Fiftieth Anniversary of The Accounting Review

M. J. Mumford

In March 1926 Volume 1 Number 1 of The Accounting Review was published; and in the subsequent fifty years the AR must have published quite 70 per cent of the world's output of academic articles on accountancy in its various forms. The AR thus occupies a unique place in accounting research, study and education. The original publishers, the American Association of University Instructors in Accounting, became the American Accounting Association in 1936, and the 500 membership of that time has grown to over 11,500 today, giving the AR a circulation in excess of 16,500. From the outset, emphasis was placed in AR upon research and all the significant developments in accounting thought since 1926 either have their origins in the journal or have been soon reflected in its pages.

The years 1926 to 1936 were concerned largely with descriptive analysis of accounting practice, often based upon specific industries. Prominent attention was given, not surprisingly, to matters of pedagogic interest - course contents, research proposals, book reviews - reflecting the fact that 85 per cent of its readers were academics. During the early 1930s, Professor Roy Kester launched fierce editorial attacks upon the resistance of the accountancy profession to formulating accounting standards, either based upon valid theoretical premises or even upon the crudest syntheses of practice. Vindication from the 1934 Securities Exchange Act rings out in the famous Editorial of December 1934. The SEC Chief Accountant was authorised to compile the accounting principles that the profession had conspicuously failed to provide.

During the 1940s and 1950s, the AR documents the great debate which arose between 1936 and 1957 on the treatment of general price level changes; the AAA's Statements of 1936, 1941 and 1948 accepted historical cost as the proper basis for financial accounts, while the pivotal Supplementary Statement Number 2 of October 1951 and the subsequent Statement of 1957 accept the value of general price index adjustments.

During the 1960s, the AR greatly advanced the cause of empirical research, including, for example, seminal work on the predictive value of accounts. The 1966 AAA Statement, 'ASOBAT', was published separately, but much of the case for current value and multiple value statements has been published in AR. Of course, the current value controversy began before 1926, with work by Earl Saliers (on replacement costs), Roy Kester (on realisable values) and W. A. Paton's important 1922 book, Accounting Theory. However, with Paton and Littleton, Sanders and Hatfield, Gilman and Husband, Kester and Kohler, Ralph C. Jones and H. W. Sweeney, C. Rufus Rorem and DR Scott, Perry Mason and Robert Montgomery amongst the AAUIA membership at the start of AR, the new journal could hardly fail to catch the new lines of thought as they developed. There were a few failures; MacNeal's Truth in Accounting and Gilman's Accounting Concepts of Profit were neither of them reviewed in 1939, when they were first published. The idea of 'deprival value' (based upon the work of J. C. Bonbright, and basic to much current work on this side of the Atlantic) seems to have received very little attention, perhaps due to the continuing institutional resistance to current value accounting in the United States.

The AR has pioneered many valuable developments, including the publication of papers from the groundbreaking 1st International Congress on Accounting of 1929; classified lists of research thesis titles from American Universities; and the addition of annual Supplements to include the wide range of reports from AAA Committees. The real strength lies not so much in novelty, however, as in the consistently high quality of the material published. Even with the advent of new journals in several countries, each of high quality and enjoying international circulation, to be published in The Accounting Review remains a signal mark of achievement.
A colleague, on hearing that I was to review Canning's work "fifty years later", inquired: How does one do justice to work done in the circumstances and the state of the art so long ago? None of the answers I can frame is entirely satisfactory. One may be aware of the antecedent literature and to some extent of practice at that time. But there is the risk that linguistic habits may have changed, the risk that the opinions of others on the work may cloud one's judgement, and the risk of interpreting the work in the light of events and debates subsequent to its publication. To be aware of these possibilities is at least of some help. So also is the distance in time; for one can be rather more objective and dispassionate about matters in which one was not personally and actively engaged.

Some of the pitfalls may be avoided by considering the systematic quality of the work. As Canning's book is the result of a "comprehensive study of accounting theory and practice", even though from the viewpoint of "the professional student of economics" (p.iii), we shall be concerned with its systematic quality. As Canning found it necessary to invent or borrow terms not commonly used in the literature, we shall need to quote his own words frequently, in the hope of avoiding misinterpretation.

Even then there are difficulties. First, Canning was anxious that economists should be more fully aware of what accountants were doing, since many of them made use of what accountants produce. Though he was critical of the literature and practice of accounting in many respects, in others he seemed to be more generous and tolerant than the evidence warranted. Second, though one would like to take the work as an exposition of accounting theory and practice with clearly distinguished ameliorative suggestions, it is not always easy to distinguish Canning's interpretation of "the professional accountant's" ideas from his own
ideas. It is rather like trying to reconstruct a knight's move given only its present position on a chess board.

Canning's work was one of the earliest analytical studies of accounting that came to my notice when, 15 years after its publication, I became seriously interested in what stood as the theory of the subject. It delighted me, perhaps because his observations tallied with many of my own. He pointed out the "great lack of uniformity in practice" (p.5)

The dicta of early writers "were amazingly positive and their argument as amazingly inconsequential" (p.8) Writers and practitioners proceeded by "a sort of patchwork and tinkering... there was little going back to fundamentals for a fresh start" (p.9). Instead of one general rule for inventory valuation "there is in reality a myriad of diverse rules" (p.10)

Definitions of asset were "confusingly diverse" (p.13). "The accountants have no complete philosophical system of thought about income" (p.160) "...diverse valuations of diverse things are added to find an asset total that, dollar for dollar, cannot possibly have a common significance" (p.319).

These critical observations were enough to indicate the potential fruitfulness of a comprehensive study of theory and practice; enough to suggest to anyone whose mind is not closed against the analysis and criticism of his art, a whole series of matters deserving re-examination and reconstruction. Yet, fifty years later, many of these observations may still be made of accounting theory and practice. Indeed, in that interval, there has been such a proliferation of alternative rules, definitions and practices, that the diversity of which Canning complained has become greater rather than less; and much of the debate that rages consists of argument which, to one party or the other, is still "amazingly inconsequential".

Canning was, by training and for much of his life, a statistician and
economist. His close attention to accounting appears to have spanned the decade of the 1920s, during which he was in charge of the division of accounting in the Department of Economics of Stanford University. The Economics of Accountancy was published in his forty-fifth year. Not only did he bring to bear a point of view and a background different from those of accountants; he also brought his own brand of mild but none the less acute impatience with vagueness and indecisiveness, and his own often-pungent diction to clothe it in. If the outcome was not itself free of solecisms, the reason lies almost assuredly in the fact that there were few, if any, others of like competence and interests; few, if any, who were able and willing to venture into the common but uncharted borderland of economics and accountancy.

Two Disciplinary Ideas

Two features of The Economics of Accountancy deserve special notice, for they have a general bearing on theory and practice. The first is the attempt to define rigorously the terms used in exposition and argument. All valid argument depends on specified definitions. Vague or loose definition leads to inconclusion. Canning attempted valiantly to make good some of the omissions and to reduce some of the laxity he found. With what success we shall presently consider. The second is the specification of the rules relating to the merging by summation or otherwise of "individual measures".

Accounting is necessarily aggregative. Canning found that its literature and practice abounded with examples of different competing formulas or techniques of valuing. Little attention had been given to the effects of this on the meaning of financial statements; and almost nothing had been done "to discover to what extent a common, general method might be expected to enhance the usefulness of the principal statements" (p.206). This condition needed rectifying. The propositions which Canning
set down are the ordinary rules for aggregative measurement. But they were new to the accounting literature. Though they appeared in a chapter on asset valuation, they are equally applicable to income calculation or measurement. Briefly, in Canning's language, they are:

1. The individual things measured should belong to a common population... all sensibly alike with respect to the property under investigation.

2. The unit of measure must have a sensibly common significance throughout the measuring.

3. The unit of measure must either be uniform in magnitude throughout the measuring, or all units employed must be convertible into the unit in terms of which the measures are merged.

4. The method and circumstances of measuring should be as nearly as possible common to all measures.

5. The degree of error should not significantly vary as between one variate and another (pp 199-200).

Many have quoted from Canning; but it has amazed me for years that this section has escaped notice. If individual measures are to be merged, it is useless from the outset to define or make individual measures which are "sensibly unlike". Understanding and acceptance of the rules would impose an unavoidable limitation on the invention or adoption of "individual measures" of unlike properties where the individual measures are to be aggregated or related. But, as we shall see, Canning himself at a number of points overlooked this limitation.

Assets, Liabilities and Proprietorship

The analysis begins with the "fundamental equation of accounts" discussing, in turn, assets, liabilities and proprietorship, net income, and financial position. In the chapters on income, Canning makes clear his debt to Professor Irving Fisher. But the influence of Fisher is apparent at a much earlier stage.
The "professional accountant's implied definition" of asset was said to be "any future service in money or any future service convertible into money...the beneficial interest in which is legally or equitably secured to some person or set of persons" (p.22). Proprietorship is "the entire beneficial interest of a holder of a set of assets in those assets" (p.55). Thus, in the case of a company, proprietorship is the interest of the company in its assets, not the interest of any other party. The value (or amount) of assets is identical with the amount of gross proprietorship (p.48). A liability is "a service, valuable in money, which a proprietor is under an existing legal (or equitable) duty to render to a second person" (p.56). Net proprietorship "cannot be qualitatively defined"; it is the difference between the sum of the liabilities and the amount of the proprietorship (p.56).

This set of definitions is oriented to the future. It may be granted that the amount or value of an asset at a stated date is serviceable information only if it is in some way pertinent to the future. But it does not follow that that value shall be obtained by reference to future services. Fisher (The Nature of Capital and Income, p.52) had described income as a flow of services through a period of time; and one of his definitions of the "capital value" of an item of wealth was "the present worth of the future income from the specified capital" (Fisher p.202). (We shall call this net present value or NPV). Canning appears to have supposed that a flow of future services could not be obtained unless a stock of such services was already in existence at some prior date. We may agree with him that services (products, or generally income), not agents (items of wealth), are wanted (p.235). But "to want" is not to have or to hold at a specified date. The services of any durable good cannot be acquired "in infinitesimal increments continuously supplied" (p.235). But it is nothing more than a
figure of speech to assert that those services "must be acquired in
stocks". The holder of a machine does not hold a stock of machine-
hours of service. He holds a machine which will not deliver its service
except over a long period; and not at all without a power supply and
material and labor inputs. Fisher seems to have been much closer to
the mark in describing assets, or the property-right in assets, as "the
right to the chance of obtaining some or all of the future services" of
those assets [Fisher, p. 22].

As for the value of the assets of a proprietor, Canning affirms that
"there is no rational way of dividing all future money receipts among the
component services" of which those receipts are the resultant (p. 237).
There is thus no way of finding the "future services in money" of identi-
fied assets. Since accountants did assign money amounts to identified
assets (objects, or items of wealth), and seldom if ever (in Canning's
time) on the basis of their present values, it cannot be properly held
that Canning's definition of asset is implied by accountants' practices.
We return to the matter later.

Income

Canning's search of the literature disclosed "an astonishing lack
of discussion of the nature of income" (p. 93). "The accountants have
no complete philosophical system of thought about income; nor is there
evidence that they have ever greatly felt the need for one. Their
generalizations are too inchoate...to permit one to suppose that they
have ever seriously put their minds to the philosophical task" (p. 160).
That being the case, it might be expected that the income calculation
practices of accountants would come under rather severe censure; for
without systematic thought there would be little prospect of systematic
practice. Canning noticed some oddities. But his general view on the
measurement of income by accountants was almost laudatory. "The
accountants can properly be said to adhere to one highly unified and intricately articulated theory" (p.143)! If that were the case, the content, structure and purport of the theory could have been readily described, for a unified and articulated theory is far simpler to describe than a partial theory with qualifications and subsidiary ad hoc propositions. But the task was not simple.

The discussion of income, Canning found, was limited to the measuring of the income of "a particular time-period that is past" (p.94). The emphasis (in the original) seems to suggest that there is something amiss in calculating a past income. Canning's exposition begins with the notion of ultimate total income, which "qualitatively fits that which the accountant will ultimately have treated as income" (p.94). Ultimate total income is the "final fruition in money" of enterprise assets and other services. At the termination of a venture all the facts are in; the final fruition is certain.

Periodical income has no such certainty; but the task of computing it must be faced. By gross operating income accountants mean "the fruition in money (or the equivalent of money), effected within the period, of all those elementary services which are the components of enterprise operations" (p.101). Gross financial income is the "hire earnings" arising from loans. Gross income is the sum of these amounts. Net income cannot be described qualitatively; "it is a wholly quantitative thing" (p.126). It is equal to gross income less deductions, an expression that "comes perilously near being meaningless" (p.127).

There is indeed a "qualitative difference" between gross income and the deductions. Gross income represents only "favorable aspects of events" in a period; but it does not represent all favorable aspects. Except in the case of ventures which value inventories on a selling price
basis, no effect is given to the "increase in the spread between cost and selling prices" (p.134). Fixed assets may increase in value, but no account is taken of the increase. On the other hand, unfavorable aspects of events are recorded "as soon as their likelihood is foreseen". Neither the favorable nor the unfavorable aspects are therefore measures of contemporary events of a specific period. An approximation to the "ideal statistical treatment of income" would be obtained if net income were taken as the algebraic sum of receipts and disbursements, appreciations and depreciations in "true capital value", and increases and decreases in the book value of assets that cannot have a true capital value (p.135). The meaning of "true capital value" emerges in Chapter VIII.

That chapter, on the measurement of income, presents "a comparison and contrast of the accountant's theory with an economist's" (emphasis added). Economists, said Canning, have put forward many different theories. He did not attempt to analyse them; rather he chose Fisher as the economist whose work on the subject was "the most exhaustive", and whose book *The Nature of Capital and Income*, in Canning's opinion, had many parallels with the ideas and the language of accountants. For one reason or another, views similar to those of Fisher, have repeatedly been described since Canning's time as the economist's notion of income. This is not the place for demonstration of the fact that economists generally did not or do not concur with Fisher's concept. It is worth noting that Canning did not represent Fisher's views as views of economists generally, or the economist's view. But the influence of Fisher is marked.

To demonstrate that influence we must consider the essence of Fisher's exposition as Canning portrays it. Wealth consists of material appropriated objects, and property of rights in those objects. Services are the benefits of wealth. Prices are ratios of exchange between
quantities of wealth, property or services; and value is the price of material objects multiplied by the quantity. In general parlance, and in the usage of economists as far back as Adam Smith, and including Fisher (see Fisher, p.11), the price referred to is a selling price. In a passage not cited by Canning, Fisher used "capital-value" of the stock "of existing instruments of wealth...when all articles are measured in a common unit". (We shall call this discovered or "observed capital value" (OCV) to distinguish it from computed capital value, NPV). Fisher noted that the business man ordinarily uses "capital" in this sense of capital value, a usage he adopted. The "capital account" (which in ordinary usage would be described as a balance sheet) is "a statement of the amount and value of the property of a specific owner at any instant in time" (Fisher, pp 66-67).

To return to Canning's summary - there is one primary measure of income and of outgo called "realized income". The time-schedule of the money valuations of "successive desirable events proceeding from a wealth source" constitutes a measure of gross realized income. If against this time-schedule there is set off a time-schedule of the money valuations of "disservices", net realized income is obtained. The time-schedules referred to may cover periods of any length "not in excess of the duration of the wealth source". At any point of time, most if not all of the components of the time-schedules will be future items. The use of "realized" is thus vastly different from the usage of the term by accountants. To avoid confusion it would have been better to use some other term than one that generally denotes a past event.

There are two "derivatives" of realized income: "capitalized income" (or capital value) and "earned income" (or earnings). The capital value referred to here is obviously the computed capital value of Fisher. If the components of the time-schedule of net realized income
are discounted to a given date and aggregated, the sum is "at once the capital value of the item of wealth and the capital value of the income from it" (p.155). The difference between the capital values at the beginning and the end of a period is the realized net income of the period. If to the realized net income of a period is added the change in the "capital value" of an item of wealth in a period, the earned income or earnings of the period is obtained. "In other words, net receipt plus appreciation or minus depreciation is the measure of earnings from a given source during a period" (p.155).

This is confusing. Let $NPV_1(A)$ be the capital value of an asset, and $NPV_1(I)$ the capital value of the expected income from it at $t_1$. Then, from the third sentence of the previous paragraph, $NPV_1(A) = NPV_1(I)$. Let $RY_2$ be the realized net income of the period ended $t_2$. Then

$$NPV_2(A) - NPV_1(A) = NPV_2(I) - NPV_1(I) = RY_2$$

Let $E_2$ be the earnings of the period; then, by the definition of earnings above,

$$E_2 = RY_2 + [NPV_2(A) - NPV_1(A)]$$

which is clearly a case of double-counting. The fallacy arises, it seems, from Fisher’s use of "capital value" in two different senses, as capitalized income and as the product of selling price and quantity. I have elsewhere noted the confusion to which this gives rise [Chambers, 1971]. Apparently Canning missed the two different usages.

The solecism can be avoided by giving to "capital value" a different meaning in the derivation of earnings than is given to the resultant of the discounting calculation. Let $OCV_1(A)$, $OCV_2(A)$ represent the selling prices (observed capital values) of the item of wealth at $t_1$ and $t_2$; we may then write an expression for earnings which does not have the defect of the previous expression:

$$E_2 = RY_2 + [OCV_2(A) - OCV_1(A)]$$
But there is still room for terminological confusion. Canning said, "in other words", earnings equals net receipts plus appreciation or minus depreciation. The ordinary meaning of net receipts of a period is not the same as realized net income. If net receipts were given its usual meaning (ascertained cash inflows less outflows, or more generally, operational inflows less outflows of monetary items), and the selling prices of assets were ascertained, the amount of earnings would be determined objectively, without recourse to the speculative exercises necessary for the calculation of capital value in the capitalized income sense. Canning's description of earnings as net receipts plus appreciation or minus depreciation, in fact, came closer to accounting practices of the time than the form of calculation from net present values; for the practice of recording appreciation had not then come under proscription (see pp. 76, 161n). There was certainly little evidence, if any, in the mainstream of the literature and practice of accounting, of support for the mode of calculation he had described just previously to his sentence "in other words".

But is the calculation of income or earnings by reference to net present values superior to a calculation based on the experienced past? In one sense the question is pointless; the two things are qualitatively different. That apart, the feasibility of calculating periodical income or earnings in the manner suggested by Canning is open to serious doubt. As we have noted, one of the rules of aggregative measurement is that the measuring must be done under common circumstances. The same applies of course to "subtractive" measurement. The NPV calculations at the beginning and end of a period cannot be said to be made under common circumstances. The external conditions which affect expectations of future revenues or incomes will have changed; there is no way of being assured that the calculations yield magnitudes which are qualitatively
alike. Further, the approximation to the "ideal statistical treatment of income" mentioned above entails the aggregation of three qualitatively different kinds of amounts - receipts and disbursements which are factual, changes in "true capital value" which are expectational, and changes in book values which are neither factual nor expectational. The aggregate must therefore come under the same interdiction as Canning applied to the accountants' practices - "dollar for dollar" the separate components and their aggregate cannot have a common significance!

Financial Position

Canning found that "financial position" was not defined in the literature, notwithstanding that "the determination of financial position" was "the accountant's chief objective" (p.179). He sought to give the term a meaning and to show "how and to what degree the major end-product of accounting, the balance sheet, does reflect or disclose an existing financial position".

Financial position seemed to him to refer to the status of an enterprise with respect to procurement and distribution of funds (p.180). Now, certainly, business enterprises in the course of business engage in the procurement and distribution of funds. But a financial position is not descriptive of such processes. It may be the resultant of those processes in the past, and the point of departure for further like processes in the future; however, neither a resultant nor a point of departure is a process. Having associated balance sheet with financial position, it is odd that Canning did not begin the examination of financial position by way of an extension of the previous discussion of assets, liabilities and proprietorship. But just as nature proverbially abhors a vacuum, so apparently did Canning abhor the idea of a dated state or position. Almost everything is described as process, or flux.

If financial position must be a position with respect both to fund
procurements and fund distributions, should it represent what has occurred up to a balance date, or procurements and distributions that are expected to occur? The difficulty of opting for what has occurred is that it would entail presenting total receipts and payments since the founding of the enterprise; and obviously the balance sheets made up by accountants did not show that, Canning therefore chose the alternative:

"Financial position as disclosed in the balance sheet means [with respect to procurement of funds] 'regarded from this date, future fund procurements by means of enterprise operations will occur to the extent of the directly valued assets. Toward the procurement of further future funds there are certain correctly, but indirectly, valued assets, future services now subject to control, in the amounts set out'. In general, financial position is a position with respect to asset valuation and constitution rather than with respect to capital value of the enterprise" (p.191)

Now, to consider financial position or a balance sheet as representing "procurements and disbursements expected to occur" is less tolerable than the option rejected. For if all movements of funds are to be embraced by a statement of financial position, it is at least feasible to do that for the finite and known past of an enterprise; it is impossible to do the same for the unknown and potentially open-ended future. The dilemma was of Canning's own making. If he had not referred to procurements and distributions, and had alluded to, say, funds available at a stated date and the respective interests of the creditors and the enterprise in those funds, the upshot may have been much closer to what, in other contexts, would be understood by position.

Indeed, to assert that financial position is "a position with respect to asset valuation and constitution" is to state only part of what a balance
sheet represents. From time to time companies find themselves in "financially difficult positions". This phrase, or any phrase like it, can have no meaning with reference only to asset valuation and constitution. A difficult or unsatisfactory financial position occurs when a company is or appears to be unable to meet its debts and ongoing outlays out of its assets. Position might reasonably be held, therefore, to have some connection with the relationship of assets to debt. When discussing liabilities, Canning made passing reference to the ratio of current assets to current liabilities (p.67). But apparently he did not regard this (and other such balance sheet ratios) as indicative of aspects of financial position. Had he done so, he may have arrived at a quite different definition of financial position - and a quite different view of asset valuation. For it is certain that no enterprise can meet its debts as they fall due out of the calculated present values of its assets. Amounts presently owing and the capitalized value of income prospects are not "sensibly alike" with respect to a common property.

**Asset Valuation**

The discussion of valuation occupies four chapters and almost one third of the work. Whether accountants subscribe to any theory of value is not known, said Canning. But they do practice valuation (p.198). There are two valuation procedures - direct and indirect valuation.

Direct valuation is possible only when "a realized money income exists and is statistically determinable" (p.207). Realized money income is here used of calculated present value, which entails setting off the series of expected money outflows against the series of expected money inflows and discounting the net inflows to a present date. "Any direct and separate or separable conversion into money at a future
time...gives rise to a realized income" (p.207). Cash and receipts
and payables may be directly valued since they are indicative of
"separate conversions into money", at a present or future time. The
nominal amount of receivables should be properly adjusted (i.e. discounted)
with respect to time. Payables are not mentioned, for Canning was dealing
with assets; presumably they, too, should be discounted.

A direct valuation may also be made of finished goods inventories.
But Canning wavered. He proposed a "carrying value" which, after
allowing for "standard" charges for loss on bad debts and selling and
general expenses and a "normal" profit (based on "some normal industrial
rate of return"), would enable a normal profit to be earned (pp 222-3).
No mention was made of discounting. The amount entered in the balance
sheet would be the carrying value; a footnote would show the
inventory at "market". The process of calculation is markedly different
from other direct valuations; the use of "standard" charges and "normal"
rates of return make the result subject to errors not inherent in the
valuations of cash and receivables. The use of carrying value together
with other direct valuations thus violates rules 1, 4 and 5 of the rules
for aggregative measurement.

All assets other than those already mentioned must be "indirectly"
valued. We have already noted Canning's acknowledgement (p.237) of the
impossibility of finding a "true capital value" for assets used jointly
with other assets or services. But what the accountant can do is
"estimate valuation differences". However, if absolute capital values
cannot be determined "how can differences be found"? The differences
are not capital value differences but opportunity differences (p.237).

"Each item represents the difference to the concern between
having a particular stock of services of a particular kind
without future outlay for it and being wholly without such
services in the buying-holding-operating-selling position of the enterprise at the time of valuation" (p.241; emphasis in original).

This does not imply valuation at cost of replacement less depreciation in the sense of replacement of capital goods with others of like kind and quality; accountants "are reluctant" to follow that rule (p.245).

The quoted dictum relates to the cost of replacing "stocks of services" (p.243) The "actual cost of the unused portion of a stock of services is nearly always a more appropriate value than any other" (p.244)

This introduces a bracket of difficulties. In the first place, the use of "valuation" qualified by "direct" and "indirect" implies that the valuations are the same in kind. Obviously a capitalized value of the net proceeds of an asset is not the same as a proportionate part of its cost; and calling the two amounts "valuations" cannot make them "sensibly alike". Second, it is impossible to reconcile valuations as "opportunity differences" with the definition of financial position. Does the amount assigned to any such asset represent "fund procurements" that are expected to occur? Certainly not; the cost of the unused portion of a stock of services is not an index of the funds expected to be generated by its use or the sale of it or of its products. Third, a balance sheet representing some assets by net present values and others by unamortized costs is clearly an example of mixed aggregation, and, as such, violates rule 1 of the rules for aggregative measurement. Against mixed aggregation Canning was repeatedly vocal. Yet he found no way of avoiding the solecism.

Chapters XIII and XIV deal with four revaluation techniques - methods of calculating depreciation and depreciated value of durable assets at successive dates. Each is analysed and some improvements or refinements are suggested. All depend either on an "expected" life or an "expected" output in units of product, which presumably is given by the "buying-
holding-operating-selling" matrix of the enterprise. But Canning was aware that this matrix is not a datum. The business man must "prepare for opportunities that may present themselves, to see them and seize them when they do, and be ready to shift when adversity threatens" (p.293).

"The accountant undertakes to say how well [the business man] is prepared for whatever may happen" (p.294). It is substantially realistic to say that business men should know how well they are prepared for what may happen, and that they must respond to opportunities. But a balance sheet based on present values and unamortized costs does not tell them how well they are prepared; for the farmer are based on the expected outcome of a specific future (not "whatever may happen"), and the latter are merely calculated residuals having no describable relationship to preparedness for "whatever may happen".

Logical Structure

The reader of a comprehensive study of accounting might be entitled to suppose that a logically tight set of ideas might emerge. Those ideas are embodied in definitions and stipulated relationships between them. Even though Canning's definition of asset is questionable on grounds already given, the definitions of asset, liability and net proprietorship are relatable. But the notion of income is not relatable to them. Net income is not defined qualitatively; there is therefore no form of words by which it may be related to the terms of other definitions. Had net income (or, alternatively, earnings) been defined as the increment in a period in net proprietorship, the whole set of basic terms would have been interlocked; they would have represented a coherent set of ideas. Such an interlocking may have led to some discussion of the maintenance of capital (or of net proprietorship). That notion was not novel; it had appeared for example in works referred to by Fisher and in Paton's Accounting Theory, to name just two sources known to Canning. But Canning
did not discuss it.

Some aberrations from the rules of aggregative measurement have already been noticed. A further example may be given. Canning was aware that the "magnitude" of the dollar is variable. He said that economists "prefer...a purchasing power accounting" and was of the opinion that accountants would do the same (p.196). Whatever their preferences, the rules of aggregative measurement (rules 2 and 3) require that the money units in an aggregative statement should be units of common significance. Canning made no suggestion that might satisfy those rules. Even in the context of a scheme based on capital values some such suggestion could have been made; for the capital values of assets calculated at the beginning and the end of a period would have been calculated in terms of dated dollars of different purchasing powers. That the "adjustment data" may not become available in time for reporting, as Canning suggests (p.197), should not have prevented inclusion of an adjustment term in the suggested "ideal statistical treatment of income" outlined in a previous section.

Further still, the calculated capital values of assets, to a date no further distant than the "duration of the wealth source", entails discounted values over periods of varying length. This also results in aggregations of individual measures of different significance and different possible degrees of error.

It is worth noting that most of the critical observations made are founded on propositions enunciated by Canning himself. That, however, is nothing more than the unenviable lot of any who tread a new path - and only once. There was no cluster of writings before his book which may have provoked reconsideration, on his own part, of his emergent ideas; and no subsequent analysis by others or resatatement by himself which may have elucidated those ideas or modified them. We mean no blame by that. The advancement of knowledge and technology is a social matter, in
which many minds make light work. Perspicacity, ingenuity, inventiveness, diligence and rigor are seldom to be found in equal and full measure in one man. Canning displayed a goodly share of them all. But Horace observed that even Homer nods.

The Consequences of Canning

Reviewers of the book shortly after its publication referred to it as a pioneering work [Beatty, 1930; Meriam, 1931]. They did not find evaluation of it easy, but certainly it was provocative. Exhaustive analysis and definitive conclusions were not to be expected of such a work, said Meriam.

Accountants only a few years later began to codify accounting doctrine. The AAA "Tentative Statement of Accounting Principles" published in 1936 came down strongly in favor of asset valuation at unamortized cost. That doctrine became firmly entrenched in textbook writing and practice. There was no hint that Canning's ideas on valuation and income calculation were known; or, if known, were worthy of notice. Some of those ideas later seeped into academic discussion, and quite recently have appeared in proposals for accounting reform. But it is likely that this intrusion came by way of other sources than Canning. Only one of the many collections of "readings" I have seen has a selection from Canning. Deinzer's Development of Accounting Thought made one passing reference to his book; Hendricksen's Accounting Theory has a handful of references; and Chatfield's A History of Accounting Thought lists Canning once - in one of its bibliographical lists.

But Canning's work was and is much more significant than this suggests - not for what it proposed by way of improved practice (for much of that is questionable), but for the two main disciplinary ideas mentioned earlier in this article. Those ideas are altogether pervasive in import. They and Canning's pertinent criticisms of theory and practice could have
served as points of departure for increasingly rigorous attempts to reconstruct accounting. Yet, fifty years later, the same criticisms may be made, notwithstanding the intervening experience of scores of reported cases of grossly misleading financial statements, and notwithstanding the expenditure of millions on the search for better standards and a better theory.

That search has been befogged by confusion of the different but complementary roles of past information, present facts and future prospects in the decision-making process. The linkage between accounting and economics cannot be properly established unless those roles are specified. Past values or prices and presently observed values or prices are necessary for the determination of past results and present position; presently observed values or prices and calculated net present values of future alternatives are necessary for the exploration of the feasibility and desirability of future alternative. None of the three kinds of "values" is a substitute for the other. Had the distinct functions of all three been identified by Canning, as a prelude to "the economics of accountancy", there may have been, by now, a more disciplined attack on that part of accounting which concerns itself with statements of past results and present position from time to time.

With all the goodwill, energy and money spent or available to be spent on betterment, significant progress is unlikely to be made without "going back to fundamentals", as Canning suggested. If, at last, the necessity of rigorous definition and argument, and the discipline of the rules of aggregative measurement, come to be acknowledged, we may yet have a better theory and a better practice.
References

American Accounting Association Executive Committee, "A Tentative Statement of Accounting Principles", June 1936

Beatty, Willard C., review in American Economic Review, March 1930, p 112

Canning, John B., The Economics of Accountancy, Ronald Press Company, 1929


Meriam, R.S., review in The Accounting Review (September 1931), pp 242-3.