

From Cost Management to Cost Accounting: Relevance Lost

BY 1925, American industrial firms had developed virtually every management accounting procedure known today. The procedures were developed in just over one hundred years by managers seeking information about opportunities for gain in hierarchies. From the first hierarchies ever used to manage economic affairs—in America, the integrated textile mills of the early 1800s—to the complex multidivisional hierarchies of the 1920s, managers developed accounting measurement and control procedures to meet a demand for information about the efficiency and profitability of internally administered economic activity.

After 1925 a subtle change occurred in the information used by managers to direct the affairs of complex hierarchies. Until the 1920s, managers invariably relied on information about the underlying processes, transactions, and events that produce financial numbers. By the 1960s and

1970s, however, managers commonly relied on the financial numbers alone. Guided increasingly by data compiled for external financial reports,¹ corporate management—the “visible hand”—has “managed by the numbers” since the 1950s. We wait for future historians to explain fully the complex forces that caused this transition. We can offer a partial explanation by tracing the developments that prompted manufacturing managers to use inappropriately the inventory cost information, prepared for financial statements, for strategic management purposes.

As we discussed in chapter 3, engineer-managers in metal-working firms between 1880 and 1910 had developed procedures for computing managerially relevant product costs. But those procedures disappeared from manufacturing accounting practice and writing after 1914.² In their place appeared the costing procedures that twentieth-century accountants developed to value inventories for financial reports. While those procedures yield cost information that apparently aids financial reporting, the same information is generally misleading and irrelevant for strategic product decisions. To explain the events leading to this misuse of financial report information by present-day managers, we briefly review the development of strategic cost information in manufacturing firms during the century that ends in the early 1920s.

Diversity, Economies of Scope, and the Cost of Information

Conversion cost information used before the 1880s was relevant to all managerial decisions affecting efficiency and overall profits of single-activity manufacturing firms. The early manufacturing firms attempted to achieve success through economies of scale—reductions in unit cost from increased output of one product in one facility. To monitor

scale economies, managers in manufacturing firms gathered information about conversion costs (efficiencies) in each of the firm's separable processes. Information about the costs of different products was superfluous because the firms had relatively homogeneous lines of products that consumed resources in each of the firm's processes at uniform rates. If the firm's processes were run efficiently, the managers had done virtually all they could do to ensure profitable operations overall.

After 1880, managers of vertically integrated firms and metal-working firms needed more than information about the efficiency of their internal processes. Both types of firms needed additional information to manage unprecedented diversity in processes and in products. Integrated firms made diversity manageable with accounting devices (transfer prices and budgeting are examples) to measure performance in each varied activity with a common yardstick such as net income or return on assets. Managers in the early vertically integrated firms did not seem interested in product costs, probably because they tended to focus on relatively homogeneous lines of products and always in a single industry. In contrast, metal-working firms manufactured diverse lines of products that consumed resources at widely varying rates. Managers in these firms attempted to achieve success through economies of scope—the gains from jointly producing two or more products in one facility. The managers needed information on how decisions about product mix could affect overall profits. To estimate the impact of individual products on a firm's overall profitability, engineer-managers in late nineteenth-century metal-working firms sought to develop accurate product cost information.

By 1910, manufacturing cost systems provided information relevant to a wide range of decisions about economies of scale (efficiency) and opportunities for scope (product differentiation). Of these systems, those designed to trace costs accurately to diverse lines of products disappeared

after 1910, certainly by World War I. Perhaps the main reason for the disappearance was their high cost-to-benefit ratio.³ Existing information-processing technology made it costly to trace accurately the resources used to make each diverse product in a complex manufacturing plant. The higher profits that one might earn by marketing only the most profitable products and rejecting losers may not have been worth the cost of information needed to make such selections. For instance, the high cost of processing information apparently doomed actual applications of Alexander Hamilton Church's product costing system. Charles Renold, referring to an application of Church's system in his father's company around 1900, said that the system "became quite unmanageable in its ramifications, elaborations and adjustments. It could never be kept up to date [and] gave no convenient guide to action."⁴ We know very little about the specific system that Renold referred to, but systems that Church described in his writings suggest that the outcome in the Renold Company might have been different had computers and electronic measuring instruments been available.

The high cost of collecting and processing accurate information about product costs did not prevent firms from marketing diverse product lines, at least not in the first half of this century. This certainly was true of small- and medium-sized firms that manufactured machine-made metal products such as hardware and machine tools. These firms were leaders in developing product costing systems in the 1880s and 1890s, but they soon concluded that it was not worthwhile to gather accurate information about individual product costs. Articles about actual cost systems in machine-tool firms after World War I suggest that they used aggregated overhead pools and direct-labor application of overhead,⁵ scarcely the information one needs to trace firm-wide profits to the profitability of a diverse line of individual products. Not finding it cost effective to collect the requisite information to evaluate the relative profitability of special-

ized market niches, small- and medium-sized firms with diverse product lines still earned tolerable overall profits by becoming full-line producers. The strategy apparently worked for many manufacturers from the 1920s to the 1960s, a period when America's domestic market was relatively isolated from world competition.

Giant integrated organizations that adopted a strategy of product diversification around the time of World War I did not find it any easier than small- or medium-sized firms to compile accurate product cost information. They coped with the problem of product diversity by creating divisions. The multidivisional firm, as discussed in chapter 5, created islands of product specialization within self-contained divisions. The divisions could secure affordable information about efficiency and profitability by using management accounting systems that already were familiar to managers of vertically integrated firms. Information about costs of individual product lines was apparently too expensive for these firms to manage diverse product lines by monitoring precisely each product's consumption of resources.

Cost Accounting Supplants Cost Management after 1900

The virtual disappearance of managerial product costing in manufacturing firms did not mean that accountants abandoned all product costing after 1914. Indeed, a subject known as cost accounting flourished after World War I. But cost accounting did not attempt to trace each product's consumption of resources for cost management purposes; instead, it valued inventory for financial reporting purposes. And the demand for financial reporting after 1900 burgeoned because of new pressures placed on corporate enterprises by capital markets, regulatory bodies, and federal taxation of income. But of all the new demands for cor-

porate financial disclosure after 1900, the demand for financial reports audited by independent public accountants probably had the most profound and lasting influence on managerial cost accounting.

The enormous growth of audited financial reporting and the concomitant rise of the professional public accountant was a powerful new force on the accounting scene after 1900.⁶ A few American industrial firms in the nineteenth century had issued periodic financial reports to their stockholders and creditors; virtually none had the reports audited by independent public accountants.⁷ After 1900, however, many firms needed to raise funds from increasingly widespread and detached suppliers of capital. To tap these vast reservoirs of outside capital, firms' managers had to supply audited financial reports. And because outside suppliers of capital relied on audited financial statements, independent accountants had a keen interest in establishing well-defined procedures for corporate financial reporting.

The inventory costing procedures adopted by public accountants after the turn of the century had a profound effect on management accounting. Every accounting student of the past sixty years has learned about inventory costing—a bookkeeping procedure that manufacturing accountants follow to separate the production expense of an accounting period from the cost of manufactured product inventories at the end of the period. The separation is achieved by “attaching” total manufacturing costs to the equivalent units of product finished in a period. This “accounted” cost is used to value both units of unsold product at the end of a period (finished and in-process inventories) and units of product sold during the period. Inventory costing therefore provides inventory values to report on the balance sheet and manufacturing expenses to match against revenues on the income statement.

Prior to this development, American manufacturing firms did not use cost accounts to value inventories for fi-

financial reporting purposes. As we noted in previous chapters, manufacturing firms developed cost accounts for two purposes: (1) to evaluate internal opportunities for gain from their resources and, (2) to control the internal processes and activities that generated those higher returns. A few early manufacturing firms issued financial reports—some as early as the 1830s⁸—but none required cost accounts to separate period expenses from inventory values. Expenditures were associated either with fixed-value assets (as in railroad replacement accounting) or with periods (current or future [deferred]). And end-of-period inventories of manufactured products were not valued by “flowing” expenditures from asset and period accounts into inventory accounts.⁹ Instead, balance sheet inventories were valued at amounts that approximated current replacement costs.¹⁰

After 1900, public accountants’ rules for financial reporting gradually ended the practice of valuing manufactured inventories with dollar amounts that originated outside the books of account. The public accountants demanded that information in audited financial reports come from double-entry books that “integrated” all cost and financial accounts.¹¹ The term *integration* meant that all amounts reported in financial statements, whether they were period expenses or end-of-period assets, had to be traceable to the original (*i.e.*, historical) costs of recorded transactions. The public accountants’ (*i.e.*, auditors’) demand for “integration” (later referred to as “articulation”) led them to advocate what we know today as inventory costing.¹²

Auditors were less interested in the relevance of product cost information for management decisions than for its impact on reported profits. They insisted that inventories be valued at amounts that were objective, auditable, and “conservative.”¹³ Public accountants in Britain and the United States were particularly concerned that a client corporation not declare dividends out of capital.¹⁴ Such an action could make a corporation vulnerable to creditors’ lawsuits and

could also jeopardize the auditors' reputation. By calculating production expenses and inventory costs from original transaction data, inventory costing supposedly precluded "anticipating income" or "declaring dividends out of capital."¹⁵

Auditors had logical and defensible reasons, therefore, to value inventories by attaching original transaction costs to products.¹⁶ Moreover, they developed *economical* methods to attach costs. For auditors' purposes, the costing methods developed by engineers after 1880 seemed unduly complex, not to mention chaotic and confusing. One scientific management authority, Harrington Emerson, once said that engineers found "'to their sorrow' that without tying-in [inventory values and original costs] they could not 'convince those on whose support they must rely that the methods used are really producing the results promised.'"¹⁷ Auditors were concerned only with separating costs of the period from costs in inventory. One did not need accurate costs of individual products to accomplish the separation; as long as the totals were correct, offsetting errors in the details did not matter.

The difference in accuracy between the engineers' product costing and the auditors' inventory costing procedures arose from the allocation of indirect, or overhead, costs. The engineers took care, often at great cost, to trace indirect costs to the specific activities that caused the cost; in other words, they tried to trace *all* costs of the firm as direct costs of products. That clearly was Church's intent, as we discussed in chapter 3. This approach to tracing indirect costs was described succinctly by John Mann in 1903.

It is clear that if the work is of a uniform class the oncost [*i.e.*, overhead] may be applied according to the weight of metal in the castings. . . . Differential rates should be worked out to ascertain the variation in cost and oncost where the castings vary, say between light and heavy goods, and between different methods, as green-sand, dry-sand, and loam. For instance, loam castings re-

quiring large floor space, and crane power, supervision, etc., may justify an expense rate double that required for simple and small green-sand castings, while dry-sand castings would take an intermediate place.¹⁸

Auditors, however, did not need to distinguish carefully among products and processes. They commonly apportioned all indirect costs as a whole, allocating them to products according to a common divisor such as labor hours or labor cost (information readily available in any manufacturing shop in 1900). Holden Evans, a naval contractor around the turn of the century, described the adverse consequences of using auditor-style inventory costs to estimate prices:

In some of the large establishments with numerous shops the expense burden is averaged and applied on the basis of productive labor—notwithstanding the fact that in one shop the shop expense percentage is nearly a hundred while in another it is less than twenty-five. Frequently such establishments are called on to bid for work which is almost exclusively confined to the shops where the expense is low, and by using the higher average rate the bids are high and the work goes to other establishments where costs are more accurately determined. Thus profitable work is often lost.¹⁹

It seems unlikely, however, that firms would persist in losing profits because of inaccurate costing procedures. Since manufacturers after 1914 seem not to have used the careful overhead tracing procedures described by Mann and Holden, we believe that the profits to be gained must not have been worth the added information-gathering costs.

Therefore, it does not seem legitimate to claim, as some historians have, that managerial product costing disappeared in the early 1900s because it was pushed aside by auditors' methods for inventory costing.²⁰ Because of high information-collection and processing costs, the careful tracing of resource costs to products advocated by Church and many mechanical engineers probably would have dis-

appeared by 1914 even if audited financial reporting had never existed.

What type of cost information would managers have used if auditors and their "integrated" inventory costing procedures had never appeared? It is possible that audited financial reporting would not have arisen if corporations had not turned after 1900 to capital markets for funds. Even so, the demand for external financial reports still could have increased sharply after 1900 to meet the requirements of governmental regulatory and taxing authorities. And government agencies might have insisted on independent audits had auditing not occurred for other reasons. Therefore, pressure to prepare financial reports for nonmanagerial purposes would likely have led companies after 1900 to maintain nonmanagerial cost accounts, even without encouragement from public accountants. And there is no reason to believe that this nonmanagerial cost information would have been more useful to managers than the inventory cost information that did appear.

The ultimate question, then, is not who developed or required nonmanagerial sources of cost information but what prompted rational managers to voluntarily use such information in settings where it was clearly irrelevant? We believe that university departments of accounting may have been the major force in convincing modern managers to "manage by the numbers." University accounting education has paralleled the development of financial reporting in this country. Accounting was virtually unknown in college curricula before 1900; its subsequent development was shaped largely by the demand to train students for public accounting. The theory and problems of financial reporting has comprised virtually all the required courses. Consequently, people trained in accounting before World War II were invariably trained in modern financial reporting, not in management accounting. Many of these graduates started in public accounting careers, but eventually became the finan-

cial, accounting, and even senior executives of American manufacturing companies. That they ultimately used financial accounting data as a major source of information for managerial decision making should not, therefore, be surprising.

Academic Influence on Cost Accounting

The disappearance of managerial product costing at the same time that auditor-oriented inventory costing developed was not without consequence. Filling the vacuum left by the disappearance of managerial product costing, inventory costing became the only form of "cost accounting" in manufacturing establishments. When managers and accountants spoke of "product costs" after World War I, they referred to cost information from the ledger inventory accounts. Gradually, accountants and managers came to define the purpose of cost accounting in terms of valuing cost of goods sold and inventories for financial reports, not for managerial decisions or control. The educational system reinforced the tendency. For all practical purposes, academic accountants writing around 1920 never broached the subject of managerial product costing. Textbooks used in 1920s university accounting courses spoke of cost accounting strictly in terms of inventory costing for financial reporting purposes; only in the post-World War II era did academic writers herald the "birth" of management accounting.

Works by academic writers published in the 1920s show how thoroughly the financial reporting view of inventory costing had absorbed the attention of accounting educators. In a 1922 treatise, one of the century's most influential accounting theorists, William Paton, described what he regarded as the cost accountant's chief activity: "the essential basis for the work of the cost accountant—without it, there could be no costing—is the postulate that the value of any

commodity, service, or condition, utilized in production, *passes over into* the object or product for which the original item was expended and *attaches to* the result, giving it its value.”²¹ (Paton’s italics.) Thomas Sanders, an accounting educator and theorist no less influential in the 1920s and 1930s than Paton, argued in his 1923 cost accounting textbook that the act of *attaching costs to products* is what separates ordinary financial accounting from modern cost accounting. Moreover, the purpose of attaching is to arrive directly and reliably at a cost of goods sold figure for financial reports. In Sanders’ words,

If we take it that financial accounting must record the transactions of the business with the outside world, these transactions will consist, on the one hand, of the outlays which are incurred for productive purposes, such as the buying of materials and the payment of wages and expenses; and on the other hand of sales of the finished product to customers. But without cost accounting there is no adequate connection between these two classes of transactions; there is no assurance that all the expenditures which were incurred for production have been properly attached to the finished products which were sold. [The traditional] procedure in such cases is to take inventories of the raw materials, work in process, and finished goods which remain on hand, and to assume that all the other expenses which have been incurred applied to the goods which were sold. In the absence of cost accounting, we are reduced to this indirect method of computing cost of sales. But cost accounting occupies the ground between the transactions representing productive expenditures and the transactions representing the sales of the finished product; a direct connection is thereby established between the two. The outlays which have been made for materials, labor, and manufacturing expenses are taken up and *attached to* the specific product or processes upon which they apply.²² (Italics added.)

Sanders also emphasized the importance of integrating the cost accounts with the general financial accounts, ob-

serving that “in the absence of such a tie-up between the cost and financial accounts, the cost accounts are likely to depart from the financial records and there is no guarantee of their reliability.”²³ He pointed out that “preserving an exact balance between debit and credit” is one reason why “production managers, efficiency experts, and ‘scientific management’ people frequently refer to [inventory] cost accounting as a somewhat useless procedure which, whatever its merits, offers very little advantage to them.”²⁴ Sanders admitted that accountants had an obligation to cooperate with production managers, but he leaves no doubt that the main purpose of cost accounts is to value inventories for the financial reports. Indeed, virtually all textbook writers of the 1920s defined “attaching” and “integration” as the cost accountants’ two most important considerations.²⁵

Textbook authors would usually observe that inventory costing does not provide all information that managers need for evaluation, control, and decision making. The observations are always brief and never advocate any managerial accounting procedures that might detract from the primacy of inventory costing. Glaringly absent from these textbooks is any mention of actual management accounting practices in contemporary industrial organizations.²⁶ Some authors mention the possibility of using predetermined standards to evaluate departmental and operational performance. But they ignore the vast literature on managerial product costing that engineers wrote in the early decades of the century. Standard costing is usually mentioned, if at all, as a technique that simplifies the task of attaching burden costs to products.²⁷

College-level accounting textbooks were not the only publications that gave early authoritative support to the inventory costing approach to cost accounting. Also influential was the historical writing that appeared after 1930 in works by A. C. Littleton, David Solomons, and S. Paul Garner.²⁸ Littleton’s well-known *Accounting Evolution to 1900*²⁹ legit-

imized the financial reporting approach to cost accounting by depicting it as the inevitable accounting consequence of factory manufacturing. For Littleton, accounting's evolution progressed inexorably toward twentieth-century financial reporting. For him, the unique accounting problem that manufacturing activity contributed to the evolution was the need to attach costs to inventory. Littleton believed that manufacturing accountants did not develop modern inventory costing procedures until the late 1800s, well after factory manufacturing began. He conjectured that inventory costing did not appear until the 1880s when fixed costs became large enough to force factory managers to give attention to cost allocation procedures.

The historical records we discussed in chapter 2 refute Littleton's interpretation of cost accounting history. Financial reporting did not provide the motivation for managerial product costing. The late nineteenth-century literature that Littleton believed were the first commentaries on modern inventory costing procedure were, in fact, written by engineers who wanted to develop more accurate product costing methods for estimating and pricing—they had no interest in accounting at all.³⁰

Had Littleton studied historical company records, he might have discovered the cost accounting practices of early nineteenth-century factories (see chapter 2). He confined his research, however, to publications written by accountants themselves. He interpreted cost accounting history entirely in terms of the technical record keeping procedures that accountants in his day used to compile information for audited financial reports.

Accountants, by the end of World War II, had wholeheartedly accepted both the role of cost accounting for inventory valuation and Littleton's interpretation of cost accounting history. Academic accountants then proceeded to rediscover "managerial accounting for decision making." Many accounting authorities began to write about the man-

agerial shortcomings of financial accounting information;³¹ but the primary concern of this writing was to make *financial* accounting information more useful for management decisions, by strategies such as sorting out fixed and variable costs. The financial reporting view of cost accounting was not challenged. The 1950s debate over "direct costing" shows the continuing dominance of the view.³² In that literature no one challenged the idea of attaching "integrated" costs to products. The debate merely focused on which costs to attach, full or direct.

To avoid anticipating income, *nonmanufacturing* overheads were never attached to inventory. This policy virtually terminated academic discussion of cost accounting for distribution, research, development, marketing, administration, and capital. Indeed, the public accountants' refusal to countenance capitalization of imputed interest led to a bitter dispute among American accountants that culminated in the formation of the National Association of Cost Accountants in 1919.³³ While the issue remained alive in that organization, it disappeared from writings by public accountants and academics.

Many authorities eventually challenged the prevailing view, none more distinguished than William Paton. As we mentioned previously, Paton in his 1922 treatise was among the earliest authorities to legitimize the "costs attach" idea of costing. He also coauthored with Littleton in 1940 the most influential statement of the "costs attach" idea ever published.³⁴ Speaking at a conference in 1970, however, Paton disparaged the "costs attach" idea by saying,

The basic difficulty with the idea that cost dollars, as incurred, attach like barnacles to the physical flow of materials and stream of operating activity is that it is at odds with the actual process of valuation in a free competitive market. The customer does not buy a handful of classified and traced cost dollars; he buys a product, at prevailing market price. And the market price may be either above or below any calculated cost figure.³⁵

Paton did not offer an alternative to attaching when he made this statement. He might have noted that the common nineteenth-century method of determining periodic income did not require inventory costing.³⁶ The bookkeepers in early American textile companies used market replacement costs (or close approximations of them) to value ending inventories. They charged off all manufacturing costs—direct, indirect, fixed, and variable—as costs of the period; no cost “flowed” into inventory.³⁷ Or Paton might have mentioned Church’s proposal to attach *all* costs to products. Although never taken seriously by academicians, accountants, or auditors in this century, Church’s approach to product costing, which appears to eliminate the concept of period costs, would make product cost a bridge between pre-industrial venture accounting and modern periodic income determination.³⁸

Acceptance of the inventory costing view of cost accounting is today so complete that all memory or knowledge of cost and managerial accounting practices in pre-1914 American manufacturing firms seems dead. Nowhere is this absence of memory more evident than in the following quotations from three contemporary and representative cost and managerial accounting textbooks:

Managerial accounting is in its infancy. Historically, it has played a secondary role to financial accounting, and in many organizations it still is little more than a by-product of the financial reporting process. However, events of *the last two decades* have spurred the development of managerial accounting, and it is becoming widely recognized as a field of expertise separate from financial accounting.³⁹ (*Italics added.*)

Originally, the label *cost accounting* referred to the ways of accumulating and assigning historical costs to units of product and departments, *primarily for purposes of inventory valuation and income determination.*⁴⁰ (*Italics added.*)

While the *traditional role* of cost accounting to record *full product cost data for external reporting and pricing* remains strong, cost

accounting for decision making and performance evaluation has gained importance *in recent decades*.⁴¹ (Italics added.)

The authors of these well-known textbooks are in fact expressing Littleton's questionable version of cost accounting history.

One of the coauthors of this book himself enunciated the same belief about the origins of management accounting in the following passage from a textbook that he published in 1982:

Management accounting is a relatively recent phenomenon, especially when compared to the long historical development of financial reporting for external parties such as owners, creditors, regulators, and tax authorities. Cost accounting was the first manifestation of the current management accounting system. Cost accounting was developed to fill a need generated by the financial reporting process. Costs had to be allocated so that product-related expenditures could be separated between cost of goods sold and inventory. . . .

During the 1950s and 1960s, . . . accountants began devising cost accounting procedures that would be most relevant to particular decisions. Emphasis shifted from external to internal users of cost accounting data. One could now think of recording cost data for internal purposes in a manner different from that used for external purposes.⁴²

The historical material found in the preceding four chapters refutes two central ideas in the above quotations: that management accounting is a more recent phenomenon than financial accounting and that "cost accounting was developed to fill a need generated by the financial reporting process."

Cost Accounting and Cost Management Contrasted in the U. S. and the U. K.

Evidence from Victorian England casts additional doubt on the academic accountants' (e.g., Littleton's) version

of the historical development of cost accounting in American manufacturing. We know today that management accounting, including cost accounting in the nineteenth century, developed much sooner in the United States than in the United Kingdom.⁴³ Also, public accountants promoted "integration" of cost and financial accounts soon after establishing their presence in the United States, around 1900. In Britain, however, where auditors had established a professional presence nearly fifty years sooner, they did not evince an interest in integrated accounts until long after World War I.⁴⁴ Believers in the Littleton hypothesis would have trouble explaining either observation because for Littleton the motive force behind the evolution of cost accounting is financial reporting and the consequent need to account for industrial fixed costs. Britain's early lead in industrial development would presumably have put British cost and managerial accounting ahead of American practice, at least to the end of the nineteenth century. Yet this did not happen.

The earlier, more sophisticated development of cost and managerial accounting in America than in Britain can be explained by differences in the way that industrial activity was organized in the two economies. British industrial firms, at least to the 1920s, tended to specialize in single processes, whereas American industrial firms tended to integrate several processes within the same organization.⁴⁵ In recent studies of this contrasting situation, scholars emphasize that Britain's market system was much more sophisticated and more efficient than America's.⁴⁶ A leading business historian describes the British situation as follows:

In the last few decades of the nineteenth century and the first decades of the twentieth Britain was perhaps nearer to the ideal of the free market than any other major country at any stage in history. Transport improvements and the densely packed highly urbanized population provided a uniform national market; levels of industrial concentration were low, monopoly positions were al-

most unknown, and competitive pressures within the economy were strong; international trade was entirely free of tariffs; migration and capital movements were free of control; market institutions were highly developed within a well-understood legal framework; the currency and financial system were stable.⁴⁷

With such extensive market opportunities, there was little need for British industrialists to coordinate economic exchanges within firms. Relying on market prices, the industrialists coordinated a far higher percentage of their exchanges *among* firms than did their American counterparts.

The accounting implications of these different organizational patterns are by now obvious. British companies, because they tended to specialize in a single process, did not need accounting records to ascertain the cost of intermediate outputs; market prices supplied virtually all the cost information they needed. American companies, because they tended to integrate two or more processes under one management, needed cost accounts to compute the cost of their internally made intermediate outputs. The so-called "failure" of British companies to adopt what often are considered advanced American cost accounting procedures was actually the natural consequence of the higher effectiveness of market institutions in Britain. This effectiveness made it beneficial for British companies to coordinate different production processes through market exchanges, thereby eliminating the need for sophisticated internal cost accounting procedures.⁴⁸

In retrospect, British industrialists paid a high price. Heeding strictly to domestic market signals in the late Victorian era, British manufacturing firms remained specialized at a time when the tide was turning in favor of integrated hierarchy. Eventually the British were swamped by the economies of scale achieved by American and German corporations, whose large-scale industrial hierarchies captured world markets for standardized mass-produced goods.

But how does one explain why nineteenth-century British public accountants were uninterested in the “integration” of cost and financial accounts? Public accountants developed a professional presence earlier in Britain than in America and the British market for securities created a demand for audited financial reports in the second half of the nineteenth century. The much simpler structure of British organizations, however, enabled the information from a company’s general ledger to be used directly to compile auditable financial reports. Virtually all of a British manufacturing company’s transactions were market transactions, and the ledger accounts fully reflected these transactions. British auditors had no reason to press for integration of cost and financial accounts since the general accounts already provided everything needed to prepare auditable financial reports. For instance, British accountants could ascertain directly from double-entry purchase accounts the “cost of sales” figure that caused so much concern to American authorities such as Sanders. Indeed, British auditors argued for *separating* managerial cost accounts (such as they were) from general financial accounts.

Conclusion: Cost Accounting’s Lost Relevance for Cost Management

Our discussion in this chapter suggests that little evidence exists to believe that auditors after 1900 persuaded managers to substitute inventory cost accounting figures for strategic product cost information. That managers were not inclined to compile accurate product costs data in the decades after 1900 likely reflects their judgment on the costs and benefits of such information, not a lost sense of what information is relevant to management decisions. Yet having the accounts used to value inventories for financial reporting purposes be the only source of product cost information un-

doubtedly has affected how accountants and managers subsequently thought about cost management during the past sixty years. Many accountants and managers have come to believe that inventory cost figures give an accurate guide to product costs, when they do not.

Accounting historians should examine carefully the extent to which the writings and teachings by academic accountants (as distinct from auditors and managers) have contributed to cost accounting's lost relevance for cost management. Academic accountants devoted much energy in the last sixty years to forging managerial relevance out of financial accounting information. The forging used a model of a simple manufacturing firm, producing a homogeneous line of goods—scarcely as complex as an early nineteenth-century textile mill. In such a simple setting, academic writers recast inventory cost information to solve contrived production problems. In more complex real-world settings, however, inventory cost information is irrelevant for actual management decisions. That was, of course, the point made by Church and other early twentieth-century writers. Moreover, academic management accountants tend to characterize management decisions in terms of "decision models" derived from the economists' neoclassical theory of the firm. The models portray situations that grossly oversimplify the decision problems managers face in real life. But the forced simplification permits academic writers to show how inventory cost information from financial reports can be made "relevant" to managerial decisions. Academic cost accountants, more than auditors or managers, may have contributed to accounting's lost relevance for cost management, especially since World War II.

Although financial reporting rules *per se* did not thwart managerial cost accounting after World War I, they did have a deleterious impact on the accounting information used to evaluate subordinates' performance in complex industrial organizations. As we remarked previously, large firms used

accounting measures of efficiency and productivity to evaluate subordinate managers' performance well before multidivisional organizations first appeared around 1920. Critics of present-day American management practice often note that successful Japanese and German manufacturing firms also focus on similar measures of performance. But the emergence of the multidivisional structure in the 1920s encouraged top managers to entrust divisional heads with responsibility for achieving accounting profit or ROI targets, not merely efficiency or productivity targets. Using profit performance targets allowed top managers to delegate a broad variety of operating responsibilities. It also increased the risk that subordinate managers' local goals might not conform to the goals of the organization as a whole.

This risk is a topic of great concern today. The spread of the multidivisional structure throughout American industry has catalyzed an enthusiasm for motivating *every* member of a business organization to meet profit goals. Yet undesirable outcomes can occur when subordinates are asked to respond to profit signals. This and other consequences of modern financial reporting will be examined as we next consider the continuing evolution of management accounting in America after 1925.

Notes

1. Richard A. Elnicki, "The Genesis of Management Accounting," *Management Accounting* (April 1971), 16.

2. This observation is documented extensively in M. C. Wells, *Accounting for Common Costs* (Urbana, Ill.: Center for International Education and Research in Accounting, 1978).

3. We are indebted to Robin Cooper for making this point and for contributing many other important ideas used in this chapter.

4. Quoted in Richard Vangermeersch, "Alexander Hamilton Church: A Man for All Seasons" (unpublished ms., Kingston, R.I., n.d.), 43.

5. Numerous articles on the cost systems of metal-working firms are found in the pages of *Management and Administration* during the 1920s.

6. A profession of public accountants appeared when audited financial reporting became important, first in Britain around the middle of the nineteenth century and then in the United States around 1900. For more details see Gary J. Previts and Barbara D. Merino, *A History of Accounting in America* (New York: John Wiley, a Ronald Press Publication, 1979), chapter 5, Eugene H. Flegm, *Accounting: How to Meet the Challenges of Relevance and Regulation* (New York: John Wiley, 1984), 17–18, and David F. Hawkins, "The Development of Modern Financial Reporting Practices Among American Manufacturing Corporations," *Business History Review* (Autumn 1963), 135–168.

7. Although railroads often had their financial reports audited, the auditors generally were members of the board of directors.

8. Andrew Carnegie's steel company, a partnership, did not issue public reports; New England textile companies and American railroad companies did issue semiannual and annual reports to nonmanaging directors from their earliest days, and by the 1850s were issuing annual reports to stockholders. A brief survey of nineteenth-century American financial reporting appears in Previts and Merino, *A History*, 55–62, 80–89.

9. The method of determining periodic income in early textile companies resembles what railroad accountants later would call "replacement accounting." Replacement accounting bridges the pre-industrial "valuation" approach to income determination and the twentieth-century "matching" approach. It does not allocate fixed asset costs to periods as the matching approach does, but it does report periodic revenues, which the valuation approach does not do. It is essentially a cash-based method of determining income. See Richard P. Brief, "Valuation, Matching, and Earnings: The Continuing Debate," in James F. Gaertner, ed., *Selected Papers from the Charles Waldo Haskins Accounting History Seminars* (Atlanta, Ga.: The Academy of Accounting Historians, 1983), 15–29.

10. There is strong evidence that the textile companies valued ending inventories at approximations of market price until well after 1900 and reasonable grounds to believe that nineteenth-century manufacturers in other industries never considered doing otherwise. On the textile situation, see Paul F. McGouldrick, "Notes on Cotton Textile Records at the Baker Library," (Boston, 1958), on file at the Harvard Business School, Archives Division; and his *New England Textiles in the Nineteenth Century* (Cambridge, Mass.: Harvard University Press, 1968), 92. On other industries see Wells, *Accounting* 38, 47, 138–139, 144.

11. American auditors' insistence on integrated cost and financial accounts around 1900 is extensively documented in S. Paul Garner, *Evolution of Cost Accounting to 1925* (Tuscaloosa, Ala.: University of Alabama Press, 1954), chapters 5–6.

12. R. S. Edwards was an early writer to acknowledge "the enormous drawback to a double-entry costing system 'tied-in' [i.e., integrated] to the financial accounts." See his "The Rationale of Cost Accounting" (1937), reprinted in J. M. Buchanan and G. F. Thirlby, eds., *L.S.E. Essays on Cost* (New York: New York University Press, 1981), 71–94. J. M. Clark also spoke of the

need to develop "systems of cost analysis which shall be separate from the formal books of account, though based on the same data." See his *Studies in the Economics of Overhead Costs* (Chicago: University of Chicago Press, 1923), 68.

13. It was probably good business sense, not the influence of the law, that caused accountants to consider the implications of profit measurement for dividends. According to Basil Yamey, "it was the accounting conventions and not the legal requirements that imposed the real restraints on the calculation of divisible profits in practice." See his "The Development of Company Accounting Conventions," *Three Banks Review* (September 1960), 13. We are grateful to Stephen A. Zeff for supplying this reference.

14. Arthur Lowes Dickinson, "The Profits of a Corporation," *Official Record of the Proceedings of the Congress of Accountants, 1904* (New York: Arno Press reprint, 1978), 171–191; R. Montgomery, *Dicksee's Auditing* (New York: Ronald Press, 1905), 171.

15. By valuing inventories with attached historical costs, one never recognizes unrealized holding gains in unsold units; moreover, unrealized holding losses are easily recognized by following the "lower of cost or market" rule.

16. Auditors pressed companies to maintain inventory accounts by "flowing" transaction-based acquisition costs onto units of product even though most financial reports in the early decades of the century did not disclose amounts of inventory or cost of goods sold. The importance of this issue to accountants and evidence that most companies quickly complied is implicit in the debates over "articulation" and in the accounting textbooks written during and shortly after World War I.

17. David Solomons, "The Historical Development of Costing," in Solomons, *Studies in Costing* (London: Sweet and Maxwell, 1952), 41.

18. John Mann, Jr., "Oncost or Expenses," *Encyclopedia of Accounting, 1903–1904* (London: William Green and Sons, 1903), 220. We are indebted to Richard Brief for this reference.

19. Holden A. Evans, *Cost Keeping and Scientific Management* (New York: McGraw Hill, 1911), 1–54. We are indebted to Richard Vangermeersch for this reference.

20. See Wells, *Accounting*, 129.

21. William A. Paton, *Accounting Theory* (Houston, Tex.: Scholars Book Co., 1973 reprint of 1922 ed.), 490–491.

22. Thomas H. Sanders, *Problems in Industrial Accounting* (Chicago: A. W. Shaw Company, 1923), 14–15.

23. *Ibid.*, 15.

24. *Ibid.*, 14.

25. See, for example, James L. Dohr, *Cost Accounting Theory and Practice* (New York: The Ronald Press, 1924); Charles F. Schlatter, *Cost Accounting* (New York: John Wiley & Sons, 1927).

26. An exception to this generalization would be the company practices articulated in the Harvard Business School cases that appear in Thomas Sanders' books. In these books, however, Sanders emphasizes the inventory cost-

ing purposes of cost accounting. Twentieth-century public accountants (and the educators who write textbooks) rarely show an interest in the internal accounting practices of companies. (This is a recurring theme in Flegm, *Accounting*, 16–18, 167–204, and 255–258. Flegm is a former Big Eight CPA who for many years has directed the comptroller's staff of General Motors.) The lack of interest is not because companies kept their practices secret. Industries in which nineteenth-century American firms published descriptions of their accounting systems include textile making (e.g., *Transactions of the New England Cotton Manufacturers' Association*), railroads (e.g., Alfred D. Chandler, Jr.'s references to annual reports by Albert Fink and to articles by Henry Varnum Poor in the *America Railroad Journal*), and machine making (e.g., references to publications of the A.S.M.E. in Wells, *Accounting*, 66–67). A classic early twentieth-century example of published material on a company's management accounting system is the series of articles by GM executives in the 1920s, cited in chapter 5. Perhaps the real reason for auditors' indifference toward company accounting practices is that "for many years it was assumed that the type of information useful to managers had little significance for external users." (Previts and Merino, *A History*, 274.) Donald J. Kirk, chairman of the FASB, restated the same belief recently in "The Impact of Management Accounting on GAAP," *Management Accounting* (July 1985), 26–30, 59.

27. Public accountants and auditors resisted the application of standard cost concepts to product costing until after World War II. Their aversion to standard costs stemmed, it seems, from a fear that "standard" numbers might compromise the integrity of the original-transaction double-entry ledgers—the same fear that originally caused auditors to advocate "integration" of cost and financial accounts.

28. The major historical writings by these authors are referenced and discussed in H. Thomas Johnson, "Toward a New Understanding of Nineteenth-Century Cost Accounting," *Accounting Review* (July 1981), 510–511, 516.

29. Published in 1933 by the American Institute for Accountants (now the AICPA). Chapters 20–22 contain the material on cost accounting history.

30. Wells, *Accounting*.

31. A few of the countless examples one could cite are: Herbert A. Simon et al., *Centralization vs. Decentralization in Organizing the Controller's Department* (New York: Controllershship Foundation, 1954), esp. 56–57, 98–100; Billy E. Goetz, "Tomorrow's Cost System," *Advanced Management* (December 1947); H. Justin Davidson and Robert M. Trueblood, "Accounting for Decision-Making," *Accounting Review* (October 1961), 577–582; Sidney Davidson, "The Day of Reckoning: Managerial Analysis and Accounting Theory," *Journal of Accounting Research* (Autumn 1963), 117–126.

32. An excellent discussion of this controversy is in David Green, Jr., "A Moral to the Direct Costing Controversy," *Journal of Business* (July 1960), 218–226.

33. Stephen A. Zeff, "Some Junctionures in the Evolution of the Process of Establishing Accounting Principles in the U.S.A.: 1917–1972," *Accounting Re-*

view (July 1984), 448–450. The twentieth-century history of overhead allocation to inventory is still very unclear. The rules concerning allocation of manufacturing overhead to inventory are vague and often misinterpreted. Textbook writers often erroneously assert that “the accounting profession is committed to the inclusion of all manufacturing overhead costs in the costs of production and then into inventory.” Nicholas Dopuch, J. G. Birnberg, and J. S. Demski, *Cost Accounting* (New York: Harcourt Brace Jovanovich, 1982), 220. In truth, practice in this regard has been varied. U. S. Steel, for instance, capitalizes as little manufacturing overhead as possible; other firms absorb all the overhead allowed.

34. W. A. Paton and A. C. Littleton, *An Introduction to Corporate Accounting Standards* (Columbus, OH.: American Accounting Association, 1940).

35. Williard E. Stone, ed., *Foundations of Accounting Theory* (Gainesville, Fla.: University of Florida Press, 1971), x–xi.

36. Robert Hamilton's late eighteenth-century views on this method of income determination are discussed in M. J. Mephram, “Robert Hamilton's Contribution to Accounting,” *Accounting Review* (January 1983), 43–57.

37. Examples of this approach to income determination and inventory valuation that have been proposed by modern accounting writers are: Don T. DeCoster and Eldon L. Schafer, *Management Accounting: A Decision Emphasis* (New York: John Wiley, 1979), chapters 5–6; T. A. Lee, “The Simplicity and Complexity of Accounting” in Robert R. Sterling and Arthur L. Thomas, eds., *Accounting for a Simplified Firm Owning Depreciable Assets* (Houston, Tex.: Scholars Book Co., 1979), 35–56; and Wells, *Accounting*, 163–166.

38. Stephen Gilman once viewed inventory costing as a consequence of accountants' adopting the period convention; periodization resulted in “the shift from venture accounting to the treatment of units of inventory as separate ventures.” See a review of Gilman's *Accounting Concepts of Profit* (New York: Garland Publishing, 1982 reprint edition) by Carl Devine in *Accounting Review* (October 1985), 760. Also see Green, “A Moral to the Direct Costing Controversy,” and L. J. Benninger, “The Traditional vs. the Cost Accounting Concept of Cost,” *Accounting Review* (October 1949), 387–391.

39. Ray H. Garrison, *Managerial Accounting: Concepts for Planning, Control, Decision Making* (Plano, Tex.: Business Publications, 1982), 18.

40. Charles T. Horngren, *Cost Accounting: A Managerial Emphasis* (Englewood Cliffs, N.J.: Prentice-Hall, 1982), 4.

41. Edward B. Deakin and Michael W. Maher, *Cost Accounting* (Homewood, Ill.: Richard D. Irwin, 1984), 9.

42. Robert S. Kaplan, *Advanced Management Accounting* (Englewood Cliffs, N.J.: Prentice-Hall, 1982), 1–2.

43. Robert R. Locke, “Cost Accounting: An Institutional Yardstick for Measuring British Entrepreneurial Performance, circa 1914,” *Accounting Historians Journal* (Fall 1979), 1–22; Wells, *Accounting*, 64, 66–67. An excellent discussion of British-American differences in nineteenth-century cost accounting is in Edgar Jones, *Accountancy and the British Economy, 1840–1980* (London: B. T. Batsford, 1981), 111–119.

44. Locke, "Cost Accounting," 5.

45. An important new study of this phenomenon as it occurred in the textile industry is William Lazonick, "Industrial Organization and Technological Change: The Decline of the British Cotton Industry," *Business History Review* (Summer 1983), 195–236.

46. See the contributions by Leslie Hannah (on Great Britain) and Jurgen Kocka (on Germany) in Alfred D. Chandler, Jr., and Herman Daems, eds., *Managerial Hierarchies: Comparative Perspectives on the Rise of the Modern Industrial Enterprise* (Cambridge, Mass.: Harvard University Press, 1980) 41–76, 203–224.

47. Leslie Hannah, "New Issues in British Business History," *Business History Review* (Summer 1983), 174.

48. One interesting confirmation of this observation is the sophisticated cost accounting system used in an *integrated* multiprocess English textile company operating at the *very start* of the nineteenth century, *before* the British market system displayed the efficient properties described in the text quotation (by Hannah) cited in note 47. This case is discussed in Williard E. Stone, "An Early English Cotton Mill Cost Accounting System: Charlton Mills, 1810–1889," *Accounting and Business Research* (Winter 1973), 71–78.