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Cost and Production Standards*

By WILLIAM B. CASTENHOLZ

Accountants, and especially cost accountants, very often speak of standards in connection with factory operations without clearly defining their language. The audience, or the reader, perhaps, is therefore at a loss to appreciate the conclusions that may be drawn from the discussion because there are two distinct standards and unless these are clearly defined there cannot be a meeting of minds between the message bearer and his audience. This fact was clearly demonstrated at the last annual convention of the National Association of Cost Accountants. The two standards referred to are cost standards and production standards.

COST STANDARDS

A cost standard in connection with any factory performance is based upon actual experience as evidenced by past records indicating normal conditions. If, for example, it is found that under normal conditions a machine has worked 2,600 hours a year in a plant working 9 hours a day for 300 days and the machine-hour-rate method is used for allocating factory overhead, then the standard hourly rate of overhead for that machine is the resultant obtained by dividing the annual factory overhead applicable by 2,600. In so doing consideration has been given to the 100 idle hours which must be viewed as unavoidable and normal in the light of the past experience. To a certain extent, therefore, we must lose sight of the 100 idle hours, because if we assume that the plant has operated normally we are confronted with an unalterable condition which predicates the determination of the machine-hour rate of factory overhead.

Again, if we find another machine that has operated only 2,000 hours a year under assumed normal conditions, we are forced to

* A paper read at the mid-west regional meeting of the American Institute of Accountants, Des Moines, Iowa, November 11, 1921.

use 2,000 hours as the divisor in determining that machine's hourly rate of overhead, because cost standards are based upon facts and experience gained during periods of normal production. By normal production and normal conditions we mean a state or a condition that has not been impeded by any unusual business situation and takes into consideration all existing limitations to production within the plant itself. This condition therefore fixes the entire cost standard, since it is assumed that a repetition of the past experience is about all that can be expected from the same factory facilities and operating conditions. Standard cost rates may therefore be defined as experience rates based upon the assumption of past normal conditions.

That past cost experiences are the best bases for the formulation of present cost standards is quite undeniable. Unless cost standards are constructed on such bases the cost figures will not register the true present status of factory operations but instead will reflect hypothetical cost. Costs at any and all times should portray the actual operating conditions of a plant even though these latter may be far from desirable. The fetish of an ideal cost is a production rather than a cost matter. A cost standard is therefore not necessarily representative of the lowest possible costs but expresses merely assumed normal experience results. We have expanded somewhat upon our definition of cost standards in order clearly to demarcate the latter from production standards. Production standards are based upon an operating ideal and therefore represent either capacity units or modified maxima.

Uses of Cost Standards

Cost standards or rather cost experience standards are used as yardsticks to measure present actual costs in order to determine whether the latter are falling above or below the assumed normal experience mark. It thus becomes possible to establish the quantities and values of materials that should be used in certain products. When material standards are set, it would, of course, be extremely faulty to fix on material values only because the prices of materials used may fluctuate widely. Consideration must certainly be given to the quantities first and these should not vary materially from the quantity-standard created.

Past experiences with reference to direct labor costs will fix the labor-cost standard, again bearing in mind, however, that the standard is expressed primarily in hours of labor per given operation and not in values. The values will fluctuate with changes in labor rates. Variations in labor rates will be expressed in larger or smaller value costs even though the hours may be approximately the same. Such variations must naturally be checked up and the causes therefor determined. It may be that the labor force is improperly distributed with reference to skill requirements.

Factory overhead statistics for past years or periods of assumed normal production furnish the information with reference to overhead rates irrespective of any methods of distribution. The overhead may be expressed as a percentage to direct labor hours, direct labor wages, prime cost; or it may be merged into finer groupings by departments, production centers or individual machines. But, be the method what it may, the rate is fixed by the past record. If, for example, the machine-hour-rate method is used the rate per hour is computed by dividing the overhead loaded against the machine by the number of hours it has operated in the assumed normal past period or periods. Whether the number of hours be large or small is immaterial as long as the experience indicates the assumed normality and as long as the facility is not a special service machine.

The greatest value of cost standards appears in price making and estimating. This value is apparent, however, only during the continuation of the past conditions which created it—in other words, a continuation of an assumed normal. Through cost standards an executive may readily determine the quantities of materials, the hours of labor and the amount of factory overhead necessary to complete a given quota of product as long as the product is the same as that in the past; and, if any changes in prices of materials and labor have occurred the quantitative knowledge he has of both will enable him to give effect to the value variations. If standards are so refined as to express costs of individual machine operations or of processes, they are of great value too for estimating the costs of new production.

Uses of Production Standards

We have already indicated that production standards are based upon an operating ideal rather than upon past performance. In other words, a production standard is constructed on the basis of an expected maximum performance which includes either full capacity or a partly scaled down capacity, all depending upon the productive unit under consideration. Production standards cannot therefore be utilized for the same purposes as cost standards, although it is desirable that the two merge into one another as closely as possible.

Production standards are indices of operating efficiency; they are the real yardsticks of productivity. Where, for example, a cost standard may be constructed on the basis of 2,000 hours a year machine performance, the production standard would require the maximum hours so that all except the absolutely unavoidable lost time would be fully utilized. A machine would therefore not be considered as performing its functions completely unless it worked this maximum number of hours.

The value of production standards appears particularly clear in problems of machine investment, and, if factory operations could be properly coördinated, the minimum investment necessary to secure maximum results might be quite readily determined. In other words, if all machines in all departments could be worked on a maximum basis, everything else being equal, it would be safe to assume that only the necessary investment in equipment existed. But ordinarily if all equipment and machines were worked at capacity or at a modified maximum we would find that some machines over-produced and that others could not carry the load.

Production standards, however, if properly applied, do not only establish necessary machine investment but aid very materially in securing the proper proportioning of manufacturing facilities so that the production coming from one group of machines can be adequately handled by the next group. Assuming a certain volume of business, the results of one operation should exactly or as closely as possible measure and determine the machine requirements of the next operation. To illustrate our argument, let us assume two operations "A" and "B" respectively and that there are two machines utilized for operation "A" and three for operation "B." Assuming that one machine of operation "A" works 2,400 hours a year (standard operation) and the other 1,200 hours and that the three machines of operation "B" work 2,400 hours each or a total of 7,200 hours, we at once see (assuming that volume can be increased) that the second machine of operation "A" could be kept at 2,400 hours (standard) by installing an additional machine for operation "B," wherein each machine operates 2,400 hours, to take care of the results achieved by 1,200 hours of machine work in operation "A." In other words, the machine proportioning between operations "A" and "B" should be as 1 is to 2, i.e., A:B::1:2 or A hours : B hours :: 1:2, which translated is 4,800:9,600::1:2. Multiplying the means and the extremes establishes the equality. Production standards will point the way toward the proper equilibrium in manufacturing facilities.

A production standard, then, looks primarily toward the establishment of maximum production with an investment just sufficient to produce that desired result. It looks, too, into the problems of minimum labor requirements for the various tasks about a factory and delves with its inquisitorial methods into the very essence of all mechanical phases of production. Production standards are thought of even before the manufacturing plant is erected. Location of plant, the nature and construction of the building, the arrangement of departments, the kind of power, the juxtaposition of machines or groups of machines, the use of mechanical auxiliaries, the location of store-rooms and tool-rooms, the selection of labor and many other matters are considered so that proper production standards may be formulated and made the basis for measuring actual performances, naturally with the hope that the latter may conform as closely as possible with the standard.

The more nearly cost standards approximate production standards the more closely will actual results approach capacity production, assuming, of course, that there is no abnormal abridgment of business. In fact, an ideal cost standard would be a production standard. The difficulties preventing a merger of the two standards are found in the inefficiencies of labor, lost time, breakdowns, etc., some of which are avoidable and others apparently unavoidable. The weakness of cost standards appears in their slavish attachment to past facts arising out of assumed normal conditions. It is assumed that past facts represent the best possible accomplishment and that the past fact occurred under normal conditions. This may or may not be true; many weaknesses may have existed in the past which a cost standard based thereon cannot hope to remedy; and the assumption of normality is a rather dangerous one. To begin with it is a different normality for each plant because each plant has its own experiences and these may vary widely even in similar industries.

In a cost standard, even though properly used, the corrective feature attached to production standards is lacking.

It is desirable that production standards exist concurrently with cost standards and that the results obtained from their application be constantly compared. The first will always represent the application of actual experience rates, whereas the latter will express an application based upon an operating ideal of the maximum. The difference between the two will be the field wherein may be sown the seeds of improvement—improvement in working conditions, in machine arrangements, in departmentalization, in the means for eliminating waste and idle time, in power creation and distribution and in the larger problems of factory coördination and control.

It is my opinion that cost and production standards should not be changed because of subnormal or abnormal conditions in production. The use of the standards under such unusual conditions will clearly demonstrate the factors that are vitally affected by these conditions, and they may therefore point the way to constructive policies which may largely overcome some of the evils arising out of such unusual conditions or at least aid in the establishment of a programme of preparedness.

Accounting for Contracts

By HOWARD M. INGHAM

What is the best method of accounting for payments received on account of uncompleted contracts? This question arises in all branches of the building industry and in a great many manufacturing enterprises—in fact, wherever large contracts are undertaken on which part payments will be made. Often the work is paid for on schedule, that is, specified sums are due at certain stages of completion. In the majority of cases, however, these specified sums bear little relation to the cost of the work performed up to the time when the payment is due, even though an effort may have been made, in drawing up the contract, to keep cost of production and payment therefor in reasonable agreement.

If the work is paid for by percentages of its cost to date, no particular difficulty arises. Any trustworthy system of records furnishes the basis for equitable payments, and the only question is as to the advisability or propriety of including some of the prospective profits in the invoice. This question is frequently discussed, and needs no further mention here. But when work is paid for on schedule or in any way except by a percentage of its cost, the contractor or manufacturer must decide how to determine the entries in his sales account.

If the contract, when made, is credited to sales, the balance-sheet must always contain an item on the debit side "reserve to finish contracts." There is no more unsatisfactory job than estimating the proper size of this reserve, and the books would never be of any value, as a guide, unless this reserve could be carried continuously, which is, of course, utterly impracticable and not even to be considered.

The second suggestion might be to credit to sales the schedule sum or amount to be received at certain stages. If this sum should happen to be smaller than the cost of the work delivered (or completed, if a building) the difference between the sales and cost of sales accounts would show that the company was losing money, and vice versa. In either case, the true facts would be concealed by the chance size of the schedule payments. As these are arranged in advance and their size is frequently determined by bargaining, the books could never show the true state of the business, unless all contracts should happen to be completed at exactly the same time. As this would never happen with a going concern, the second suggestion must be dismissed as of no value.

A third suggestion might be to estimate the sales value of the work delivered or completed and credit this sum to the sales account. This, however, is almost as unsatisfactory as estimating the reserve to finish contracts, as well as a great waste of effort. Also, the profits shown by the books would be dependent upon the accuracy of the estimates and hence of dubious value as a guide.

Many standard works on accounting have been examined by the author in the effort to find a satisfactory answer to this question, with little result. It is hardly even mentioned in some of the best-known works. It recently had to be solved, however, in relation to a cost system in a large manufacturing plant, and the method described below was evolved. It is presented herewith for discussion, in the hope that, if any flaws exist, they may be exposed, and references may be made to any works wherein the subject is comprehensively treated.

In the system evolved by the author, the contracts, when made, are not recorded in the ledger. However, if it were thought desirable, they could be recorded in other accounts, without affecting in any way the entries about to be described. The costs of manufacture, labor, burden and material are debited in the account "work in process" in the usual way. Upon the completion of an order, the cost is credited to "work in process" and debited to "cost of sales," as is customary. When a partial delivery is made on an uncompleted contract, an invoice is rendered to the customer for the sum due as per schedule or for any equitable sum, if there is no schedule. This invoice is charged to the customer's account and credited to an account called, for want of a better name, "bills rendered." This process is repeated until the contract is finished, when the final cost can be made up from the cost books. The total cost is then credited to "work in process" and debited to "cost of sales," as stated above, and, in the *same accounting period,* the contract price is credited to sales and debited to "bills rendered." As all the accounts above mentioned, except "bills rendered," are standard accounts and used in the customary way, there is no need for discussing here the significance of their balances. Such a discussion appears in any work on accounting.

The only account requiring discussion is "bills rendered." Its balance will always be on the credit side of the ledger, and it must be classed among the liabilities of the business. It represents sums of money advanced on account of unfinished contracts, which are, to a certain extent, in the nature of loans. On a balance-sheet, the credit balance in "bills rendered" should be deducted from the asset represented by "work in process," thus:

Work in process	$500,000.00
Less: bills rendered on account of uncompleted contracts	100,000.00
	$400,000.00

Objection might be made that by debiting a customer for a part payment, thus making it appear as an asset among accounts receivable, the asset appeared twice, once as a part of work in process and again among accounts receivable. While this might appear to be the case, the latter asset is balanced by the liability in "bills rendered," and the net amount of assets appears correctly in the books and can be correctly stated on the balance-sheet, as shown above.

Another objection might be that, on long contracts, lasting a year or more, work delivered a year ago would still appear as "work in process" in the ledger, unless the whole contract had been completed. The answer to that is that so long as work delivered has to be combined with work not yet completed, it is still actually in process, and cannot properly be taken out of the "work in process" account.

The facts seem to be reflected by this system of entries more correctly than they would be by any other method. Accounts receivable are stated in their true amount, sums of money actually due; the difference between sales and cost of sales is the actual profit on completed work, and no other statement of profit is trustworthy. The balance in "work in process" is the cost of all work not altogether completed—and that is the significance of the name.

The purpose of these notes is to bring forth answers to three questions:

1. Are there any flaws in this method of accounting for contracts?
2. Is it in general use on contract work?
3. Where is it described in standard works on accounting?

Accounting for Pig Iron Production*

By Nathaniel B. Bergman

The subject of blast-furnace operations, so far as they appertain directly to the production of pig iron, does not appear to have been the subject of any noticeable amount of literature. For this reason, particularly, as well as for the fact that the writer has had considerable practical experience in this as well as other branches of the steel industry, the subject of this thesis, it is hoped, will prove of some value to students who desire information on this branch of what is probably the largest industry in the world. In view of the fact that the writer's experience has dealt largely with steel plants making not only pig iron but steel products which originate therewith, the operations to be detailed here will be those of blast furnaces as a part of a large steel plant rather than those of an individual plant making nothing but pig iron for sale. Closely related to blast furnace operations in a modern steel plant are the operations of coke ovens and coal washeries. For that reason reference will be made to these other two features as well as to blast-furnace operations. It would not be amiss and should prove of some value to describe first briefly the operations of a blast furnace from the practical rather than the accounting standpoint.

A blast furnace may be a unit producing as much as 800 tons of pig iron a day or it may be a unit producing not more than 100 tons a day. The latter is the average tonnage produced in the old style furnace which may still be charged by a hydraulic elevator; the former is the product of a unit operated entirely by electricity and designed to meet the ever-increasing demands for steel products all over the world. A particularly interesting feature of blast-furnace operations is that they cannot be so thoroughly controlled by mechanical means as, say, a rail mill or a plate mill. Production may be affected by humidity in the air blown into the furnaces. It may be affected by the quality of the materials used, resulting in serious accidents at times. For example, a particularly bad quality of coke can cause what is termed a "scaffolding," which has resulted to the writer's personal knowledge in an explosion blowing off the entire top of the blast

* A thesis presented at the November, 1921, examinations of the American Institute of Accountants.

furnace. It is here that the accountant will see the urgent necessity for reserves for relining and renewals. Of course, the necessity for relining arises from ordinary operations as well as from extraordinary conditions.

The ore may be received by boat or by rail, depending upon the geographical location of the plant, and it will be stored in piles and later placed in bins in order to facilitate the handling when necessary to charge the furnace. The ores will be stored first in piles according to the metallic contents, as it is upon the metallic contents of the iron as well as upon other chemical analyses that the "charge" is based and upon which the price is fixed. Thus it will be seen that ores from different sources may be dumped in the same piles if they are very closely related in the matter of chemical analyses.

Coke at the present time is produced at a number of the larger steel mills as it has been found that it is much more convenient to obtain control of a coal supply and produce coke than it is to depend entirely upon coke produced by others at points remote from the furnaces. Besides, coke is such a very important factor in the production of pig iron that the commercial value of the iron may be adversely affected by a poor quality of coke. Not only must the coke be volatile to a definite degree but the structure of the coke must be such that it can support the ore and limestone and other items constituting what is called the "stock." For convenience in handling, the coke is stored in bins when necessary to be used in the furnace. In some plants, coal is still being used to a great extent for fuel, but this is due largely to the fact that in those cases in which it is used the quality of iron being produced is required to be of a special grade.

Limestone and other fluxes are stored in piles and conveniently situated for handling. Some steel plants have their own limestone deposits, and when this is the case there arises a situation analogous to that when a company produces its own coke, that is, the cost factor enters into the accounting end of the problem to a greater degree than is the case when purchases of these materials are made outside. Limestone is used for fluxing, i.e., for removing the undesirable elements in the ore, hence the importance that a company have its own supply of known quality. With a poor quality of stone, the impurities are not properly eliminated, and there may be produced a poor quality of iron, fit perhaps only to be remelted or used in the foundry for a very inferior quality of castings.

At intervals, say of four or five hours, the furnace is tapped and the iron disposed of in various ways. It may be sent to the Bessemer or open-hearth plants to be made into ingots; it may be sent to the foundry to be used for castings, or it may be cast into pig iron for storing for future use or for sale. In order to determine the disposition of each "tap," a sample of the iron in its molten state is taken immediately after the metal has begun running from the furnace and an analysis is made in time to determine its proper disposition. An excess of phosphorus or sulphur may make the iron useless for one class of steel production, while the presence of the same degree of these elements may render the iron useful for other purposes.

It may be of interest to state here that a very careful record is usually kept of the production of each "tap" and its disposition. One of the principal reasons for such a record is that in case of a defective product in the rail mill or some other branch of the business, the blame can be traced to where it belongs. It is, of course, well known to the readers of this article that every rail laid down has upon it a heat number, which is given to the ingots either at the Bessemer plant or the open-hearth plant. By this means it is possible in case of accidents upon the railroads resulting from defective rails to trace back to the original furnace production and determine whether the fault was due to defective materials or an accident due to local trouble on the railroad track.

Assuming that it is intended to store the iron for future use or to sell it, the metal is cast into pigs. Under the old style the pigs were cast on the blast furnace floor into sand molds, but the more modern method is to send the iron to what is called a pig-casting machine situated away from the blast furnace, where the iron can be cast into pigs much more readily and with less interference with the operations of the blast furnace.

In view of the fact that the accounting for blast-furnace operations involves recording expenditures for the maintenance of ladles, it should be stated here that two classes of ladles are used at the blast furnace: one kind for the iron itself and another kind for the slag or what is sometimes called "cinders." The disposition of the slag depends largely upon whether the company finds its profitable to put this slag to commercial use or merely to dump it on the large slag dumps situated near the property of the steel plants. For a number of years blast-furnace slag has been used for a variety of purposes, one of the principal uses being the manufacture of a fireproof cloth, which is supposed to be as effective as asbestos, but as this is an expensive and involved operation, the steel companies themselves do not seem to have engaged in this industry but have disposed of the slag and left it to others to convert it.

With the operation of the blast furnace itself, we have also to consider the expense of operating the blowing engines which supply the blast to the furnaces. In the more modern plants facilities have been installed to supply to the engines for fuel the gases which are created in the blast furnace. This is a feature which should be considered in the accounts when preparing costs of production.

Coke ovens usually operate in a steel plant for the direct benefit of the blast furnaces, although other departments also use coke. For this reason, the cost of coal, labor handling the coal and other expenses incidental to the production of coke form a vital part of the accounts for blast furnaces. This is particularly important in view of the fact that the by-product retort is now used largely and the by-products, such as coal tar and sulphate of ammonia, form an important credit to the operating expenses of the coke ovens.

It will be seen from the foregoing that accounting for blast-furnace operations is largely a cost proposition and the recording of the consumption and production is necessarily subordinated to the main object, that is, cost finding.

The accounting for blast-furnace operations may be divided into four principal divisions, namely:

Blast furnace,
Blowing-engine house,
Casting machine,
Ladle house.

Blast Furnace

Materials—A distribution book is necessary to record the amount of ore, lime, coal, coke and other materials consumed. This information is obtained chiefly from the superintendent's reports of materials ordered to be charged into each "mix." In view of the fact that the value of the mixture is dependent upon accurate weights the superintendent's reports are usually accepted for cost purposes. It develops, however, upon taking physical inventories of the items of coke, coal, etc., that shortages will be disclosed as between such actual weights and the book inventories. In the case of coke this is due largely to that part of the material which escapes as dust or loses value otherwise. In the case of ore itself, it is difficult to check the inventory, except by measurement, until the piles have been considerably reduced. Therefore, in order to provide against excessive shortages at the end of any period, it is desirable to add a percentage to the weights reported used, such percentages being based upon experience over a number of periods.

Under a good cost man it is possible to maintain a good check on materials reported used, owing to the fact that under efficient operating conditions at a blast furnace there is a general average of consumption of coke and limestone to each unit of iron produced. In the writer's experience at a modern plant, this worked out to about a pound of coke to a pound of iron and about 1,100 pounds of limestone to 2,240 pounds of iron. The prices to be used will be, of course, actual cost. In the case of ore, this will cover the cost of the ore to the plant plus any freight paid thereon, plus handling charges which can be definitely apportioned to the material. When the company operates vessels, the cost of the ore will be charged with the cost of the operation of such vessels. Limestone cost will be calculated the same way. In case the company produces its own limestone, cost is somewhat more complicated, but all expenses applicable to this material should be charged thereto.

There is consumed, in addition to the raw materials mentioned previously, scrap of various kinds, consisting of off-grade iron, runner scrap and ladle scrap. At this point develops the question at what price this scrap should be charged to the furnace. In the case mentioned the most practical arrangement at the time seemed to be to charge the blast furnace with its own scrap at a fixed figure. This figure was also used as a credit for scrap when compiling the cost of production. There may have been weaknesses in this method, but the quantity used is never considerable and the probable ultimate cost was not much affected. The blast furnace will also use roll scale from the rolling mills. The scale is usually charged to the blast furnace by the rolling mills at the figure quoted in the trade journals for such scrap and the same price is used in charging the furnace.

In the record of ore used it is necessary to show the metallic contents as well as the quantities. The object of this is to check up the theoretical yield of the ore with the actual production. Owing to the fact that the ores are purchased on the basis of the iron content, there will, of course, always be a slight difference due to the fact that a part of the iron goes into the flues or is carried away in the slag. Unless the slag is run through the furnace again, which is very rarely done, this iron is entirely lost. The flue dust can be charged back into the furnaces.

Labor—The labor charged against the furnace will be subdivided briefly into the following:

Superintendence,
Stocking,
Charging,
Blowing,
Casting (tapping).

This information will be obtained from the pay-rolls in the usual way. In view of the fact that the costs are subject to close scrutiny and that any variation is the subject of inquiry, it is necessary that the sub-divisions previously referred to should be carefully maintained.

Supplies and Repair Labor and Materials—These items will be obtained on requisition and will be reported by the stores department at the end of each accounting period. Some of these supplies are so expensive that when certain parts such as tuyeres, blocks or cooling plates are changed, the fact is usually recorded in the daily blast-furnace report to the management. Usually the necessity for changing the foregoing items arises from normal operations, but when a furnace is operating erratically and certain sections become overheated or otherwise abnormal, the expense of frequently replacing these parts is considerable.

General—The overhead expenses will consist principally of steam, water, power, handling, laboratory, and the reserve for relining and renewals. Steam and power can be calculated accurately. Handling will be a pro-rata share of the expenses not charged directly to materials. Laboratory expenses can be calculated if the furnace has its own staff. The fund for relining and renewals will cover stacks, gas flues and gas pipes, hearth and bosh metal work, stoves and hoists. There will be a credit under certain conditions for any steam and gas supplied by the furnaces to the blowing-engine houses.

The relining and replacement fund is reserved on the basis of a certain amount per ton of iron produced based entirely upon the experience with a particular unit.

Production—The production records should indicate grades of iron produced and also its disposition, in order that the department receiving it may be properly charged. Credit should be given for ladle scrap, consisting of the ladle skulls or shells and the ordinary scrap. Production should also be given credit for runner scrap and off-grade iron produced. As stated previously, the values at which they are credited are nominal and as all of the scrap produced is usually charged back into the furnace, the net operating result should not be seriously affected. Of course, where there are a number of blast furnaces and the scrap is stocked for their future use or for the use of other departments, it is important that a record be kept of the amount produced, as far as practicable, from each furnace in order that due credit may be given the unit responsible for its production.

Credit should also be given for flue dust produced. At one time flue dust was thrown away, as being of no commercial value, but for a number of years past it has been stored and charged back into the furnaces or the iron contained in it has been recovered by other means. An average of iron content in the flue dust will suggest a fair value therefor, and the amount should be properly recorded in order that the results may reflect the true cost of the iron as far as possible.

Statistical Data—Apart from the actual expenses of operations found in all periodical compilations of costs, certain statistical data should be incorporated in any report on blast-furnace practice. The following are such items of information:

Number of days operating,
Disposition of product:
  Foundry,
  Pig iron for stock,
  Open-hearth department, etc.,
Number of tuyeres changed,
Actual production—tons,
Theoretical production—tons.

Following is a form of cost sheet intended to give effect to the results of operations for any accounting period:

(Condensed form)

COST OF PRODUCING PIG IRON AT FURNACE NO. ——. MONTH OF ——, 192—.

	Gross tons	Price	Amounts	Material per ton Pounds	Material per ton Per cent.	Cost per ton
Metallic mixture:						
Ores						
Mill cinder and roll scale						
Scrap						
Gross metallic mixture						
Deduct, scrap produced						
Net metallic mixture						
Fuel and fluxes:						
Coal						
Coke						
Limestone						
Total fuel and fluxes						
Total materials charged						
Labor						
Materials and supplies for repairs, etc.						
Casting machine cost (as annexed)						
Water, power, steam, etc.						
Total cost above net material						
Grand total cost						

STATISTICS

Iron produced—by grades
" " —by disposition
Days in operation
Average product per diem
Cost by grades
Actual production—tons
Theoretical " — "
Loss — "

BLOWING-ENGINE HOUSE

From this department the furnace receives all the air required for operations. A separate cost should be kept for this department as in some cases the engines are also operating upon other units in the plant, in which case a division of such cost should be made in order properly to charge the departments benefitting thereby. As stated previously the blowing-engine house receives gas produced by the blast furnace and for this reason a charge should be made to the blowing-engine house in order that other departments may not receive the benefit of this item.

Record should be kept of all labor by occupations. Repair labor and material should be recorded properly and charged to this department periodically. Overhead expenses are usually light and not difficult of allocation. The entire cost of this department should be apportioned to the departments upon a basis determined by a qualified technical expert.

Pig Casting

If pig iron is being cast by various methods, such as sand casting at the furnace or in a modern pig-casting machine, different costs should be kept in order that this expense may be exhibited eventually as a part of the blast-furnace operations. The main divisions are direct labor, labor on repairs and maintenance, lubricants, tools and supplies. The information for this cost exhibit will be obtained in the same manner as for the other departments of the plant.

Ladle House

Separate cost should be kept for hot-metal ladles as distinct from cinder or slag ladles. The principal subdivisions of expense will be direct labor, labor repairs and maintenance, repair materials, tools, refractories, etc. The items herein will be obtained from payrolls, stores requisitions, etc., in the way that this information is obtained for other departments of the plant. This department is an important adjunct of the blast-furnace operations, and it has always been deemed necessary to the management to know to what extent this expense enters into the cost of production.

General

As stated, this subject is considered on the assumption that the blast furnaces are a part of a complete steel plant. Fundamentally the treatment of the matter would differ only slightly in the case of a plant devoted entirely to the production of pig iron for sale.

The general books would contain appropriate asset, liability and nominal accounts and would control a works ledger. The works ledger would contain all operating debits and credits.

The payrolls should be compiled from daily time-cards, wherever practicable, supplemented by personal checks by an employee of the time department.

All supplies other than raw materials should be withdrawn only upon approved requisitions. It has also been found practicable to issue certain items of raw materials such as fire clay and coal, on signed authorizations. In the case of ore, coke, limestone, etc., the superintendent's order for a certain "charge" is deemed sufficient authority for and a good check on the issuance of these materials.

Credits to cost of coke production for such by-products as coal tar and sulphate of ammonia are made (but the practice may vary) at market values. The reason for this in the case cited was the fact that the by-products were sold f. o. b. the plant and contracts were in force covering all production for a term of years, thus eliminating the question of selling expenses.

Coal Washeries and Coke Ovens

The coal washery is an adjunct of the coke ovens and the cost of producing coke should include the expenses of both divisions. In addition to the data showing quantities of coke produced, a memorandum should show the actual production as compared with the theoretical yield. The total weight of the coal less the ash and certain minor properties contained therein should approximate the weight of the coke. The gases given off, which are made into coal tar and sulphate of ammonia, account for most of the difference between the weight of coal charged and coke produced.

Dairy Accounting*

By JOHN B. BALLINGALL

The average consumer gives little thought to the various processes through which milk, cream and butter pass before becoming finished products fit for the family table, and one of the subjects that appears to have been neglected by accountants is the accounting system used in a modern dairy.

The dairy business is a highly technical one, because of the numerous tests and processes employed and the care and caution necessarily exercised in the successful manufacture of the various products.

Usually the large city dairy operates receiving stations or creameries at a reasonable distance from the city, and it is to these stations, scattered throughout the farming districts, that the farmers send their milk. The milk upon being received at the stations is weighed and a sample taken from each farmer's daily shipment for the purpose of making a composite test for butter-fat content twice monthly. It is this average test of butter-fat content for the month that regulates the price paid to the farmer. The milk as received from the farmer is known in the trade as whole milk. In order that farmers will not ship more milk than the contract quantity (which changes according to the seasons of the year), shipments in addition to the contract quantity are paid for at a reduced rate. This is done to equalize production and demand.

Before the milk starts through any of the processes in the dairy, a chart is made which shows the commercial requirements of the various grades and specialties for the day. The dairy is a twenty-four-hour business and surplus milk must be converted, and this of course is an added expense. The milk upon arrival at the dairy is put through a clarifying process, which is an extra precaution taken by the modern dairy to insure clean milk. The proportion of the whole milk which is to be manufactured into the ordinary pasteurized grade is put into a tank and a test is then made to ascertain the butter-fat content. This test should compare favorably with the average test made at the receiving station. Cream or skimmed milk is then added to bring the

* A thesis presented at the November, 1921, examinations of the American Institute of Accountants.

butter-fat content of the whole milk to the prescribed statutory requirement. The milk, graded to requirement, is automatically bottled and capped. In these operations there is an invisible loss, in addition to evaporation, through spillage and breakage and because the bottles are filled to a trifle more than the legal measure.

In view of the nature of the business it can be seen that it is necessary to account for the quantities on a unit basis. The basis used is the butter-fat content, as it is not possible owing to the various conversions necessary in the manufacture to account for quantities on a basis of liquid measure.

In addition to the general production of pasteurized milk, for which of course there is a greater demand than for any other grade, specialties have to be manufactured, such as cream of various grades and butter-fat content, skimmed milk, condensed milk and butter. The poundage of whole milk or partly manufactured milk is obtained before the manufacture of each specialty is commenced, and from the poundage is ascertained the butter-fat content, which, as already stated, is the basis of computation in determining the daily overages and shortages in manufacture. As an illustration of the method of computing say the loss in production during the day of regular pasteurized milk, the following procedure is followed: The bottled milk and milk in vats, both reduced to a common poundage basis of the regular pasteurized grade at close of business the previous day, is obtained by test and the butter-fat content is known. To the inventory is added the poundage of milk received from the several creameries, of which a composite test for butter-fat content is made. The milk is brought to butter-fat requirement by the adding or deducting of higher butter-fat content milk or skimmed milk. Therefore the total butter-fat content of all milk on hand the previous night and of milk manufactured during the day is known. The milk sold during the day is ascertained and the quartage is reduced to total butter-fat pound content. It will therefore be seen that tests being accurate, the loss in butter-fat on the day's manufacture is readily ascertained. The cost per pound of butter-fat paid to the farmer is known, and the shortage in manufacture during the day can readily be converted to the basis of dollars and cents. The loss in the production of other grades of milk and commodities is computed in practically a similar manner.

Not only do dairies purchase whole milk, which with other grades is manufactured into pasteurized milk and specialties and, as already mentioned, is purchased on a butter-fat content basis, but certified milk is also bought by the dairies from farmers who produce this particular grade. This milk is bottled by the farmer (dairy bottles and caps being supplied to him for this purpose) and shipped to the dairy ready for delivery to customers. Certified milk which does not contain a high percentage of butter-fat is mostly sold for nursery purposes. It is paid for on a quartage basis, but for the purpose of accounting on a unit basis this quartage is converted into butter-fat content.

Sales of manufactured products are made through retail sales routes, where the milk or cream is sold in bottles of legal measures; through wholesale routes, where sales are made by cans or bottles; or from a store attached to the dairy, where retail prices govern. The drivers on retail routes, whose department constitutes by far the largest section of the selling end of the business, are charged daily with the selling price of all milk, cream and other commodities taken out by them for delivery on the routes. Upon return to the plant these men are credited with returns and any collections in cash made by them during the day. The daily sales and collection sheets show the sales by grade and quantity of commodity, with money value, made by each driver, and are summarized at the end of the month. Similar schedules of sales are prepared for the wholesale department and the store; and the total shown on the summary of these statements, with a record of milk donated, consumed by employees, sewered, etc., is then reconciled on the unit basis of accounting, namely, butter-fat content, with the inventories and manufactured products.

Retail drivers' books, on which are entered the daily sales to customers and cash payments made by customers, are checked weekly. The open balances are listed and must agree with the amount shown as due on the retail sales summary previously mentioned. Any shortage in a driver's book is noted and the amount of the shortage is deducted from his next pay envelope.

Unlike the retail sales prices, which are usually agreed upon by the dairy operators, wholesale prices vary according to the customer and to the surplus of milk and cream that may be on hand. In addition to the general sale of milk and cream to restaurants and other wholesale customers, one of the important items of sale is condensed milk—purchased by ice-cream manufacturers. These condensed milk sales of course vary according to the season of the year, and the quantities are sold on a test basis rather than a quartage basis. The wholesale driver is paid a straight salary and therefore is not obliged to keep a record of sales, etc., as this together with the billing is done at the head office of the dairy.

The general accounting records used in the modern dairy are not different from those used in any manufacturing company. One of the main records is a voucher register which is divided into the following sections:

Manufacturing account.
Creamery expenses.
Selling and delivery expenses.
Administrative and general expenses.

The monthly total of each of the above accounts is posted to a controlling account in the general ledger. It is therefore seen that the operating expenses of the dairy and creameries are included in four general ledger accounts. The footings in the voucher register are cumulative so that it is quite a simple operation to prepare a profit-and-loss statement for any number of months.

The above sections of the voucher register are divided into as many accounts as desired. As an example, the manufacturing account might consist of the following:

Manufacturing account.
- Milk and cream purchased
  - Transferred from creameries
  - Individual shippers
- Receiving department
  - Wages
  - Expenses
- Pasteurizing department
  - Wages
  - Expenses
- Bottle filling department
  - Wages
  - Expenses
- Bottle washing department
  - Wages
  - Expenses

Manufacturing account (continued)
Specialty department
Wages
Expenses
Materials
Laboratory and testing department
Wages
Expenses
Power-house and refrigerating
Wages
Expenses
Cold room

These accounts are again subdivided for purposes of cost and statistical information.

As the creameries are merely convenient centralized agencies for the collection of milk, which loses its identity upon arrival at the city dairy, no attempt is made to construct profit-and-loss accounts to determine the approximate loss or gain in the operation of each creamery. However, records are kept which show the cost per hundred pounds of milk handled at each creamery, and from these monthly comparative statements any increase or decrease in the costs is readily noted.

One of the advantages of an accounting system is the ability to determine the profit or loss on the operations of the wholesale and retail departments, as only upon correct determination of these facts can the successful dairy operate. The method by which such profits or losses are ascertained is as follows:

The purchase price of the milk on a butter-fat content basis sold through each department is determined, and the ratio of material cost to selling price is established. This same ratio is applied in computing the manufacturing and creamery expenses applicable to each department. The voucher register is so constructed that the actual charges applicable to selling and delivery wholesale and retail are readily ascertainable, and, finally, general and administrative expenses, together with depreciation charges, are applied on a predetermined equitable basis.

Among the general ledger accounts are certain important items peculiar to the business and deserving special attention. Retail drivers are usually responsible for the collection of their customers' accounts, and as their salaries and commissions are based on a percentage of their cash collections, it is evident that these men will make an effort to keep their outstanding accounts as low as possible. Although the general practice is to collect bills weekly, bad debts are not unknown in the milk business, and these, when retail, are charged against the driver, with the exception, however, of one week's supply to any customer. This amount is charged by the firm to bad debts in accordance with the general practice of the business. The drivers are bonded and it is customary to have them deposit with the firm a sum of money, say one hundred dollars, for the faithful performance of their duties. This money is returned at termination of employment, and upon presentation of a clearance sheet from the office. While it is admitted that an element of fraud is possible in the drivers' accounts, particularly in the percentage of bad debts chargeable to the company, the cost of employing special collectors would be greater than the average loss sustained through this factor.

In every large dairy the item of bottles, boxes and cans forms an important part of the inventory. This account might be subject to criticism as it is not feasible for the dairy to make a physical count of bottles, boxes and cans on hand and out on routes at the end of each month. Past experience, however, can usually establish a basis for crediting this account monthly with an amount representing the approximate loss due to breakage, loss and depreciation. The amount expended for repairs to boxes and cans is charged to operation in addition to the above-mentioned estimate. Although a physical inventory is not made of bottles, boxes and cans, the book account should be found to be substantially correct. The number of customers is known daily, and it is estimated that a set of seven bottles is in use for each customer. The composition of a set usually is as follows: Two bottles at each customer's house, one on the driver's wagon, one in the bottle-washing department, one in filling room and two in storage. The breakage is checked daily, and therefore a fairly accurate bottle inventory is possible, which would give an indication of the adequacy of the monthly charge. Boxes, of course, are in the hands of the drivers or in the dairy and can be counted. Cans are at the creamery, in transit, in the dairy or with wholesale customers and can usually be inventoried. No depreciation is provided on bottles and boxes, but the monthly credit to this account includes an item of depreciation of cans.

It is interesting to note that the latest method of transporting milk from the creamery to the dairy is in a glass-lined motor tank truck, which in addition to keeping the contents of fifteen hundred gallons of whole milk at the same temperature during the journey, reduces the cost of handling the milk and eliminates to a large extent the use of cans.

As may be gathered from the foregoing, the dairy business, because of the risks involved (such as the possibility of milk shipments becoming sour in the summer months), is one that demands the closest attention both by the management and the accounting staff. The accounting system that does not record in minute detail the operation of the business is not of much benefit to the management.

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A. P. RICHARDSON, *Editor*

EDITORIAL

Commenting upon the Revenue Act of 1921

In considering the revenue act of 1921 and the general disappointment with which it was received, it must be remembered that congress was confronted with the necessity of raising about three and a quarter billion dollars for the year 1921. That this amount could be raised without dissatisfaction to a considerable group of citizens was of course out of the question.

One of the most interesting bits of history recorded in the passing of the bill was the part played in it by the group of senators and representatives which, without regard to party affiliations, considers itself as representing the interests of the farmers as distinguished from the interests of the nation as a whole. This is a radical departure from the accepted theory upon which our republic has functioned heretofore. The "farmers' bloc" has its opponents and its defenders, but a magazine such as THE JOURNAL OF ACCOUNTANCY is not the proper place to discuss its merits or demerits.

However, to a few it seems that the creation of the farmers' bloc marks a step in the natural development of our ideas of government. If a farmers' bloc is a natural development, successive steps would be a miners' bloc, a transportation bloc, a bloc representing the financial interests, etc. This development was prophesied a number of years ago by a very learned student of economics who has evolved a philosophy which he calls the "American Philosophy." This philosophy is so far-seeing and far-reaching in its concepts as to seem visionary to most of those to whom it has been unfolded. One of the less important thoughts contained in it is that our congress, which is at present builded upon geographic lines and proportioned to population, and the functions of which until recently have been directed more to sociological than economic questions, should be amplified by having representatives of what he terms "commercial states."

Commercial states according to this student are made up of those engaged in a like industry, e.g., the state of finance, the state of transportation, the state of mining, the state of grain, the state of textiles, etc., etc.

The part the prophesies of this man play in this matter is that as the only one of the so-called commercial states that is now represented in congress is the agricultural, this governmental agency throws out of equilibrium the entire structure, and as has been seen, the commercial state of the farm is pressing for measures for its interest without proper regard for the interests of the other "commercial states" and the nation as a whole.

As a natural result of this lack of balance we have the excess-profits tax with us for the year 1921, but beginning with January 1, 1922, this law will no longer be a burden to the business of the country. In view of the financial stress and business depression during the entire year 1921, the statistics of the revenues from excess-profits taxes will make interesting reading when they are finally compiled.

The old excess-profits tax with its basis in a concept of invested capital has been a great educator to a majority of the business world. The members of this majority have had put before them in concrete form the fact that there is a relationship between the capital invested in a given enterprise and the profits that capital should earn. True, the revenue acts of 1916, 1917 and 1918 placed that corporation at a disadvantage which had closely figured the capital necessary to its successful operation and had distributed among its stockholders all above such amount of capital. It also placed at a disadvantage corporations whose management had, following conservative methods, been in the habit of valuing its assets at lower figures than was, perhaps, proper, and having made these low valuations had not made any record of the shrinkage so taken. This class has learned that books of account are most necessary, and are valuable only when all the financial history of the enterprise is properly set forth therein.

The great lesson that has been learned, however, is that books of account are most essential to intelligent operation, and that such books are the principal evidence of accuracy of the salient and necessary facts of the business. The days are about gone when successful management will look upon accounting records as something simply to be tolerated, and that accuracy is only required in the recording the flow of the cash and in the keeping of accounts with the debtors and creditors of the business.

So, while there is general relief because of the passing of the excess-profits tax, we feel that its memory should be treated with respect. Great ingenuity was exercised in its creation and also in the administration of its provisions.

In the following paragraphs we will set forth observations and comment upon some of the more important features of the revenue act of 1921. Much more could be said with respect to each of the several matters treated of, but we cannot hope to exhaust the subject in the few pages allotted to it, and if this were possible the last word could not be spoken at this time.

Government statistics have shown that the vast majority of returns are made by taxpayers whose income is five thousand dollars or less. The interests of these taxpayers have been given due consideration by increasing the personal exemption of married persons or the heads of families from $2,000 to $2,500. There is a limiting provision whereby those whose income is only slightly above $5,000 will be permitted to take advantage of this exemption. This additional $500 exemption does not apply to married persons or heads of families whose income is $5,020 or more, nor to single persons. It has been estimated that this additional exemption will save this group of taxpayers about three millon five hundred thousand dollars. The newspapers have made much of the action of congress in thus relieving the taxpayers with small incomes of comparatively considerable tax. While the exemption will be felt by a great number of taxpayers, the aggregate amount of saving is pitifully small.

An exemption of $400, instead of $200 as heretofore, is allowed for each dependent of all taxpayers. The above exemptions are effective for the year 1921.

Every individual having a gross income for the taxable year of $5,000 or more, regardless of his net income, is required to make a return. Husband and wife living together whose aggregate gross income is $5,000 or more or whose aggregate net income is $2,000 or more are required to make returns. These returns may be made jointly or individually.

Net losses sustained in trade or business by taxpayers in any taxable year after December 31, 1920, are deductible from the net income of the succeeding taxable year and if such net loss is in excess of the net income of the succeeding year the excess of such net loss may be deducted from the net income for the next succeeding year. Considerable care has been used in defining how these net losses shall be determined and the language should be given thoughtful consideration as there will probably be many instances where the deductions may be made.

Taxpayers have quite frequently taken advantage of the provision of the former laws wherein losses upon the sale of securities, particularly liberty bonds, were allowed as a deduction in determining net income. Having made the sale they would purchase them again at the lower figures, or purchase like securities. Under the new law and effective as of January 1, 1921, such losses will not be deductible wherein it appears that within thirty days prior or subsequent to such sale the taxpayer has acquired securities representing substantially identical property and the taxpayer has held the new property for any period after such sale.

It will no longer be possible for taxpayers who contemplate the sale of property at a profit, to evade the tax upon such transaction by giving the property, at a value at or near the contemplated selling price to a near relation who would thereby be freed from paying the proper amount of tax upon the sale of the gift property because the selling price was only slightly in excess, or not at all, of the appraised value of the property at time of its acquisition by gift. The new law provides that upon sale or other disposition of property obtained as a gift the net gain shall be computed by deducting from the sale price the cost of such property to the donor or last preceding owner, with proper modifying provisions for such computation in case the property was acquired by the donor or preceding owner prior to March 1, 1913.

The new law has enacted the principles laid down in the several treasury decisions regarding the determination of gains or losses upon the sale or other disposition of capital assets acquired before March 1, 1913.

Congress has taken note of the retardng effect upon business of taxing gains upon sales of capital assets at the same rate as that upon ordinary business income. The new law distinguishes between these two classes of income and by its provisions limits the tax upon gains from sale or other disposition of capital assets. This limitation is effective as of December 31, 1921, and thereafter such gains will be taxable at 12½ per cent. These provisions apply to individuals, partnerships and estates, but do not apply to the gains of corporations. Capital assets are defined as "property acquired and held by the taxpayer for profit or investment for more than two years (whether or not connected with his trade or business) but does not include property held for personal use or consumption of the taxpayer or his family, or stock in trade."

Beginning January 1, 1922, corporations will be subject to an income tax at 12½ per cent. of its taxable net income instead of 10 per cent. as heretofore.

Former income-tax laws have allowed all corporations an exemption of $2,000 to be applied before computing income taxes. As of January 1, 1921, this exemption is abolished, except to those whose income is $25,000 or less. There is a limiting clause extending this exemption to those corporations whose income is slightly in excess of $25,000.

If an individual or partnership is carrying on a business in which capital is a material income-producing factor and in which the net income for the taxable year 1921 is not less than 20 per cent. of the invested capital and the tax upon income derived therefrom is in excess of what it would be if the said business was incorporated, such business may be incorporated if done "within four months after the passage of the act." As the act was passed November 23, 1921, it is apparently necessary to take advantage of this provision prior to March 23, 1922. In case such business is incorporated within the stipulated time the entire income from January 1, 1921, may be returned and is taxable as if it were a corporation. It seems highly probable that this privilege will be extended to those who incorporated in 1921, "prior" to four months after the passage of the act instead of just those who incorporated "within" the said four months' period.

As there will be no excess-profits taxes after January 1, 1922, there will be no personal service corporations, heretofore recognized as being subject to a limited amount of excess-profits tax. Nor will the stockholders in such corporations be obliged to include in their returns the undistributed earnings of such corporations. No provisions of the former laws were the cause of so much controversy, perhaps, as were those pertaining to the taxation of personal service corporations, and it will be a great relief to all concerned that this bone of contention is removed.

After January 1, 1921, taxpayers having income from tax-free-covenant bonds will not be required to include as income the tax paid for them upon such bonds by the corporation, as has heretofore been required.

Additions to reserves for bad debts are recognized as deductible items under the new law provided they are considered reasonable. Also, when the taxpayer can produce satisfactory evidence that a debt will probably be paid only in part, he may consider the total amount of the debt as bad, charge it off and deduct it from income. This latter provision is subject to the discretion of the commissioner of internal revenue, and is quite a departure from the limitation upon deductions for bad debts that has heretofore been held necessary. It will be remembered that before a deduction could be made for bad debts, they had to be "charged off" in the books of account, and the taxpayer was obliged to show evidence that the debt could be considered uncollectible. Of any part of it was collectible the debt could not be charged off until final payment was made of that part.

In case of exchanges of property, other than those made in reorganizations, the net income shall be computed upon the "readily realizable market value" under provisions of the new law instead of the "fair market value" as heretofore.

Other provisions which render needed relief to the free flow of business are those revising the former law which taxed as income such gain as might be indicated by the transfer of property of an individual to a corporation wherein the individual still maintained a controlling interest in the corporation to which the property was transferred.

As this is written the regulations covering this law are not yet distributed and until then we cannot hope to know all the points there may be brought out, but with such information that is available it would seem fair to say that the law is better than those that preceded it. The enacting bodies have not been obliged to blaze a new trail as they were in 1917, and they were not confronted with ever-mounting budgets as they were in 1918, and so with the mass of court and treasury decisions on the former laws, and with the accumulated experience of the administrative officials, they have passed a law that has eliminated almost all the flaws of the former ones.

There will, no doubt, be revisions made in this law and many of its provisions will be attacked but for a time at least it will be the law of the land and as such is worthy of respect and the obedience that all good citizens are glad to give it.

Causes of Examination Failure

One of the questions which is greatly concerning the board of examiners of the Institute, the various state boards of accountancy throughout the country and the many applicants for C. P. A. certificates and Institute membership is the small percentage of success in examination.

Thirty-eight states are using the Institute's examinations and the number of applicants increases steadily. The utmost care is exercised in the preparation of examination questions and every possible effort is made to present to applicants abundant opportunity to demonstrate their ability to practise as public accountants. Every criticism is given careful consideration and nothing is left undone which would be likely to render the examinations clear, easily understood and fair.

Yet, in spite of all that has been done, the percentage of success is lamentably small. Many reasons have been assigned for the failure of so many applicants, and we believe that the most important and valid of these is the evident lack of adequate preliminary study and practice on the part of applicants.

There are, however, other reasons which deserve careful consideration and in order to present these fairly, we have obtained from examiners employed by the board of examiners expressions of opinion as to the cause or causes of failure.

One of the examiners, whose field is accounting theory and practice, writes as follows:

"Several reasons may be advanced as to why so many of the candidates taking the examinations for membership of the American Institute of Accountants fail to secure the requisite number of marks to satisfy the examiners that they are qualified to pass.

"The one foremost is, undoubtedly, nervousness. Few candidates, however well prepared and equipped, enter the examination room with the *savoir faire* borne in the every-day routine of the office, no matter how arduous and complicated the office engagements may be.

"The mental hazards preparatory to and upon entering the examination room are various and depend upon the temperament and healthful condition of the candidate; but for the most part they dwell upon the uncertainty regarding the subjects to be met —whether these subjects will be such as are familiar; to what extent and whether it will be possible to answer all the questions and problems in the time alloted.

"It is obvious that many candidates do not read the questions carefully and as thoroughly as they should in order to grasp the true situation and ascertain exactly what is required. They imagine that they do so, attempt a problem hurriedly and spend considerable time thereon only to find later that they have mistaken its purport. Many answer the theoretical questions (which invariably carry less weight than the problems) first and then, proceeding with the problems, realize suddenly that too much time has been devoted to the former and that there is insufficient time satisfactorily to complete the latter. These either finish the problems in error or do not finish them at all.

"Many candidates waste much time, and stationery, by making unnecessary transcripts of the data, such as lists of balances, before them.

"There are usually several evidences of good work but slow, and the result of this is that problems are omitted entirely in either part 1 or part 2, sometimes both, and of course the entire loss of points for such omissions. Some papers give evidence of a good knowledge of one particular subject, notably the income and profits-tax problems, but a woful lack of knowledge of all other subjects. Others show good book-keeping ability but very little experience in higher accountancy subjects. Then (sad to relate) there are candidates who should not present themselves for the examinations at all, displaying an incompetence and ignorance truly deplorable.

"Of those who passed the last two examinations, the majority passed well, but of those who failed the greater number failed badly.

"Several candidates, not knowing whether they were successful or otherwise, have voluntarily admitted that former examination papers were fair. There was perhaps some little excuse for the frequent complaint of insufficient time at the previous examinations. At the November, 1921, examinations there could be no such excuse and, indeed, very little comment on this point was heard."

The subject of commercial law is one that seems to terrify many of the applicants. Obviously, examinations in this subject must deal only with the broad, fundamental principles rather than any state statute. Any examination given in most of the states in the Union can be fair only if it deals with matters common throughout the country.

One of the examiners in commercial law expresses the following opinions:

"I think I should first outline the viewpoint of the examiner. The examiner selects questions which cover legal points that would be covered by a student in the proper study of commercial law. The object of the examination being to ascertain knowledge of the subject possessed by the applicant, questions are propounded the answering of which will of necessity disclose to the examiner the extent of such knowledge. It follows, therefore, that the reasoning of the applicant on which his answers to respective questions are based is of great importance. In fact the applicant may give an incorrect answer and yet by his reasoning disclose a knowledge of the subject which will warrant his receiving a good mark for the answer. The papers which I have corrected show a tendency on the part of applicants to pay little attention to the reasons for their answers and to expressing their reasons. It is possible that by changing the words which appear on the papers, 'Give reasons for all answers,' the importance of the reasons could be more strongly impressed upon the applicant's mind.

"Ordinarily failure is, of course, due to lack of knowledge of the subject. While commercial law is not the most important subject to be mastered by an accountant, every accountant and in fact every business man should have a thorough working knowledge thereof, and such knowledge cannot be acquired by a casual reading of some work on the subject nor by an intensified 'cramming' carried on for a short period prior to the examination. Applicants should take up the study of the subject with the idea that a knowledge of it is part of their equipment for successfully practising in the profession which they have chosen, and not, as many evidently do, with a view of passing some particular examination. There are some whose lack of knowledge is due not to improper application to study, but to use, through misinformation, of poor text-books. This is quite apt to be true with those who pursue the study by themselves.

"The greatest weakness shown is in the question of negotiable instruments. This branch of the law is largely a question of memory. Negotiable instruments law being uniform throughout the United States, applicants should thoroughly memorize the provisions of the act, not word for word, but the substance thereof, and, further, in the case of each section of the statute, should become familiar with the general practical application thereof. If the study of the negotiable instruments law is pursued in that way, the memorizing of the statute will be easier and the knowledge of the subject more thorough.

"The same course should be pursued by applicants in acquiring a knowledge of the uniform sales act and the uniform partnership law. The uniform sales act is, of course, a most important branch of the law of contracts, and as it is gradually becoming uniform throughout the United States, it should be an important part of every course of study of commercial law. While at present the questions on partnership are not predicated on the uniform statute, nevertheless the statute for the most part is merely an enactment of the general principles of the common law, for which reason the study of the statute should be taken up, regardless of whether or not the uniform statute is a law of the state in which the applicant resides.

"I am also impressed by the evident failure of many of the applicants carefully to consider and analyze the questions before attempting to write the answers, as a result of which the applicant tries to discuss a point which a proper consideration of the question would show could not possibly be involved. More time should be taken in analyzing the questions; the answers, particularly the reasons therefor, should be carefully thought out; and the answers should be carefully and concisely expressed in writing. The applicant should take up the questions in the order in which they appear on the paper and not, as is apparently done by many, pick out from all the questions those which appear the easiest to the applicant, leaving those which appear most difficult to be taken up last. As a result of the latter course, it is impossible for the applicant to concentrate his mind on the particular questions which he is answering and there is a failure to give proper thought to the analyzing of each question.

"The poor results of the examination heretofore have been the effect, not of difficult questions, but rather of poorly equipped applicants."

We are glad to be able to present these expressions of opinion from examiners and trust that they will be given due consideration by future applicants.

It is quite generally admitted by institutions of learning that no examination test is absolutely fair. The element of personality and individual temperament must be ignored in preparing examination questions for any large group of candidates. But we are confident that the Institute examinations approach as near as possible the point of absolute fairness and we believe that the great majority of qualified applicants have passed and will continue to pass those examinations.

Income-tax Department

EDITED BY STEPHEN G. RUSK

The revenue act of 1921, the title of the income and profits-tax law now in effect, is published by the treasury department as treasury decision No. 3258. As this document is available to all, it will not be published in THE JOURNAL OF ACCOUNTANCY.

Article 941 of regulations 45, relating to the valuation of assets for the purposes of invested capital upon the change of ownership, is amended by treasury decision No. 3259.

In order that claims for refund, credit and abatement may be handled more expeditiously and to provide for refund and credit of overpayments of revenues where no claims have been filed, the department of internal revenue has set forth, in treasury decision 3260, the manner in which such matters shall be handled.

The first decision bearing upon the revenue act of 1921 deals with the manner in which, in exceptional cases, a loss sustained in one year may be deducted in another. It recites that the allowance to deduct in one year a loss sustained in another is entirely within the discretion of the commissioner, and his decision will follow an audit of the return. This does not deal with net loss as distinguished from net income, but rather to losses deductible in determining net income or net loss.

Treasury decision 3262 prescribes the rules for the deduction of bad debts under the provisions of the new law, which latter permits a deduction of a reasonable reserve for uncollectible accounts, and also that a debt may be charged off even if it is known that collection of a part of it will be made.

Section 250 (f) of the new law provides for extension of time in certain cases where an audit of a return reveals additional taxes due, if the said tax did not arise from negligence or fraud, and then this extension will only be made where its immediate collection would result in great financial hardship to the taxpayer.

Other decisions published in this issue need no comment.

(T. D. 3259—December 7, 1921)

Income tax—Valuation of asset upon change of ownership.

Article 941, Regulations No. 45, amended.

Article 941, regulations No. 45, is hereby amended to read as follows:

ART. 941. *Valuation of asset upon change of ownership.*—Where a business is reorganized, consolidated or transferred, or property is transferred, after March 3, 1917, and an interest or control of 50 per cent. or greater in such business or property remains in the same persons or any of them, then for the purpose of determining invested capital each asset so transferred is valued (a) at an amount representing its actual cash value, subject to the limitations imposed by section 326, but not exceeding its allowable value, for invested capital purposes, in the possession of the previous owner, if a corporation, or, if not a corporation (b) at its cost to such previous owner, with proper adjustments for losses and improvements. This provision is accordingly concerned with the computation of invested capital for the taxable year, while section 330 of the statute is chiefly concerned with the determination of invested capital for the pre-war period. See articles 931, 932 and 1561-1570.

(T. D. 3260—December 8, 1921)

Refund, credit and abatement adjustments

For the more expeditious handling of refund, credit and abatement claims, and to provide for the refund or credit of overpayments of revenues where no claims have been filed, the following procedure is established, to become effective December 16, 1921:

1. Reduction of internal-revenue assessments and adjustments of overpayments of revenues will hereafter be accomplished in one of three ways:

(a) On the basis of an application submitted by a taxpayer on form 46, 47, or 47a, together with appropriate supporting evidence to be filed in the office of the collector of internal revenue of the district in which the tax is assessed.

(b) On the basis of a certificate of overassessment prepared by the appropriate administrative unit in the bureau in each case in which an overassessment of tax is disclosed through the audit of a return.

(c) On the basis of a blanket claim (form 751); a schedule of taxes found to be uncollectible (form 53); or a schedule of duplicate payments and overpayments due to obvious error on all forms of taxable returns (blanket form 47 or 47B) submitted by a collector of internal revenue. Form 751 will be used only in cases where credit balances exist, regardless of the class of return filed.

2. Claims of taxpayers and the items of collectors' blanket claims (if and when found by an administrative unit to be allowable), and certificates of overassessment (upon final approval), and items credited in account 9 (e) shall be scheduled on form 7777 and submitted to the commissioner of internal revenue for approval. Upon approval by the commissioner, such schedules shall be forwarded to the collectors of internal revenue of the several districts.

3. Upon receipt of such schedules the several collectors of internal revenue shall immediately check the items thereon against the accounts of the several taxpayers concerned and determine whether the several amounts of overassessments should be abated, refunded, or credited against assessments remaining unpaid. Only overpayments of income and profits taxes may be credited against unpaid assessments of such taxes (sec. 252, revenue act 1921). Whenever, on such examination of a taxpayer's account and of the items in account 9 (e), a collector finds an amount of overpayment, he shall examine all accounts of the taxpayer for subsequent periods and determine and certify the amount, if any, of such overpayment that shall be credited against the taxpayer's account for any subsequent year or years and the amount of such overpayment for which a disbursement check should be issued. He shall thereupon make appropriate entries upon all copies of the schedules and upon the assessment list, indicating the application made by him of the several amounts of overassessment and overpayment (whether by abatement or by credit), and the amounts to be refunded; summarize the amounts applied in abatement, the amounts of overpayment and of credit; certify all copies of the schedule; retain one copy, and forward the others to the commissioner of internal revenue at Washington.

4. The collector shall, at the same time, prepare (in quadruplicate) on form 7777 A a schedule of net refundable amounts for which disbursement checks are to be issued; retain one copy of the schedule for his record; certify the other three copies and forward them together with the copies of the schedules on form 7777 to the commissioner of internal revenue at Washington.

5. Upon application of the several amounts of overassessment and overpayment as abatements or credits, and the determination of the amounts to be refunded, the collector of internal revenue shall make the appropriate entries upon the certificates of overassessment which will be forwarded to him with the schedules; and transmit appropriate copies of such certificates to the several taxpayers as notification of the action taken by the collector in the way of abatement or credit; provided, however, that in those cases in which any amount of overpayment is to be refunded, the collector shall not send the certificate of overassessment to the taxpayer, but shall make the appropriate entries thereon and forward

such certificates of overassessment with the schedule of refundable amounts to the commissioner of internal revenue at Washington.

6. Upon completion and certification of a schedule the collector of internal revenue shall credit the accounts with the amounts abated and credited and make proper notations of the refunds. The proper account 6 will be credited, and account 18 will be debited with the total amount abated and applied as credits for the reduction of tax liability. Account 9 (e) will be debited with the total amount applied as credits from items in account 9 (e). The procedure as outlined in section 583 of the internal revenue manual, in cases of this nature, should be carefully followed.

7. Upon receipt of properly certified copies of form 7777 and 7777 A, the commissioner shall cause to be made the necessary entries in the control accounts of the bureau of internal revenue and the necessary allowance documents prepared. Upon receipt of these schedules the accounts unit of the bureau of internal revenue shall retain one copy of form 7777 for its records and forward a copy to the general accounting office of the comptroller general as a voucher for the collection accounts of the collector. He shall retain one copy of the schedule of refunds (form 7777 A) for his records, make the necessary entries upon, and forward two copies with the allowance documents to the commissioner for his approval.

8. Upon approval of schedules of refunds (form 7777 A) the commissioner will forward such schedules with the allowance documents to the disbursing clerk of the treasury department.

9. Upon receipt of properly approved schedules and allowance documents, the disbursing clerk shall prepare disbursement checks in the amounts of the several net refundable items in favor of the respective taxpayers against whose accounts net refundable amounts shall have been allowed by the commissioner; forward such checks, together with the certificates of overassessment (which will be transmitted to him) to the respective taxpayers; retain one copy of this schedule for his record; and transmit the other copy to the general accounting office of the comptroller general as a voucher for his disbursement account.

(T. D. 3261—December 20, 1921)

Income tax—Losses.

The losses allowed as deductions under sections 214 (a), (4), (5) and (6), and 234 (a) (4) of the revenue act of 1921 shall be deducted as of the taxable year in which sustained. In exceptional circumstances, however, in order to avoid injustice to the taxpayer and to more clearly reflect his income the commissioner may permit a loss to be accounted for as of a year other than the one in which sustained. For example, an embezzlement or a shipwreck may occur in 1921 but not become known until 1922 and in such a case income may be more clearly reflected by accounting for the loss as of 1922 rather than of 1921. If a taxpayer desires to account for a loss as of a period other than the one in which actually sustained, he shall attach to his return a statement setting forth his request for consideration of the case by the commissioner, together with a complete statement of the facts upon which he relies. However, in his income-tax return he shall deduct the loss only for the taxable year in which actually sustained. Upon the audit of the return the commissioner will decide whether the case is within the exception provided by the statute; if not within the exception the loss will be allowed only as of the taxable year in which sustained. The allowance of a deduction for a loss in a year other than the one in which sustained is entirely within the discretion of the commissioner and he will consider exercising this discretion only in exceptional cases. A shrinkage in the value of the taxpayer's stock in trade, as reflected in his inventory, is not such a loss as is contemplated by the provision of the statute authorizing the commissioner to allow the deduction of a loss for a taxable year other than the one in which sustained.

A person possessing securities such as stocks cannot deduct from gross income any amount claimed as a loss merely on account of the shrinkage in value of such securities through fluctuation of the market or otherwise. However, if stock of a corporation becomes worthless its cost or other basis determined under section 202, may be deducted by the owner in the taxable year in which the stock became worthless, provided a satisfactory showing of its worthlessness be made, as in the case of bad debts. Where banks or other corporations which are subject to supervision by federal authorities (or by state authorities maintaining substantially equivalent standards) in obedience to the specific orders or general policy of such supervisory officers charge off stock as worthless or write it down to a nominal value, such stock shall, in the absence of affirmative evidence clearly establishing the contrary, be presumed for income tax purposes to be worthless.

(T. D. 3262—December 21, 1921)

Income tax—Bad debts

Sections 214 (a) (7) and 234 (a) (5) of the revenue act of 1921 provide that in computing the net income of an individual or corporation there shall be allowed as a deduction:

Debts ascertained to be worthless and charged off within the taxable year (or, in the discretion of the commissioner, a reasonable addition to a reserve for bad debts); and, when satisfied that a debt is recoverable only in part, the commissioner may allow such debt to be charged off in part.

The foregoing provision changes the previous practice in two particulars —first, by recognizing a reserve for bad debts, and second, allowing a debt to be charged off in part. Under this provision, bad debts may be treated in either of two ways—(1) by a deduction from income in respect of debts ascertained to be worthless in whole or in part, or (2) by a deduction from income of an addition to a reserve for bad debts. For the year 1921 taxpayers may, regardless of their previous practice, elect either of these two methods and will be required to continue the use in later years of the method so elected unless permission to change to the other method is granted by the commissioner.

(1) Where all the surrounding and attending circumstances indicate that the debt is worthless, either wholly or in part, the part thereof which is worthless and charged off or written down to a nominal amount on the books of the taxpayer shall be allowed as a reduction in computing net income. There should accompany the return a statement showing the propriety of any deduction claimed for bad debts. No deduction shall be allowed for the part of a debt ascertained to be worthless and charged off prior to January 1, 1921, unless and until the debt is ascertained to be totally worthless and is finally charged off or is charged down to a nominal amount, or the loss is determined in some other manner by a closed and completed transaction. Before a taxpayer may charge off and deduct a debt in part, he must ascertain and be able to demonstrate, with a reasonable degree of certainty, the amount thereof which is uncollectible. Any amount subsequently received on account of a bad debt previously charged off in whole or in part, and allowed as a deduction for income-tax purposes, in excess of the amount not charged off, must be included in gross income for the taxable year in which received. In determining whether a debt is worthless in whole or in part the commissioner will consider all pertinent evidence, including the value of the collateral, if any, securing the debt and the financial condition of the debtor. Partial deductions will be allowed with respect to specific debts only.

(2) Taxpayers who have, prior to 1921, maintained reserve accounts for bad debts may deduct a reasonable addition to such reserves in lieu of a deduction for specific bad-debt items. Taxpayers who have not heretofore maintained such reserve accounts may now elect to do so, and in such case shall proceed to determine the amount of the reserve that should reasonably have been set up as at December 31, 1920, (which

shall not be deducted in computing net income) and, in respect of 1921 and subsequent years, may add a reasonable addition to such reserve and deduct the amount in computing taxable net income. Where a reserve account is maintained, debts ascertained to be worthless in whole or in part should be charged against the reserve and not deducted from income. That constitutes a reasonable addition to a reserve, for bad debts must be determined in the light of the facts and will vary as between classes of business and with conditions of business prosperity. A taxpayer using the reserve method should make a statement in his return showing the volume of his charge sales (or other business transactions) for the year and the percentage of the reserve to such amount, the total amount of notes and accounts receivable at the beginning and close of the taxable year, and the amount of the debts which have been ascertained to be wholly or partially worthless and charged against the reserve account during the taxable year.

Where banks or other corporations which are subject to supervision by federal authorities (or by state authorities maintaining substantially equivalent standards) in obedience to the specific orders, or in accordance with the general policy of such supervisory officers, charge off debts in whole or in part such debts shall, in the absence of affirmative evidence clearly establishing the contrary, be presumed, for income-tax purposes, to be worthless or recoverable only in part, as the case may be.

Accrued interest may be included as part of the deduction for bad debts only when it has previously been returned as income.

A taxpayer (other than a dealer in securities) possessing debts evidenced by bonds or other similar obligations cannot deduct from gross income any amount merely on account of market fluctuation. Where a taxpayer ascertains, however, that due, for instance, to the financial condition of the debtor, or conditions other than market fluctuation, he will recover upon maturity none or only a part of the debt evidenced by the bonds or other similar obligations and is able to so demonstrate to the satisfaction of the commissioner, he may deduct in computing net income the uncollectible part of the debt evidenced by the bonds or other similar obligations.

Where mortgaged or pledged property is lawfully sold (whether to the creditor or other purchaser) for less than the amount of the debt, and the mortgagee or pledgee ascertains that the portion of the indebtedness remaining unsatisfied after such sale is wholly or partially uncollectible, and charges it off, he may deduct such amount as a bad debt for the taxable year in which it is ascertained to be wholly or partially worthless and charged off. Where a taxpayer buys in mortgaged or pledged property for the amount of the debt, no deduction shall be allowed for any part of the debt. Gain or loss is realized when the property bought in is sold or disposed of.

(T. D. 3263—December 21, 1921)

Income tax—Section 250 (f), revenue act of 1921.

Extension of time for payment of deficiency under section 250 (f), revenue act of 1921.

Section 250 (f) of the revenue act of 1921 contains a special relief provision which will be in effect for only 18 months after November 23, 1921, the date of the passage of the act. It provides that in the case of any deficiency in tax revealed on the examination of an income or profits-tax return (except where the deficiency is due to negligence or to fraud with intent to evade tax) where it is shown to the satisfaction of the commissioner that the payment of such deficiency would result in undue hardship to the taxpayer, the commissioner may, with the approval of the secretary, extend the time for the payment of such deficiency or any part thereof for a period not to extend beyond 18 months from November 23, 1921. Where such an extension is granted there is to be added as part of the deficiency in lieu of other interest provided by law, interest at the rate of two-thirds of 1 per cent. per month from the time the extension is granted. Where such other interest provided by law, however, is in excess of two-thirds of 1 per cent. per month the higher rate will be charged. If the deficiency or any part thereof is not paid in accordance with the terms of the extension agreement, there is to be added as part of the deficiency, in lieu of other interest and penalties provided by law, the sum of 5 per cent. of the deficiency together with interest on the deficiency at the rate of 1 per cent. per month from the time it became payable under the terms of the extension agreement. The extension will be granted only in case the taxpayer establishes to the satisfaction of the commissioner that without such extension undue hardship will result to the taxpayer. The term "undue hardship" means more than an inconvenience to the taxpayer. It is defined as meaning that substantial financial loss or sacrifice will result to the taxpayer from making payments of the deficiency at the due date. This provision of the statute is applicable only to deficiencies in taxes which have accrued or may accrue under the revenue act of 1917, the revenue act of 1918, or the revenue act of 1921, and the deficiency referred to is only such deficiency in tax as is revealed on the examination of an income or profits tax return. It has no application to deficiencies in taxes other than deficiencies in income and profits taxes under the three acts named.

Any application for the extension must be made under oath on form 1127 in accordance with instructions printed thereon and must be accompanied by evidence showing that undue hardship to the taxpayer would result if the extension were refused. The extension will not be granted on a general statement of hardship, but in each case there must be furnished a statement of the specific facts showing what, if any, financial loss or sacrifice will result if the extension is not granted. The application, with the evidence, must be filed with the collector who will at once transmit it to the commissioner with his recommendations as to the extension. When it is received by the commissioner it will be examined and within 30 days either rejected or tentatively approved.

The application should, wherever practicable, contain a certified statement of assets and liabilities of the taxpayer. Where the application is tentatively approved and a bond is required it must be filed with the collector within 10 days after the notification by the commissioner that a bond is required. It shall be conditioned for the payment of the deficiency and applicable penalties, if any, and interest in accordance with the terms of the extension to be granted and shall be executed by a surety company holding a certificate of authority from the secretary of the treasury as an acceptable surety on federal bonds and shall be subject to the approval of the commissioner. In lieu of such a bond the taxpayer may file a bond secured by deposit of Liberty bonds or other bonds or notes of the United States equal in their total par value to the amount of the deficiency and applicable penalties, if any, and interest, as provided in section 1329 of the revenue act of 1921.

(T. D. 3264—December 21, 1921)

Income tax—Revenue act of 1916, section 5 (a) (6).

That portion of article 8, designated as paragraphs 98 and 99, of regulations No. 33 (revised) is amended to read as follows:

Bad debts—Uncollectible deficiency upon sale of mortgaged or pledged property.—Where mortgaged or pledged property is sold, in the manner prescribed by law to satisfy the debt secured, for less than the debt, and the mortgagee or pledgee at that time or thereafter ascertains that the portion of the indebtedness remaining unsatisfied after such sale is uncollectible, and charges it off, he may deduct such amount as a bad debt for the taxable year in which it is ascertained to be worthless and charged off. Accrued interest may be included as part of the deduction only when it has previously been returned as income.

(T. D. 3265—December 21, 1921)

Income tax—Revenue act of 1918, section 214 (a) (7).

Article 153 of regulations No. 45 (1920 edition) is amended to read as follows:

ART. 153. *Uncollectible deficiency upon sale of mortgaged or pledged property.*—Where mortgaged or pledged property is sold, in the manner prescribed by law to satisfy the debt secured, for less than the debt, and the mortgagee or pledgee at that time or thereafter ascertains that the portion of the indebtedness remaining unsatisfied after such sale is uncollectible, and charges it off, he may deduct such amount as a bad debt for the taxable year in which it is ascertained to be worthless and charged off. Accrued interest may be included as part of the deduction only when it has previously been returned as income.

(T. D. 3266—December 21, 1921)

Income tax—Foreign governments.

Exempting the wives and minor children of foreign ambassadors and ministers and the members of their households from taxation with respect to income derived from certain sources.

Regulations No. 45 (1920 edition) is hereby amended by amplifying article 83 as follows:

ART. 83. *Income of foreign governments.*—The exemption of foreign governments applies also to their political subdivisions. Any income collected by foreign governments from investments in the United States in stocks, bonds, or other domestic securities, which are not actually owned by but are loaned to such foreign governments, is subject to tax. The income from investments in the United States in bonds and stocks and from interest on bank balances received by ambassadors and ministers accredited to the United States and the fees of foreign consuls, are exempt from tax but income of such foreign officials from any business carried on by them in the United States would be taxable. As under international law, the benefits and immunities of ambassadors and ministers of foreign countries extend to the members of their households, including attachés, secretaries, and servants, the foregoing provision is likewise applicable to the wives and minor children of foreign ambassadors and ministers and the members of their households. The compensation of citizens of the United States who are officers or employees of a foreign government is, however, not exempt from tax.

(T. D. 3267—September 28, 1921)

Estate tax—Act of September 8, 1916—Decision of Supreme Court.

1. CONSTITUTIONALITY OF ACT.

Title II, act of September 8, 1916, is not unconstitutional as an interference with the rights of the states to regulate descent and distribution as unequal or as a direct tax not apportioned as the constitution requires.

2. NET ESTATE DEDUCTION OF STATE INHERITANCE AND SUCCESSION TAXES.

State inheritance and succession taxes paid to New York and other states are not deductible under section 203 as "charges against the estate," for the purpose of determining the net estate subject to tax.

The appended decision of the supreme court of the United States, in the case of New York Trust Co. and Albert W. Pross, as executors of the will of *J. Harsen Purdy, deceased, v. Mark Eisner,* affirming the decision of the United States District Court for the Southern District of New York (T. D. 2976), is published for the information of internal-revenue officers and others concerned.

SUPREME COURT OF THE UNITED STATES. No. 286. OCTOBER TERM, 1920.

New York Trust Co. and Albert W. Pross, as executors of the will of J. Harsen Purdy, plaintiffs in error, v. Mark Eisner.

ERROR to the District Court of the United States for the Southern District of New York.

[May 16, 1921.]

Mr. Justice HOLMES delivered the opinion of the court:

This is a suit brought by the executors of one Purdy to recover an estate tax levied under the act of congress of September 8, 1916 (ch. 463, Title II, sec. 201, 39 Stat., 736, 777), and paid under duress on December 14, 1917. According to the complaint Purdy died leaving a will and codicil directing that all succession, inheritance and transfer taxes should be paid out of the residuary estate, which was bequethed to the descendants of his brother. The value of the residuary estate was $427,414.96, subject to some administration expenses. The executors had been required to pay and had paid inheritance and succession taxes to New York ($32,988.97) and other states ($4,780.91) amounting in all to $37,769.88. The gross estate as defined in section 202 of the act of congress was $769,799.39; funeral expenses and expenses of administration, except the above taxes, $61,322.08; leaving a net value for the payment of legacies, except as reduced by the taxes of the United States, of $670,707.43. The plaintiffs were compelled to pay $23,910.77 to the United States, no deduction of any part of the above mentioned $37,769.88 being allowed. They allege that the act of congress is unconstitutional, and also that it was misconstrued in not allowing a deduction of state inheritance and succession taxes as charges within the meaning of section 203. On demurrer the district court dismissed the suit.

By section 201 of the act, "a tax * * * equal to the following percentage of the value of the net estate, to be determined as provided in section 203, is hereby imposed upon the transfer of the net estate of every decedent dying after the passage of this act." * * * with percentages rising from 1 per centum of the amount of the net estate not in excess of $50,000 to 10 per centum of the amount in excess of $5,000,000. Section 202 gives the mode of determining the value of the gross estate. Then, by section 203 it is enacted "That for the purpose of the tax the value of the net estate shall be determined—(a) In the case of a resident, by deducting from the value of the gross estate—(1) Such amounts for funeral expenses, administration expenses, claims against the estate, unpaid mortgages, losses incurred during the settlement of the estate arising from fires, storms, shipwreck, or other casualty, and from theft, when such losses are not compensated for by insurance or otherwise, support during the settlement of the estate of those dependent upon the decedent, and such other charges against the estate as are allowed by the laws of the jurisdiction, whether within or without the United States, under which the estate is being administered; and (2) an exemption of $50,000." The tax is to be due in one year after the decedent's death. Section 204: Within 30 days after qualifying the executor is to give written notice to the collector and later to make return of the gross estate, deductions allowed, net estate and the tax payable thereon. Section 205: The executor is to pay the tax. Section 207: The tax is a lien for two years on the gross estate except such part as is paid out for allowed charges; section 209, and if not paid within 60 days after it is due is to be collected by a suit to subject the decedent's property to be sold. Section 208: In case of collection from some person other than the executor, the same section provides for contribution from or marshaling of persons subject to equal or prior liability, "it being the purpose and intent of this title that so far as is practicable and unless otherwise directed by the will of the decedent the tax shall be paid out of the estate before its distribution." These provisions are assailed by the plaintiffs in error as an unconstitutional interference with the rights of the states to regulate descent and distribution, as unequal and a direct tax not apportioned as the constitution requires.

The statement of the constitutional objections urged imports on its face a distinction that, if correct, evidently hitherto has escaped this court. See *United States v. Field* (Feb. 28, 1921). It is admitted, as since *Knowlton v. Moore* (178 U. S., 41) it has to be, that the United States has power to tax legacies, but it is said that this tax is cast upon a transfer while it is being effectuated by the state itself, and therefore is an intrusion upon its processes, whereas a legacy tax is not imposed until the process is complete. An analogy is sought in the difference between the attempt of a state to tax commerce among the states and its right after the goods have become mingled with the general stock in the state. A consideration of the parallel is enough to detect the fallacy. A tax that was directed solely against goods imported into the state and that was determined by the fact of importation would be no better after the goods were at rest in the state than before. It would be as much an interference with commerce in one case as in the other.—*I. M. Darnell & Son Co. v. Memphis* (208 U. S., 113); *Welton v. Missouri* (91 U. S., 275). Conversely, if a tax on the property distributed by the laws of a state, determined by the fact that distribution has been accomplished, is valid, a tax determined by the fact that distribution is about to begin is no greater interference and is equally good.

Knowlton v. Moore (178 U. S., 41) dealt, it is true, with a legacy tax. But the tax was met with the same objection, that it usurped or interfered with the exercise of state powers, and the answer to the objection was based upon general considerations and treated the "power to transmit or the transmission or receipt of property by death" as all standing on the same footing (178 U. S., 57, 59). After the elaborate discussion that the subject received in that case we think it unnecessary to dwell upon matters that in principle were disposed of there. The same may be said of the argument that the tax is direct and therefore is void for want of apportionment. It is argued that when the tax is on the privilege of receiving, the tax is indirect because it may be avoided, whereas here the tax is inevitable and therefore direct. But that matter also is disposed of by *Knowlton v. Moore,* not by an attempt to make some scientific distinction, which would be at least difficult, but on an interpretation of language by its traditional use—on the practical and historical ground that this kind of tax always has been regarded as the antithesis of a direct tax; "has ever been treated as a duty or excise, because of the particular occasion which gives rise to its levy" (178 U. S., 81-83). Upon this point a page of history is worth a volume of logic.

The inequalities charged upon the statute, if there is an intestacy, are all inequalities in the amounts that beneficiaries might receive in case of estates of different values, of different proportions between real and personal estate, and of different numbers of recipients; or if there is a will affect legatees. As to the inequalities in case of a will they must be taken to be contemplated by the testator. He knows the law and the consequences of the disposition that he makes. As to intestate successors the tax is not imposed upon them but precedes them and the fact that they may receive less or different sums because of the statute does not concern the United States.

There remains only the construction of the act. The argument against its constitutionality is based upon a premise that is unfavorable to the contention of the plaintiffs in error upon this point. For if the tax attaches to the estate before distribution—if it is a tax on the right to transmit, or on the transmission at its beginning, obviously it attaches to the whole estate except so far as the statute sets a limit. "Charges against the estate" as pointed out by the court below are only charges that affect the estate as a whole, and therefore do not include taxes on the right of individual beneficiaries. This reasoning excludes not only the New York succession tax but those paid to other states, which can stand no better than that paid in New York. What amount New York may take as the basis of taxation and questions of priority between the United States and the state are not open in this case. Decree affirmed.

Edwin S. Doubleday announces that Herbert G. Farquhar and Edwin C. Doubleday are now associated with him as members of the firm of Doubleday, Farquhar & Doubleday, with offices at 293 Bridge street, Springfield, Massachusetts.

Students' Department

EDITED BY H. A. FINNEY

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AMERICAN INSTITUTE OF ACCOUNTANTS
EXAMINATION IN ACCOUNTING THEORY AND PRACTICE

PART II

NOVEMBER 16, 1921, 1 P.M. to 6 P.M.

Answer all of the following questions:

1. Companies A, B and C were all organized during the year 1918, A and B being engaged in manufacturing while C acted as selling agent for B at a distant point. The capital stock of C is owned entirely by B, having been acquired at the organization of C and paid for in cash at par. The capital stock of A and B is owned entirely by John Roe, Richard Roe and Mary Roe in equal proportions (one-third in each company). No dividends were paid by either of the three companies during 1920. It may be assumed that the miscellaneous investments shown on the balance-sheet of the one company and the gross assets of all three corporations remained the same during the year 1920.

Below are shown the balance-sheets of the three companies as at December 31, 1919:

BALANCE-SHEET—COMPANY A—DECEMBER 31, 1919

Assets		*Liabilities*	
Capital assets:		Capital stock	$150,000.00
Real estate, buildings and machinery (less reserve for depreciation)	$100,000.00		
		Current liabilities:	
		Notes and accounts payable	50,000.00
Current assets:		Surplus	30,000.00
Inventory of raw and finished materials	50,000.00		
Accounts receivable	15,000.00		
Cash	10,000.00		
Liberty bonds (fourth 4¼s)	50,000.00		
Deferred charges:			
Prepaid insurance and taxes	5,000.00		
	$230,000.00		$230,000.00

BALANCE-SHEET—COMPANY B—DECEMBER 31, 1919

Assets		*Liabilities*	
Capital assets:		Capital stock	$250,000.00
Real estate, buildings and machinery (less reserve for depreciation)	$200,000.00	Current liabilities:	
		Notes payable	50,000.00
		Accounts payable	10,000.00
Current assets:		Surplus	65,000.00
Inventory of raw and finished materials ...	75,000.00		
Accounts receivable ...	15,000.00		
Cash	5,000.00		
Investments:			
In Company C (at cost)	25,000.00		
Miscellaneous stocks (domestic)	50,000.00		
Deferred charges:			
Prepaid insurance and taxes	5,000.00		
	$375,000.00		$375,000.00

BALANCE-SHEET—COMPANY C—DECEMBER 31, 1919

Assets		*Liabilities*	
Current assets:		Capital stock	$25,000.00
Inventory	$35,000.00		
Cash	9,500.00	Current liabilities:	
Deferred charges:		Accounts payable (to Company B)	10,000.00
Prepaid taxes	500.00		
		Miscellaneous	5,000.00
		Surplus	5,000.00
	$45,000.00		$45,000.00

The net income for the year 1920, carried to surplus (per books) was as follows:

Company A........................	$20,000.00
" B........................	25,000.00
" C........................	5,000.00
	$50,000.00

The following items appear in the respective profit-and-loss accounts for the year 1920:

	Co. A	Co. B	Co. C
Income and profits taxes paid for 1919 ...	$1,500.00	$2,000.00	
Interest accrued on Liberty bonds	2,125,00		
Interest paid on indebtedness incurred to carry Liberty bonds	3,000.00		
Capital additions charged to profit-and-loss	1,000.00	750.00	
Dividends received from miscellaneous investments		3,000.00	

Prepare balance-sheet as at December 31, 1919, for tax purposes, and also statements showing (1) the determination of the net taxable income of the group, (2) calculation of invested capital and (3) calculation of income and profits taxes payable by the group for the year 1920.

CONSOLIDATED BALANCE-SHEET DECEMBER 31, 1919

COMPANIES A, B AND C

	Consolidated balance-sheet	Inter-company eliminations Dr.	Inter-company eliminations Cr.	Combined balance-sheet	A Company	B Company	C Company
ASSETS							
Cash	$24,500.00			$ 24,500.00	$ 10,000.00	$ 5,000.00	$ 9,500.00
Trade accounts and notes receivable	20,000.00			20,000.00	15,000.00	5,000.00	
Other accts. receivable (B's acct. with C)			$10,000.00	10,000.00		10,000.00	
Inventories	160,000.00			160,000.00	50,000.00	75,000.00	35,000.00
Investments:							
Liberty bonds (fourth 4¼s)	50,000.00			50,000.00	50,000.00		
Miscellaneous stocks and bonds	50,000.00			50,000.00		50,000.00	
Stock of C Company			25,000.00	25,000.00		25,000.00	
Deferred assets:							
Prepaid insurance and taxes	10,500.00			10,500.00	5,000.00	5,000.00	500.00
Fixed assets:							
Real estate, buildings and machinery, less reserve for depreciation	300,000.00			300,000.00	100,000.00	200,000.00	
Total assets	$615,000.00			$650,000.00	$230,000.00	$375,000.00	$45,000.00
LIABILITIES							
Notes and accounts payable:							
Trade	$115,000.00			$115,000.00	$50,000.00	$60,000.00	$ 5,000.00
Other, C to B		$10,000.00		10,000.00			10,000.00
Capital stock, outstanding:							
A Company	150,000.00			150,000.00	150,000.00		
B Company	250,000.00			250,000.00		250,000.00	
C Company		25,000.00		25,000.00			25,000.00
Total capital stock	400,000.00			$425,000.00			
Surplus	100,000.00			100,000.00	30,000.00	65,000.00	5,000.00
Total liabilities and capital	$615,000.00			$650,000.00	$230,000.00	$375,000.00	$45,000.00

DETERMINATION OF NET TAXABLE INCOME YEAR ENDED DECEMBER 31, 1920

Companies A, B and C

	Combined	Company A	Company B	Company C
Net profits as per books	$50,000.00	$20,000.00	$25,000.00	$5,000.00
Add non-deductible expenses:				
Income and profits tax 1919	3,500.00	1,500.00	2,000.00	
Capital additions charged to profit and loss	1,750.00	1,000.00	750.00	
	$55,250.00	$22,500.00	$27,750.00	$5,000.00
Deduct income not subject to taxation:				
Interest accrued on Liberty bonds	$2,125.00	$2,125.00		
Dividends received from miscellaneous stocks	3,000.00		3,000.00	
Total deductions	$5,125.00	$2,125.00	$3,000.00	
Net income subject to taxation	$50,125.00	$20,375.00	$24,750.00	$5,000.00

Note—Interest on indebtedness incurred to carry Liberty bonds is deductible for tax purposes.

CALCULATION OF INVESTED CAPITAL FROM CONSOLIDATED BALANCE-SHEET

Companies A, B and C

Capital stock, paid up and outstanding at December 31, 1919	$400,000.00
Earned surplus and undivided profits, December 31, 1919	100,000.00
Total of above	$500,000.00
Less deduction for inadmissible assets, as per calculation below	47,619.00
Invested capital for excess-profits tax purposes	$452,381.00

Calculation of Inadmissible Assets

	Dec. 31, 1919	Dec. 31, 1920	Total	Average
Inadmissible assets	$ 50,000.00	$ 50,000.00	$100,000.00	$ 50,000.00
Admissible assets	450,000.00	500,000.00	950,000.00	475,000.00
Average of inadmissible and admissible assets				$525,000.00
Average inadmissible to average inadmissible and admissible				9.5238%
9.5238% of $500,000.00 of invested capital, which is the amount deductible as inadmissible, equals			$ 47,619.00	

CALCULATION OF INCOME AND PROFITS TAXES PAYABLE BY GROUP YEAR ENDED DECEMBER 31, 1920

Companies A, B and C

Invested capital		$452,381.00
Excess-profits credit:		
8% of invested capital	$ 36,190.48	
Specific credit	3,000.00	
	$ 39,190.48	
Excess-profits tax		
* Net taxable income	50,125.00	
Subject to taxation @ 20%	$ 10,934.52	
Excess-profits tax 20%		$ 2,186.90

Exemptions from income tax		
Excess-profits tax	2,186.90	
Specific exemption	2,000.00	
	$ 4,186.90	
Net taxable income	50,125.00	
Subject to income tax	$ 45,938.10	
Income tax 10%		4,593.81
Total income and profits tax		$ 6,780.71

* NOTE—As $50,125.00 is less than 20% of invested capital the net income is all subject to taxation in the 20% bracket.

2. A (a silk mill in New Jersey), B (salesman representing C) and C (commercial bankers in New York) entered into an agreement to manufacture and sell a number of pieces of special quality silk, each to share one-third of the profit of the venture.

C was to furnish the raw material, pay the dyeing and finishing bills and (having control of the sales) to deduct from the accounts of sales certain percentages for discount and commission and charge interest on advances. A was to weave the materials and charge the woven goods at cost. The difference between the value of the raw material and the woven goods (manipulation) was also to be paid by C. All woven goods were to be transferred immediately upon completion to C (New York). There was no work in process at end of year.

It was desired to know the result of the venture as at June 30, 1921, the record of transactions relative thereto at that date being as follows:

Raw silk purchased by C and sent to mill (A)	$51,814.65
Weaving (manipulation)	14,201.28
(of which $12,811.31 has been paid by C to A)	
Dyeing and finishing bills paid by C	6,245.58
Shipments of finished goods from mill A to New York (C)	59,447.82
Sales (gross), finished product, by New York (C)	58,659.24
Interest on advances—charged by C	1,338.16
Discount on sales—charged by C	3,500.39
Commission and guarantee—charged by C	4,122.52
Amount paid by C to A on account of anticipated profit	1,900.00
Value of raw material, etc., at mill—June 30, 1921	9,476.99
Value of finished goods in New York—June 30, 1921	24,746.59

From the foregoing, prepare manufacturing account, trading and profit-and-loss accounts and the accounts of A, B and C, respectively.

Solution. A serious difficulty arises in solving this problem due to the inability to account for the figure $59,447.82, the billed price of the shipments from the mill to New York. A was supposed to bill the goods at cost, but this figure does not reconcile with the cost. Before a course of action can be decided upon, it is necessary to determine whether cost is supposed to include raw material and manipulation, or raw material, manipulation and dyeing and finishing.

If the dyeing and finishing are not to be included in the cost at which A bills the goods, the cost will include:

Raw material sent to mill	$51,814.65
Less inventory at June 30, 1921	9,476.99
Raw material used	$42,337.66
Weaving (manipulation)	14,201.28
Total	$56,538.94

A billed these goods at	$59,447.82
Their cost was	56,538.94
Hence there was an over-billing of	$ 2,908.88

If, on the other hand, A's billing price is to include the cost of materials, manipulation, dyeing and finishing, the billed price should have been made up as follows:

Raw material and manipulation (as above)	$56,538.94
Dyeing and finishing	6,245.58
Total	$62,784.52

If the goods cost	$62,784.52
and were billed by A at	59,447.82
there was an under-billing of	$ 3,336.70

The evidence in the problem as to what costs should be included in A's billing price is conflicting. In one place the problem states that A was to weave the materials and charge the woven goods at cost; this would seem to eliminate the dyeing and finishing. But in another place the problem refers to the shipments of *finished goods* from mill A to New York; if the goods were finished when they were shipped from A to New York, their cost must have included the dyeing and finishing bills. This solution will therefore proceed on the assumption that costs of $62,784.52 had been incurred before the goods were shipped to New York, and that A's billed price of $59,447.82 involved an under-billing of $3,336.70.

A, B and C—Joint Venture

Statement of Cost of Goods Manufactured

From ——— to June 30, 1921

Raw material purchased	$51,814.65
Less raw material inventory, June 30, 1921	9,476.99
Raw material used	$42,337.66
Weaving (manipulation)	14,201.28
Dyeing and finishing	6,245.58
Total manufacturing cost	$62,784.52

Presumably the inventory of finished goods in New York at June 30, 1921, is valued at the price used by A in billing. Since this price was less than cost, the inventory is under-stated. The inventory should be re-stated at cost, the following method being used in the absence of information which will permit any other mode of re-statement:

$$\$24{,}746.59 \times \frac{62{,}784.52}{59{,}447.82} = \$26{,}135.57,$$ cost of inventory of finished goods

A, B and C—Joint Venture
Profit-and-Loss Statement
From ———— to June 30, 1921

Sales		$58,659.24
Less cost of goods sold:		
Cost of goods manufactured	$62,784.52	
Less inventory of finished goods, June 30, 1921	26,135.57	36,648.95
Gross profit on sales		$22,010.29
Deduct:		
Interest on advances	$ 1,338.16	
Discount on sales	3,500.39	
Commission and guarantee	4,122.52	8,961.07
Net profit ($4,349.74 to each)		$13,049.22

Joint-venture Account

Raw silk (C)		$51,814.65	Sales (C)	$58,659.24
Weaving (A)		14,201.28	Raw material inv. June 30	9,476.99
Dyeing and finishing (C)		6,245.58	Finished goods inv. June 30	26,135.57
Interest on advances (C)		1,338.16		
Discounts on sales (C)		3,500.39		
Commiss'n & guarantee (C)		4,122.52		
Net profit:				
A	$4,349.74			
B	4,349.74			
C	4,349.74	13,049.22		
		$94,271.80		$94,271.80

Raw material inventory ..$ 9,476.99
Finished goods inventory. 26,135.57

A's Account

Cash from C for weaving (C)	$12,811.31	Weaving	$14,201.28
Advance from C on profits (C)	1,900.00	Net profit	4,349.74
Balance	3,839.71		
	$18,551.02		$18,551.02
		Balance—down	$ 3,839.71

B's Account

		Net profit	$ 4,349.74

C's Account

Sales	$58,659.24	Raw silk	$51,814.65
Balance	27,423.11	Cash to A for weaving	12,811.31
		Dyeing and finishing	6,245.58
		Interest on advances	1,338.16
		Discount on sales	3,500.39
		Commission and guarantee	4,122.52
		Advance to A on profits	1,900.00
		Net profit	4,349.74
	$86,082.35		$86,082.35
		Balance—down	$27,423.11

The billed price of the goods shipped from A to New York does not appear in the accounts, because in a joint venture the shipment of goods from one participant to another is merely a transfer of the goods from one location to another without any change in the possession. The billed price is merely a memorandum.

3. The M. & N. Piano Company, manufacturing various styles of pianos but keeping no established cost records, desires to know the basic unit cost of the instruments manufactured during the year.

The company furnishes the following data, which are verified from sundry bills and other records:

Style	Number manufactured	Additional cost per instrument
A	166	$ .00
B	212	.15
C	267	.45
D	177	.80
E	148	.85
F	56	.90
G	92	5.68
H	30	1.20
J	242	2.04
K	93	2.44
L	94	4.39
M	96	5.51
S	73	17.66
X (Player)	786	84.31
	2,532	

The total cost of production for the year, as shown by the manufacturing account, was $270,344.85.

The basic unit cost for the year preceding was $82.29437; for the current year it is expected to be considerably less.

(a) Prepare the statements required, explaining in addition how you would determine the total cost of each style, and submit your conclusions in a formal report to the company.

(b) How would you value finished units, say, for illustration, style G, in the inventory for balance-sheet purposes at the end of the year?

Solution. Gentlemen: In compliance with your request we have prepared the following statement of additional costs for the various classes of instruments which you manufacture, as well as a computation of the basic unit cost of the instruments manufactured during the year, based on the data furnished.

THE M AND N PIANO COMPANY

Statement of Additional Costs and Basic Unit Cost
Instruments Manufactured During the Year Ending ——

Style	Number manufactured	Additional cost per instrument	Total additional cost
A	166	$ .00	
B	212	.15	$ 31.80
C	267	.45	120.15
D	177	.80	141.60
E	148	.85	125.80
F	56	.90	50.40
G	92	5.68	522.56
H	30	1.20	36.00
J	242	2.04	493.68
K	93	2.44	226.92
L	94	4.39	412.66
M	96	5.51	528.96
S	73	17.66	1,289.18
X (Player) ..	786	84.31	66,267.66
Total	2,532		$70,247.37

Total cost of production for the year	$270,344.85
Deduct additional costs (as above)	70,247.37
Total basic cost of 2,532 instruments	$200,097.48

$200,097.48 ÷ 2,532 = $79.02744 Basic cost per instrument.

The total cost for each style may be computed by adding the basic cost and the additional cost, as in the following illustration, based on style G:

Basic cost	$ 79.02744
Additional cost	5.68
Total unit cost	$ 84.70744
Multiply by number of units manufactured..	92
Total cost of 92 instruments manufactured	$7,793.08448

In determining the cost of the instruments in the inventory, the sum of the basic cost and additional cost for each style should be multiplied by the number of instruments in the inventory.

There is considerable doubt as to whether this method of ascertaining costs results in an accurate distribution of costs among the various styles. It is probable that the additional costs represent extra and special parts which require labor in installation, as well as extra labor in the finishing of certain styles. If extra labor is expended on certain style a portion of the factory overhead should be allocated to this labor; unless the additional costs as furnished to us include a portion of the overhead it is apparent that the additional costs are under-stated and consequently the basic cost is over-stated.

In other words, the additional costs cannot be accurately computed without some kind of a cost system to distribute the factory overhead, and if a cost system is operated to allocate overhead to the additional costs it should furnish the information to allocate overhead to the basic costs.

While the method adopted results in a distribution of the total manufacturing cost over the total output, there is no certainty that it results in an accurate distribution of cost to each style. This is a common fault with costs which are based on an assumption rather than on known facts.

It is recommended that a cost system of the specific order type be installed, with provision for recording costs by departments and operations, and that the instruments of each style be manufactured on lot orders for definite numbers. In this manner, the cost of each style and of each piano can be definitely ascertained and no uncertainty will exist in regard to the costs of manufacture and the value of inventories.

Yours very truly,

4. What are the main purposes and advantages of modern cost accounting?

Solution. The objects of a modern cost accounting system are:

(a) To determine unit costs as a guide in fixing selling prices.

(b) To furnish managerial information as to profitable and unprofitable lines.

(c) To maintain perpetual inventories of raw material, work in process and finished goods. With such perpetual inventories, it is possible

(d) To exercise control over materials and products so that none may be used wastefully or for purposes other than those intended by the management; and it is also possible

(e) To prepare profit-and-loss statements and balance-sheets at frequent intervals without the expense and delay of taking physical inventories. The frequent preparation of profit-and-loss statements and balance-sheets makes it possible

(f) To ascertain the progress and financial condition of the business at frequent intervals thereby aiding the management in the direction of the policies of the company.

(g) To secure records of labor, material and overhead by which excessive or unusual costs may be located, so that steps can be taken to keep them within a proper limit.

(h) To establish normal or standard costs which may be used as a basis of comparison, and for the valuation of inventories when abnormal conditions exist.

5. The federal government permits a real-estate company receiving the proceeds of the sale of its land in instalments to report its income on the basis of instalments received and to take credit for that proportion of the cost of sales which the instalments paid bear to the total selling price.

What method would you suggest for recording the unreported income and cost?

Solution. To illustrate a method for recording the profit on real-estate instalment sales, it will be assumed that a lot costing $1,200.00 is sold for $1,800.00, with a down payment of $150.00, the balance to be paid in monthly instalments of $50.00, long end interest at 6% per annum to be deducted from each monthly payment, the balance to be applied on the principal.

At the date of sale, the following entry should be made:

Contracts receivable (John Smith)	$1,800.00	
Cost of sales		$1,200.00
Deferred profit on instalment sales		600.00

To record sale (data as to terms, etc.).

The credit to cost of sales is an offset to the property account.

All collections on the unpaid principal represent a return of cost to the extent of two-thirds of the collection, and profit to the extent of one-third. Special columns should be provided in the cash book, and entries made as indicated below. These entries record the initial payment and the first three monthly instalments.

Cash Receipts

	Interest	Cost	Profit	Cash
John Smith		$100.00	$50.00	$150.00
John Smith	$8.25	27.83	13.92	50.00
John Smith	8.04	27.97	13.99	50.00
John Smith	7.83	28.11	14.06	50.00

The entries are posted to John Smith's account in the subsidiary ledger as indicated below. The total of the interest column is posted to the credit of interest earned. The totals of the cost and profit columns are posted to the credit of the controlling account with contracts receivable. The total of the profit column is also used for a monthly journal entry debiting deferred profit on instalment sales and crediting profit realized on instalment sales.

Following are the money columns which may be used in the subsidiary accounts receivable ledger to furnish detailed information:

JOHN SMITH

Debits			Credits				Balance		
Cost	Profit	Total	Interest	Cost	Profit	Total	Cost	Profit	Total
$1,200.00	$600.00	$1,800.00					$1,200.00	$600.00	$1,800.00
				$100.00	$50.00	$150.00	1,100.00	550.00	1,650.00
			$8.25	27.83	13.92	50.00	1,072.17	536.08	1,608.25
			8.04	27.97	13.99	50.00	1,044.20	522.09	1,566.29
			7.83	28.11	14.06	50.00	1,016.09	508.03	1,524.12

The controlling account with contracts receivable will control the total balance columns of the subsidiary ledger, and the deferred profit on instalment sales account will control the profit balance columns in the subsidiary ledger. The amounts taken up to earnings during a year will agree with the total of the year's entries in the profit credit column.

6. A corporation has a number of investments in stocks and bonds which are listed and have a definite market price from day to day. It carries them at their cost prices in the ledger and wishes to retain these cost prices and, at the same time, to have them shown in the monthly balance-sheet at the market prices.

State a convenient method of doing this without changing the cost values in the ledger.

Solution. It should be noted that the question does not call for a discussion of the propriety of showing the investments on the balance-sheet at market value, regardless of the nature of the investments. The desired result may be accomplished by setting up an account called unrealized market fluctuations in investments. This account can be debited when the market advances and a debit balance will be added to the cost of the investments on the balance-sheet. The account will be credited when the market declines, and a credit balance will be deducted from the cost on the balance-sheet.

Whether the offsetting credits and debits should be made in profit-and-loss account, surplus or a reserve will depend on whether the investments are merchandise, temporary investments or permanent investments.

Consolidated Balance-sheet with Minority Interest

Editor, Students' Department:

Sir: If you can conveniently do so, will you let us have the benefit of your opinion on the following questions in connection with the preparation of a consolidated balance-sheet?

Assume that it is desired to consolidate the balance-sheets of a parent company and its subsidiaries, and that the parent company owns only a controlling interest in the several subsidiary companies. Which of the two methods shown below is considered the better practice? If one is preferred over the other can you let me have the principal reasons for the preference?

1. Take 100% of the assets and liabilities of the subsidiary companies into the consolidated balance-sheet and set up a liability to cover capital stock and surplus owned by the minority interest. (Adjustments for intercompany transactions would of course also be made.)

2. Take only that percentage of the assets and liabilities of the subsidiary companies owned by the parent company, adjust these assets and liabilities by the parent company's portion of intercompany transactions, and consolidate these adjusted assets and liabilities. The resulting consolidated balance-sheet will then represent the parent company's portion of the assets and liabilities of the subsidiaries.

Would either of these consolidated balance-sheets be acceptable to a banker or would he require the supporting detail balance-sheets? There may be another and better method than the two outlined, and if so, will you outline same?

I have been unable to find a full discussion on this subject which sets forth the merits of the several methods which might be employed in preparing a consolidated balance-sheet and as this is a subject which is possibly of interest to a great many, the thought has occurred to me that a series of articles on the subject appearing in some magazine might be worth while.

Thanking you for any information which you may give me on this subject, I am

Yours very truly,

A. B. E.

If the holding company owns only a bare controlling interest, it may be better not to prepare a consolidated balance-sheet at all but to show in the holding company's balance-sheet an item investment in stock of Company B.

The theory of the consolidated balance-sheet is that the holding company, from a practical viewpoint, virtually owns the assets of the company whose stock it owns and controls. If there is a minority interest the theory is that it owns the assets subject to the rights of the minority. Therefore it is customary, and I think preferable, to take up all of the assets and liabilities of the subsidiary and show the minority interest in the capital stock and surplus of the subsidiary as a capital liability. If only the holding company's proportion of the subsidiary's assets and liabilities were taken up, the true condition would not be shown because it would appear that the holding company actually owned the assets and owed the liabilities taken up. The facts are that the holding company does not own the assets nor owe the liabilities, but has an undivided interest in the net assets of the subsidiary, and this undivided interest cannot be dissociated from nor shown apart from the interest of the minority stockholders if all of the facts are to be apparent.

A bank would probably not be satisfied with a consolidated balance-sheet alone if it is contemplating extending credit to the holding company. It would probably want a balance-sheet of the holding company, supported by a balance-sheet of the subsidiary to give evidence as to the value of the investment account appearing in the holding company's balance-sheet. The bank is really dependent upon the current assets of the holding company if it loans money to the holding company.

Stock in Treasury and in Sinking Fund

Editor, Students' Department:

Sir: The writer will greatly appreciate your kindness if you will answer the following questions:

1 (a). When a corporation purchases its own capital stock in the open market at a price less than par value, to be held in its treasury, is it entirely proper to bring the stock up to par on the books by journal entry, and credit "discount on preferred stock"?

(b) If such an entry is made, should the latter account be transferred to surplus or should it remain open on the books?

2. If the above stock is purchased by a trustee in the open market below par, for a sinking fund, and held by him until the entire issue is purchased, the dividends on which are to be placed to the credit of the sinking fund, what entry should be made in reference to the discount, and when?

Yours very truly,

E. C. D.

Treasury stock should be carried at par, and in order to put it on the books at par it is necessary to make a credit entry for the discount. Before the purchase of the stock, the capital of the company included the face of the stock, and the purchase of the stock reduces the capital by only the amount paid for it. The discount remains capital since it is not paid back to the stockholders; but, since it can no longer be reflected in the capital stock account, it should be reflected in the surplus. However, general surplus should not be credited since there is no operating profit in the transaction, and there is an increasing tendency to credit only operating profits to surplus. The discount may be left in the discount-on-stock-retired account, or it may be credited to capital surplus.

I presume that the sinking fund referred to is for the retirement of the stock itself, although so-called sinking funds for stock retirement are usually not conducted in this way. When a sinking fund is established for the retirement of the bonds, it is customary to hold the bonds alive in the fund and pay interest on them to the trustees of the fund. But when stock is to be retired by means of a fund, it is customary to cancel the stock at once instead of holding it in the fund and paying dividends on it.

Since the stock is not to be reissued but held in the fund until all has been retired, it ought to be shown in the fund at par. On the balance-sheet, the total stock will appear on the liability side, and the fund will appear on the asset side or as a deduction from the total issue. In order to show how much stock is still outstanding, the fund account should show the stock at par, so that the deduction of the stock in the fund from the total issue will show the par of the stock not yet acquired.

The fund will probably contain stock and cash. For that reason it would be preferable to show the fund on the asset side of the balance-sheet, as the cash in the fund is not a true deduction from the authorized issue of stock. The discount on the purchase of the stock may be treated the same way as discount on treasury stock acquired.

Instalment Subscriptions

Editor, Students' Department:

Sir: Answers to the following questions published through your Journal will be greatly appreciated by the undersigned:

(1) A corporation has an authorized capital stock of 10,000 shares, common, par value $100.00 each share. Subscriptions are received for the entire amount on the following terms: 20% in cash and the balance in four equal instalments, due in 30, 60, 90 and 120 days respectively. All of the subscribers paid the initial cash payment and the first instalment as per agreement. When the second instalment is due, subscribers for 200 shares of stock default in payment. When the third instalment is due, subscribers to 120 shares default in addition to those already in default. Subscribers to 50 shares who defaulted on the second instalment pay the second and third instalments and are reinstated. When the fourth instalment is due subscribers to 30 shares default in addition to those already in default.

The terms of the sale stated that where default occurred in meeting instalments the amounts already paid in would be forfeited, subject to redemption and reinstatement in 31 days.

Required: All journal entries on books of the corporation.

(2) Please give journal entries for the following transactions:

(a) Sale of 10,000 shares of capital stock (common) value $100 at 110.

(b) Purchase of 5,000 shares of common stock by the above issuing corporation at 80. (Par value 100.)

(c) Cancelation and reduction of 1,000 shares purchased in (b) assuming it is legal.

(d) Sale of 1,000 shares purchased in (b) at 85, and 1,000 shares at 102.

(e) Sale of 5,000 shares preferred stock at 100 par, giving one share of stock purchased in (b) with each 5 shares of preferred sold.

(f) Payment of stock dividend of $60,000 in treasury stock purchased in (b) assuming a surplus of over $100,000.

Thanking you for your courtesy, I am

Respectfully,

Washington, D. C. THEO. EDELSCHEIN.

(1)

Subscriptions	$1,000,000.00	
Capital stock		$1,000,000.00
To record the subscription to 10,000 shares of a par value of $100.00. Subscriptions payable in instalments as indicated in the following entry.		

Cash	200,000.00	
Call No. 1 (Due in 30 days)	200,000.00	
Call No. 2 (Due in 60 days)	200,000.00	
Call No. 3 (Due in 90 days)	200,000.00	
Call No. 4 (Due in 120 days)	200,000.00	
Subscriptions		1,000,000.00
To record the instalments in which subscriptions are payable.		

Cash	200,000.00	
Call No. 1		200,000.00
To record the collection in full of the first instalment.		

Cash	196,000.00	
Call No. 2		196,000.00
To record collection of second instalment on 9,800 shares. Second instalment in default on 200 shares.		

Cash	193,600.00	
Call No. 3		193,600.00
To record collection of third instalment as follows:		

Shares not in default after second call	9,800
Less defaults on third call	120
Shares not defaulted	9,680

Cash	2,000.00	
Call No. 2		1,000.00
Call No. 3		1,000.00
To record collections on fifty shares in default since second call.		

Unsubscribed stock	15,000.00	
Call No. 2		3,000.00
Call No. 3		3,000.00
Call No. 4		3,000.00
Capital surplus		6,000.00

To record cancelation and forfeiture of subscriptions defaulted on second call and not reinstated after third call.

Shares defaulted at second call	200
Shares reinstated at third call	50
Shares forfeited	150

Capital surplus credited with $40.00 per share paid in.

Cash	194,000.00	
Call No. 4		194,000.00

To record collection of call as follows:

Total shares originally subscribed		10,000
Shares defaulted at second call	200	
Less shares reinstated	50	
Shares forfeited on second call		150
Balance		9,850
Shares defaulted at third call		120
Balance		9,730
Shares defaulted at fourth call		30
Shares paying fourth call		9,700

Unsubscribed stock	12,000.00	
Call No. 3		2,400.00
Call No. 4		2,400.00
Capital surplus		7,200.00

To record cancelation and forfeiture of subscriptions to 120 shares defaulted on third call.

If the subscribers to the thirty shares defaulting on the fourth call do not pay within thirty-one days, the following entry should be made:

Unsubscribed stock	$3,000.00	
Call No. 4		$ 600.00
Capital surplus		2,400.00

To record cancelation and forfeiture of subscriptions to 30 shares defaulted on fourth call.

(2)

(a) Subscriptions—common	$1,100,000.00	
Capital stock—common		$1,000,000.00
Premium on stock		100,000.00
To record subscription to 10,000 shares of a par value of $100. Subscriptions at 110.		
Cash	1,100,000.00	
Subscriptions—common		1,100,000.00
To record collection of subscriptions in full.		

(b) Treasury stock	500,000.00	
Cash		400,000.00
Contingent profit on treasury stock		100,000.00
To record the purchase of 5,000 shares at 80.		

It will be noticed that the treasury stock is placed on the books at par and the discount is credited to a contingent profit or reserve account where it will remain until subsequent transactions disclose whether the profit will actually be realized by cancelation of the stock or by disposing of it at more than 80.

(c) Capital stock	$100,000.00	
Treasury stock		$100,000.00
To record the cancelation of 1,000 shares of treasury stock.		

Contingent profit on treasury stock	20,000.00	
Capital surplus		20,000.00
To transfer to capital surplus the discount of 20% on the treasury stock canceled.		

(d) Cash	85,000.00	
Contingent profit on treasury stock	20,000.00	
Treasury stock		100,000.00
Capital surplus		5,000.00
To record the sale of 1,000 shares of treasury stock at 85.		

Cash	102,000.00	
Contingent profit on treasury stock	20,000.00	
Treasury stock		100,000.00
Capital surplus		22,000.00
To record the sale of 1,000 shares of treasury stock at 102.		

(e) Cash	500,000.00	
Capital stock—preferred		500,000.00
To record the sales of 5,000 shares of preperred stock at par.		

Contingent profit on treasury stock	20,000.00	
Bonus to preferred stockholders	80,000.00	
Treasury stock		100,000.00
To record the bonus of one share of treasury stock to each purchaser of five shares of preferred stock.		

(f) Surplus	48,000.00	
Contingent profit on treasury stock	12,000.00	
Treasury stock		60,000.00
To record the payment of a dividend in treasury stock of a par value of $60,000.00 and a cost of $48,000.00.		

Administrative and Selling Expenses of a Factory

Editor, Students' Department:

SIR: Kindly advise me which case is correct—identified as Case No. 1 and No. 2.

Case No. 1.

Some manufacturing concerns when distributing overhead expenses, consider the sum of factory overhead, administrative expenses and selling expenses as overhead expenses; in other words all expenses, other than interest and discount, are added to work in process. This of course increases the percentage to be used in distributing overhead expenses over the product, and also increases the value on the books for work in process. At the end of the year when work in process is inventoried, the percentage of overhead for the year is used (which includes factory overhead, administrative expenses and selling expenses).

Case No. 2.

Other manufacturing concerns when distributing overhead expenses consider only the factory expenses as overhead expenses, administrative and selling expenses being deducted from the prime profit. The percentage of overhead in this case is not as high as Case No. 1, nor is the inventory of work in progress in the books as high. In Case No. 1, due to the high percentage of overhead, the balance-sheet would show that the business is in a better financial position than Case No. 2, since the administrative and selling expenses are added to the value of work in progress.

Should administrative and selling expenses be deducted for the period incurred or should they be added in any way to the finished product or work in process? How should the overhead expenses for finished product and work in process be figured when same are inventoried in cases No. 1 and No. 2; also should the materials and labor for finished product and work in process be inventoried at cost or should they be inventoried at cost or market, whichever is lower?

I am enclosing herewith a statement which is self-explanatory. In Case No. 1 you will note that there is a profit for the period of $3,750.00 and an inventory of $1,250.00. In Case No. 2 you will note that there is a profit for the period of $3,500.00 and an inventory of $1,000.00. The above would have considerable effect on a balance-sheet of a large going manufacturing company, even though both are in the same financial position. The balance-sheet in Case No. 1 would show larger profits and a larger inventory at the end of an accounting period.

CASE No. 1.

20 Articles Manufactured.

Material		$2,000.00	
Productive labor		1,000.00	
Overhead:			
Factory	$1,000.00		
Administrative	500.00		
Selling expense	500.00	2,000.00	
Total cost		5,000.00	or $250.00 each
Sales—15 at $500.00 each			$7,500.00
Cost—15 at 250.00 each			3,750.00
Profit			$3,750.00

Inventory: 5 at $250.00 each = $1,250.00.

CASE No 2.

20 Articles Manufactured.

Material		$2,000.00	
Productive labor		1,000.00	
Factory overhead		1,000.00	
Total cost		$4,000.00	or $200.00 each
Sales—15 at $500.00 each			$7,500.00
Cost—15 at 200.00 each			3,000.00
Prime profit			$4,500.00
Deduct:			
Administrative expenses		$ 500.00	
Selling expenses		500.00	1,000.00
Net profit			$3,500.00

Inventory: 5 at $200.00 each = $1,000.00.

Yours very truly,

Louisville, Ky. A. J. N.

This letter recalls a conversation which the editor of this department had several years ago with the president of a corporation manufacturing hog cholera serum. The president stated that the company had been in existence only a few months and had made several thousand dollars already, "and we haven't started to sell the serum yet." Inquiry brought to light the following accounting methods. Adding all cash payments since organization (commission on stock sales, manufacturing, administrative and promotion expenses) and dividing by the number of cubic centimeters manufactured gave a figure of about three quarters of a cent per cubic centimeter. "The serum is to sell at five cents per cubic centimeter but as we want to be conservative we are valuing it at only three cents." The attempt to explain the distinction between manufacturing expenses and other expenses and the impropriety of anticipating profits was fruitless, and the incident occurred in the halcyon days before the income tax provided a convincing argument.

Case No. 1 is clearly wrong. Selling and administrative expenses must be absorbed as operating expenses, and no portion of them can properly be included in the cost of manufacture. Your two illustrations show why Case No. 1 is wrong: because of the inflation of the inventory and of the profits.

The question as to "how the overhead expenses for finished product and work in process should be figured when same are inventoried in Cases 1 and 2" cannot be answered in full. Case No. 1 is wrong and can be excluded. As to Case No. 2, all that can be said is that a good cost system should be installed to make an apportionment of the overhead on one of the several well-known bases, and that the goods in process and finished goods should be valued in accordance with the findings of the cost system.

It is coming to be recognized that the cost or market rule in the valuation of inventories of manufactured products applies to the labor element of cost as well as to the material element thereof.

Charles P. Rupp and Walter B. Bailey announce the consolidation of their practices under the firm name of Rupp & Bailey with offices at 255 California street, San Francisco, California.

R. G. Rankin & Co. announce that they have removed their offices to 61 Broadway, New York.

MacHugh, Hill & Co., San Francisco, announce that Neil E. Larkin has become a member of the firm. The firm also announces the opening of offices in the W. P. Story building, Los Angeles.

William Bryden and L. C. Fauble announce the formation of a partnership under the firm name of William Bryden & Co., with offices at 1817 Douglas street, Omaha, Nebraska.

Lewis M. Sternrich and Louis Siegel announce that they have formed a partnership under the firm name of Sternrich & Siegel, with offices at 31 Clinton street, Newark, New Jersey.

Flack & Flack announce that they have taken into partnership in their Sydney (Australia) office George Lormer, associate of the American Institute of Accountants.

Wells & Miller Co., Inc., announces that it has succeeded the firm of Wells, Elkins & Miller, Inc., with offices in the Allison building, Richmond, and the Krise building, Lynchburg, Virginia.

C. Herbert Johnson and Floyd B. Slabaugh announce the formation of a partnership under the firm name of Johnson & Slabaugh, with offices at 315 Monger building, Elkhart, Indiana.

Book Reviews

AUDITING THEORY AND PRACTICE, vol. I, General Principles, by ROBERT H. MONTGOMERY. *The Ronald Press Co.*, New York. 730 pp. Cloth.

The increasing importance and complexities of scientific auditing are well indicated by the growth of Montgomery's *Auditing*, now in its third edition. The second edition of 1916 contained 900 pages, including 150 devoted to the income tax. The first volume of this, the third edition, has 730 pages devoted entirely to general principles of auditing, and it is to be followed by a second volume which will deal with special procedures applicable to various classes of business. And yet there are some who maintain that accountancy has made little progress in the last twenty years!

If there is any point in general auditing principles not covered in this edition we have failed to discover it. True, we were a little disappointed to find no definite advice as to an auditor's duty to disclose to his client A information of value which he has incidentally obtained from client B. The advice given on page 568 (which has a slightly ironical sound) may be good, but we can hardly imagine an auditor telling a client in advance that any evidence of "graft" in his books will be reported to the injured party, if the latter happens to be a client also! But that is not exactly the point we raise, which is: Is it ethical for an auditor to use such information if it is likely to injure a former client, or, vice versa, to suppress it if it is likely to work to the detriment of his present client?

With the abnormal conditions of 1918 to 1921 in mind every purchaser of the present edition will probably turn, as the reviewer did, to the chapters on inventories. We have all had to do more or less violence to our professional consciences and we look for approval or condemnation to the author. When we find he is just as human as the rest of us, we are sadly torn between relief and dismay—relief, that our own straying from the path of strict rectitude may be considered "good accounting practice"—dismay, to find our faith in the inflexible standard of "cost or market" shaken to its foundations! We read (pp. 159-161) that the good old rule may be set aside under no less than six contingencies. These contingencies are, of course, assumed to be the result of abnormal conditions, but we wonder uncomfortably what is the value of a rule that will not stand the test of abnormal times. Who will decide when times are normal or abnormal for any given trade? Lacking the powerful support of "the auditor's bible" (as it has been happily styled in the past), who can now successfully oppose the arguments of the client who insists upon higher market value for his inventory?

The author himself does not appear to be any too happy over the matter (see preface), and the reviewer thinks he will be even less so when future "heretics" quote Montgomry's *Auditing* against the "cost or market" rule. Protest and point as he may to the qualification that "unrealized profits . . . must be separately stated," the door is open to unlimited juggling with inventory values, and always will be pleaded the excuse of abnormal conditions. True, they were, and still are, abnormal, but is that any more reason for varying the standard in the case of inventories than in the case, for instance, of cash, which a certain economist proposes to "value" on a sliding scale?

The reviewer has long entertained a heresy of his own on the subject of inventories, and since he is no longer in danger of orthodox damnation, he proposes to state it. Why should we not abandon the double standard of "cost or market" entirely, and rely upon cost alone? As a matter of fact, cost is the basis of all real profit in the end, allocate it as we may to different periods by the present rule of "cost or market." The argument that the balance-sheet should show the true financial position at a given date and therefore the inventory must be priced at cost or market, whichever is the lower, sounds plausible, but the reviewer thinks it fallacious in most cases. If the concern is about to go out of business, it would be correct, but no concern puts out a balance-sheet for any purpose whatsoever which does not intend to continue business as usual. It is, therefore, rather finical to maintain that it should show its inventory at market price when it has no intention of selling at that price. On the other hand, by stating its inventory at cost (eliminating, of course, damaged and unsalable goods) it would be showing its true financial position for the reason that it would thereby show the amount of working capital invested in material or merchandise. As for the profit-and-loss statement, cost basis would show the actual cost of sales. In an abnormally rising selling market, this profit would naturally be abnormal too, but it would be offset by smaller profits when the concern had to replace material or goods at higher prices. Using the "cost or market" rule distributes or equalizes the real profits between two periods, and *it does nothing more.* The ultimate profit realized on the sale of a given lot of merchandise is the difference between the actual cost and the actual selling price realized. Why not frankly recognize the fact, which every merchant knows, and thus do away with a perennial cause of conflict between auditor and client?

As for presenting a balance-sheet that "may more nearly reflect a concern's actual financial position" (page v), would it not amply suffice to state the market value of the inventory as a note under "inventories"? We do that in the case of long-time investments, and the inventory reflects nothing more nor less than a temporary investment of working capital.

But to return to *Auditing*—Montgomery's work is too well known to need any commendation to the profession. The reviewer does wonder, however, what the accounting world will think of the chapters on inventories. Shall we agree that the author has treated the matter in the light of common-sense and expediency? Or must we admit that in this world of chaotic welter even accountancy has lost its standards? And how will it all end? W. H. Lawton.

APPLIED GRAPHOLOGY, by ALBERT J. SMITH. *The Gregg Publishing Company,* New York. 197 p.

There is so great a tendency to read meanings into meaningless facts that there is always a certain amount of doubt as to the value of any interpretive science. The world is full of people who believe in astrology, palmistry, clairvoyance and what not. This must be so because there are so many people engaged in imposing upon the public in these ways.

A quite valuable attempt to read character and faculty from handwriting has been the subject of a certain amount of skepticism because at first glance it seems to be somewhat like trying to foretell one's future by the horoscope.

The writer of these notes remembers clearly that in the halcyon days of reportorial irresponsibility he was called upon to take the place of the graphologist whose duty it was to classify and characterize letters which were sent in anonymously accompanied by a modest fee. The thing seemed so simple that it was undertaken gleefully. The first issue of the paper in which his expert opinions appeared described one correspondent as likely to be more at home peeling potatoes than handling a pen. It subsequently developed that the lady in question was one of the leaders of society of the city in which the paper was published. From that time onward all attempts at graphology have been left to those who know something about it.

Applied Graphology, a new textbook on the subject of character analysis from handwriting, is extremely interesting and seems to be well worthy of consideration. Accountants would probably get many a valuable hint as to conditions if they learned to read character from the handwriting before them

A. P. R.

PRACTICAL BANK OPERATION, prepared by L. H. LANGSTON. *Ronald Press Company,* New York. 2 vols. 731 p.

These volumes were prepared under the direction of the educational committee of the National City Bank of New York primarily for the use of the bank's training classes and incidentally for the use of bankers and students in general. The work is strictly a practical manual describing in great detail how the affairs of a great banking institution with branches and connections extending throughout the civilized world are carried on. This means not only how the clerical details are taken care of in the bank itself, but also the travels and adventures of "items" which may go from the bank perhaps to the nearest clearing house, perhaps to London, Paris, Buenos Aires, Calcutta or the cities of far Cathay. It is rather stirring to the imagination to see what an important part bank credit plays in the world's affairs, and it helps one to understand better the chaos following the general collapse of that credit during and after the war.

With the possibilities of a large foreign trade being built up in this country before them, ambitious American manufacturers and traders will find much useful information as to handling the details of the necessary financial transactions, as well as the service banks with foreign connections can render in the way of investigating the credit and responsibility of would-be foreign customers. The chapters on foreign collections, discounts, exchange, etc., are full and enlightening.

The part played by clearing houses and the federal reserve system is fully explained and discussed, a matter on which there is need of much light in these days when attempts are being made to subject the federal reserve system to political control for the benefit of this or that bloc. Other functions of the modern bank are treated in the same detailed and exhaustive manner.

The public accountant will be chiefly interested in the chapters on credit and on the bank's methods of internal check and audit. From the casual remark (p. 244) as to the preference given by bankers to certified statements from would-be borrowers, it is apparent that the status of the public accountant is well settled among bankers. In return it would be only fair on the part of the accountant to give careful study to the points, as set forth in the chapter on credit, about which the banker desires explicit information. W. H. LAWTON.

TRADE TESTS, by J. CROSBY CHAPMAN. *Henry Holt & Co.*, New York. 435 pp.

Naturally the title, *Trade Tests*, provokes at once the question, "What is a trade test?" The definition given by the author (p. 8) is—

"Essentially, the trade test is a measuring rod which can be used without trade knowledge on the part of the examiner, for rating in objective, quantitative terms the degree of trade ability possessed by the person under examination."

This gives us the subject and the object of the whole book—it is a study of methods of framing a set of questions adapted to the trade by which an examiner who has no special knowledge of that trade can ascertain with approximate accuracy, and express by a scale, what an applicant for a job actually knows about it, and how he should be ranked, whether as a novice, apprentice or journeyman-expert. Observe the significant points of this. The set of questions must be framed so it can be used by any intelligent clerk in the employment department instead of taking the more valuable time of an employer or foreman to question and experiment with the new man. The answers to the questions must be rated on an inflexible scale, no part credits being given: the applicant either knows or does not know. A pre-determined division of the scale automatically classes him as a novice, apprentice or journeyman-expert. Above all, the subjective element must be absolutely eliminated—the opinion of the examiner as influenced by the state of his digestion or by the personal appearance and manners of the applicant must have no weight in the final rating.

This is a large subject, and one may readily imagine the hoots of derision with which old-fashioned employers and foremen would greet this innovation. Luckily there are two factors in the author's favor: the lively tendency on the part of the up-and-going American employer to "try anything once," and the remarkable success of the tests used in the army during the late war. Although some attempts at such tests had already been made in a few large factories and works, it was the enormous pressure of necessity during the war that put the adoption and use of these tests on a scientific basis. Millions of men had been gathered together in camps; thousands of them were urgently needed for technical jobs of all kinds, and the officers had to find them. Attracted by the prospects of extra pay and privileges, and above all by the laudable desire of many to get "over there" as soon as possible, hundreds of men professed ability and were accepted by confiding officers only to prove worthless for their particular jobs when they arrived in France. Of course, this meant waste and useless expense, and it became necessary to find some mechanical means of selecting and rating men for these technical positions. Dr. Chapman's book tells how it was done, including the not least valuable information to those who may attempt to adopt the methods hereafter: what errors were made, why and how they were corrected. Illustrations of standard test questions as finally adopted by the army authorities complete the story.

There are three methods—the oral test, which consists in bringing the candidate before the examiner who reads to him the set of questions drawn up for his trade and takes down his answers verbatim, the rating according to scale being done later; the picture test, in which the candidate is shown a set of trade pictures (tools, machinery, machine-parts, etc.), and asked their names and purpose; and the performance test, in which the equipment of tools and material for a standard trade job are given the candidate, and he is rated according to the time of performance and the quality of the product. In the oral and picture tests the questions are so framed as to require answers of but two or three words, but it will be observed that correct answers show trade knowledge and actual experience, thereby automatically classifying the applicant as a novice, apprentice or helper or journeyman or expert. The picture test is merely a variation of the oral and is used mainly where the applicant's knowledge of English is slight. Nevertheless, he may be an expert at his job and will be familiar with trade nomenclature. Both these tests are available, of course, only in trades where information is a large element. If the trade is almost purely a matter of dexterity, manifestly not much idea of a candidate's ability could be obtained through the question test. But in the case of a surveyor, bricklayer, electrician, etc., skill in carrying out processes follows almost automatically from possession of the necessary information he has acquired while learning them. Therefore, where manual dexterity is the chief element the performance test is indicated, but it may also be very useful in supplementing the oral and picture tests both to check the rating obtained by the latter and to ascertain the relative skill of several applicants for the same job.

In all cases the questions and performance tests are standardized by being tried on workmen of different classes. After correction and revision the examiner is not permitted to vary the language or form of the adopted questions when putting them to the candidate.

This insures impartial treatment and also the relative accuracy of the ratings.

And of what interest is all this to the public accountant? Well, the problem of excessive and wasteful labor turnover is an important subject for investigation when ways and means of cutting expenses are being sought. The right man on the right job means a contented man as a rule. Trade tests aim to establish this happy combination at the outset. They can also be readily adapted to ascertain the fitness of applicants for advancement. The public accountant who is familiar with Professor Chapman's book can be of great service to clients with long payrolls. W. H. LAWTON.

R. A. O. A. 1921 SYNOPSIS, edited by E. R. WOODSON. *Railway Accounting Officers' Association,* 1116 Woodward building, Washington, D. C. 400 pp.

This is a synopsis of rules, regulations and forms for railway accounting as adopted by the Railway Accounting Officers' Association with the view of simplifying procedure and eventually establishing uniform methods in railway accounting. The book is divided into four principal sections: freight, passenger, disbursement and overcharge claim rules. The first three sections are further subdivided into mandatory and recommendatory rules; the last is entirely mandatory. Each section is prefaced by a complete index, and followed by standard forms to be used.

"Mandatory" is not to be taken in the sense that the rules are prescribed by the I. C. C. or other lawful authority. They apply to members of the association only as members and are not to be enforced where they conflict with state or federal laws or rulings.

The book is, of course, intended only for the railway accounting offices, but public accountants engaged in railway work, or even in auditing the accounts of large shippers, will do well to become familiar with it. W. H. LAWTON.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION: THIRTY-SEVENTH REPORT. Issued by the *Association,* 1116 Woodward building, Washington, D. C. Cloth. 575 pp.

This is a report of the proceedings of the meeting of the Railway Accounting Officers' Association held at Atlantic City in June, 1921, and contains the usual addresses and committee reports customary in such bodies. To the accountant employed in or interested in railway accounting, the committee reports will be invaluable since they give the rulings and recommendations adopted for railway accounts in detail.

The general reader will be more interested in the addresses delivered by Commissioner B. H. Meyer, of the interstate commerce commission, and W. A. Colston, director of finance of the I. C. C. In these two addresses will be found illuminating information in regard to problems arising under the transportation act of 1920. From the general tenor of the remarks of Mr. Colston it is apparent that congress was no more successful in drafting the transportation act clearly and coherently than it was in the case of the income-tax laws.

W. H. LAWTON.

MUNICIPAL ACCOUNTS, by JOHN ALLCOCK. *Gee & Company,* London. 232 pp.

In the first ninety-seven pages of this compact little book (it is small enough to slip into an overcoat pocket) the author has accomplished the rather difficult task of outlining a complete set of accounts for an ordinary English municipality. The rest of the book contains all the forms for the accounts, reports, vouchers, etc., etc. According to the introduction (p. xii), the primary purpose of the book is to enable a borough treasurer, or the chief executive financial officer by whatever name known, to "give the maximum information" in as concise a form as possible to the members of the town council. It will be remembered that Mr. Oakey's book on state and municipal accounting, reviewed in these pages a short time ago, had the same object. Both serve a much more practical purpose in furnishing authoritative texts for the accountant, student and practising.

Owing to the similarity of municipal governments of this country to those of Great Britain, students who wish to acquire the fundamental elements of municipal accounting will find Mr. Allcock's little manual very helpful. Due regard, however, must be paid to differences in terminology and usage, e.g., "corporation redeemable stock" for municipal bonds, reversed debit and credit sides of accounts, etc.

W. H. LAWTON.

Marwick, Mitchell & Co. announce the opening of an office at 507 Main street, Worcester, Massachusetts.

John C. Stell announces the opening of an office at 280 Broadway, New York.

George E. Holmes, Ross W. Lynn, Randolph E. Paul and Valentine B. Havens announce the formation of a partnership, practising under the firm name of Holmes, Lynn, Paul & Havens, with offices at 15 William street, New York.

Charles L. Hughes announces the opening of offices at 110 William street, New York.

Lybrand, Ross Bros. & Montgomery announce that George Roscoe Keast has been admitted to membership in their firm in charge of their Pittsburgh office.

Arthur Young & Co. announce that A. O. Cushny has been admitted as a partner in association with Edward Fraser in the management of their office at 1105 Commerce building, Kansas City, Missouri.

Bishop, Brissman & Co. announce that Thomas J. Shannon of St. Paul, Minnesota, and J. A. Cull of Fargo, North Dakota, have been admitted as partners of the firm.

Joseph N. Tropp announces the dissolution of the firm of Laskey & Tropp and the continuation of his practice under the firm name of Joseph N. Tropp Co., with offices in the World building, New York.

T. A. Andrews & Co., Memphis, Tennessee, announce the opening of an office at 810 Stahlman building, Nashville, Tennessee.

West & Flint announce that William H. West has retired from the firm and that the practice hereafter will be continued under the name of West, Flint & Co., by the following partners: John Flint, Benedict F. Buhle, Philip S. Suffern, Max Frederich, William J. Buzby and Alexander B. Neill. The office since January 1st has been at 40 Rector street, New York.

Ernest E. Wooden announces that he has resigned from the vice-presidency of the Baltimore Audit Company and has opened an office at 1015 Munsey building, Baltimore, Maryland.

Hadfield & Rothwell, Hartford, Connecticut, announce that Charles Floyd Coates has been admitted to the firm.

George H. Bowers and Philip S. Suffern announce the discontinuance of the firm of Bowers & Suffern.

Perine & Nichols announce the admission to partnership of George H. Bowers, formerly of Bowers & Suffern, and the withdrawal from the firm of Frederick Fischer, Jr.

Frederick Fischer, Jr., announces the opening of an office in the Guaranty Trust building, 522 Fifth avenue, New York.

Orlando C. Moyer and Russell E. Briggs announce the dissolution of partnership. Orlando C. Moyer announces the continuance of his accounting practice under the firm name of Orlando C. Moyer & Co., with offices at 1737 Broadway, New York, and 201 Devonshire street, Boston, Massachusetts.

Hutchison & Smith, Praetorian building, Dallas, Texas, announce that Joseph C. Harris and James Hamilton Nance have been admitted to partnership in the firm.

William H. Mannix announces that he is entering into partnership with William L. Litle, Albert H. Schietinger and Thomas Dwight Goodwin under the firm name of Litle, Schietinger & Goodwin with offices at 110 State street, Boston, Massachusetts.

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American Institute of Accountants

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Frederick A. Ross...............New York
Frederic A. Tilton...............Michigan
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Charles S. Ludlam.............New York
Overton S. Meldrum.............Kentucky
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Page Lawrence...................Colorado
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Edward L. Suffern.............New Jersey

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James S. Matteson..............Minnesota
Robert H. Montgomery.........New York
Charles E. Mather.............New Jersey

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†A vacancy exists in the membership of council for the two-year term.

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Waldron H. Rand..........Massachusetts

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Our Growth

Following is a list of the number of students enrolled in the ten largest collegiate institutions in New England as of December 1, 1921, including evening students, but excluding special, extension, and non-resident students:

	Men	Women	Total
Harvard	6022	49	6071
Boston University	3923	1586	5509
Yale	3614	201	3815
Mass. Institute of Technology	3497	38	3535
The Bentley School of Accounting and Finance	**2194**	——	**2194**
Tufts	1912	180	2092
Dartmouth	2011	——	2011
Smith	——	1999	1999
Brown	1241	400	1641
Wellesley	——	1548	1548

The Bentley School of Accounting and Finance was established in 1917 with 29 students, and in 1921 its enrolment of 2194 established a record of growth that is believed to be unparalleled in the educational history of this country. It is, so far as we have been able to ascertain, the largest professional school of its grade in the world that is devoted exclusively to the training of commercial and public accountants.

The remarkable growth of this school is chiefly due to its high standards, and reputation for furnishing the best training in preparation for accounting practice that is available.

One of the outstanding features of this school is the unusually high standards required for graduation. All courses in accounting must be completed with an average grade of not less than B—(80%), and all other subjects must be completed with a grade of not less than C—(70%). Upon completion of the required courses a certificate is issued, but the diploma is withheld and the student is not permitted to be known as a graduate of the school until he has had two years of practical experience in commercial or public accounting that satisfactorily demonstrates his technical ability, adaptability, application, and business conduct. He is then entitled to a diploma and to be known as a B. S. G. (Bentley School Graduate). A diploma of The Bentley School of Accounting and Finance is something which one can justly feel proud to possess, and prize for the prestige it affords.

Both day and evening courses are offered to men who desire to specialize in accountancy. Day courses require two years for completion of the required subjects, and evening courses four years.

Required Courses

Accounting I (Elementary)
Accounting II (Intermediate)
Accounting III (System Building and Cost Accounting)
Accounting IV (Auditing)
Accounting V (Advanced Accounting Problems)
Business Mathematics
Business Law
Business English
Economics
Corporation Finance
Money and Banking
Interpretation of Financial Statements

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