The Text, a booklet of 108 pages, 5½ x 7¾, contains fourteen general divisions of accounts with their subdivisions, and a description of the items that are to be entered in each account. The fourteen general divisions are—assets, liabilities, inside expenses, outside expenses, heat, light and power, general colliery expenses, general and administrative expenses, culm bank coal accounts,

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selling and handling expenses, operating revenues, operating and selling expenses, non-operating revenues, deductions from income, federal income and excess profits taxes. The Text also contains an index which refers to each account by number and by the page in the Text where the account is discussed. This index feature is one which unfortunately is lacking in a surprisingly large number of uniform cost systems.

The Monthly Report contains the usual financial statements prepared monthly by most business enterprises. The monthly statements peculiar to the anthracite coal business such as the costs of producing fresh mined coal and culm bank coal, selling and administrative expenses of these two classes of coal, profits or losses from "non-operating property", for example, farms and dwellings owned by the operator, and statistics of tonnage of fresh mined coal and culm bank coal produced during the month, increases or decreases in tonnage produced over the preceding month, and total accumulations of tons produced for the year to date.*

SYSTEMS IN THE RETAIL FIELD

In addition to the systems referred to above, the Chicago Coal Merchant's Association has issued a uniform cost system which deals with the cost accounting problems of the distributor of coal.

The Committee on Cost Accounting for the National Retail Coal Merchant's Association has issued a report on a cost accounting system which likewise deals with cost accounting for coal distributors. This report, however, has not yet reached the uniform cost system stage.

*The address of the Anthracite Coal Operators' Association is North American Building, Philadelphia, Pa.

Vol. I

- No. 1—Organization and Objects (replaced by Vol. II, No. 2)
- No. 2—Constitution and By-Laws (replaced by Vol. II, No. 1)
- No. 3—Calculation and Application of Departmental Burden Rates, *Research Dept. N. A. C. A.* (out of print)
- No. 4—Overhead Distribution, Compilation and Presentation, *Research Dept. N. A. C. A.* (out of print)
- No. 5—Industrial Accounting as an Aid to Management, *Homer N. Sweet* (out of print)
- No. 6—Distribution of Defective and Spoiled Material Costs, *C. H. Smith* (out of print)
- No. 7—Accounting for By-Products, *Research Dept. N. A. C. A.*
- No. 8—Foundry Costs, *J. P. Jordan*

Vol. II

- No. 1—Revised Constitution and By-Laws
- No. 2—Organization and Objects
- No. 3—Cost Accounting for Brass and Bronze Foundries, *A. H. Barrett* (out of print)
- No. 4—Chapter Organization
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- No. 17—Coal Production Costs, *R. W. Gardiner*

Copies of the above Publications which are not out of print may be obtained from the office of the Secretary of the Association, 130 W. 42nd Street, New York City, at the price of 75 cents per copy.