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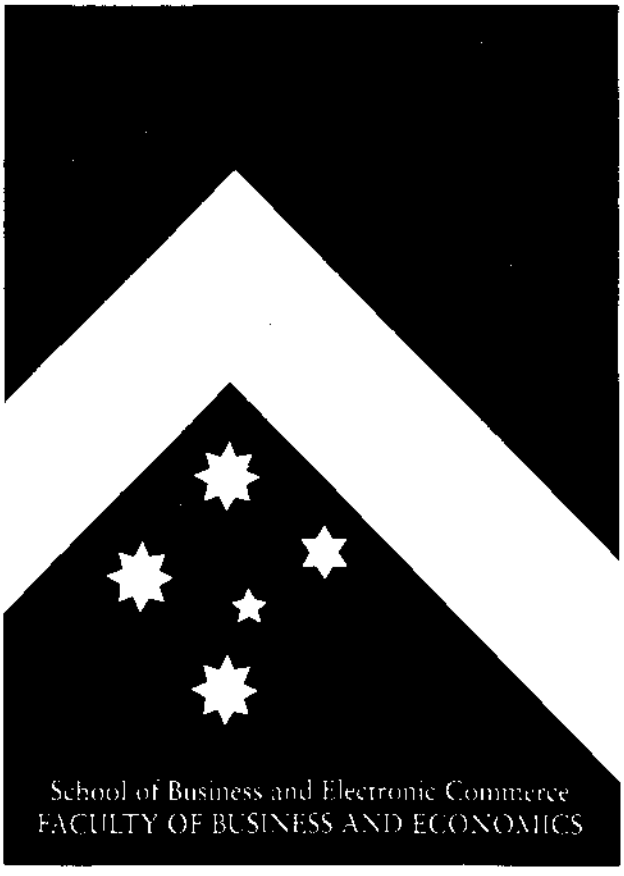

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MEASURE

FOR

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JOHN COONEY

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MEASURE FOR MEASURE

The theme for the 1995 AAANZ conference is *Finance, Culture and Ecology*. In accounting terms this theme may be seen in terms of provision of financial information to enhance corporate culture and to sustain business life. For this culture and life are made manifest by the associated actions and activity taking place in the relevant setting. Actions, in turn, are the result of decision-making which, in the first instance, is based on available information and evidence. Measurement of financial transactions and events is a central element in the production of this information and evidence. This centrality of measurement is recognized by the accounting profession and development of appropriate concepts statements is a contemporary research interest, both in Australia and elsewhere.

However, at the point of action, information and evidence are likely to be limited and decision-makers draw on some belief system. Belief systems embody implicit assumptions that may have significant impact on the decision-making process, hence on associated actions. The Pythagoreans serve to illustrate this effect in terms of faith in a measurement process; this faith has been termed 'number theology'. Hence, the Pythagoreans serve to show that theology, as a companion discipline to philosophy, enables belief systems to be subjected to systematic study. [1]

[1]The helpful comments and suggestions made by members of the Gippsland School of Business, Monash University, are acknowledged with gratitude. In particular, the comments made by Brian Conheady, Richard Hartshorn, Philip Moore and Kevin Sharp made valuable contributions towards the development of the paper. However, I accept full responsibility for the final result.

MEASURE FOR MEASURE

by

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Introduction

The theme chosen for the 1995 AAANZ Conference is *Finance, Culture and Ecology*. Finance is a familiar topic for accounting conferences, but culture and ecology introduce some novelty. Culture embraces a range of meanings, from bacterial growth to fine art; from penicillin to Picasso. In an accounting context the contemporary interest in corporate culture would seem to indicate the appropriate sense for the AAANZ usage. Ecology is the study of living organisms and while corporate life is a legal fiction, the organic nature of a business enterprise is incontestable. For corporations are comprised of people and the relationships between people are prime determinants of corporate culture which has attracted considerable research interest over recent years. These relationships give rise to the actions which constitutes the life force of any organisation. Actions, in turn, flow from decision-making, at both personal and communal levels, and in each case decision-making is based on available information and evidence. In these terms, finance is a means of mediating business relationships, hence activity, at both of the personal and communal levels. For financial information and evidence is normally an important resource for such decision-making. However, financial information and evidence does not always merit the confidence placed in it; and shaken confidence may move decision makers to try other approaches.

In the closing scene of his play *Measure for Measure*, Shakespeare has the Duke of Vienna declare;

> The very mercy of the law cries out,
> Most audible, even from his proper tongue,
> An Angelo for Claudio, death for death,
> Haste still pays haste, and leisure answers leisure,
> Like doth quit like, and measure still for measure.

The essence of the play is that the law is brought into contempt if it is not enforced. However, strict enforcement of the law can result in administrators condemning people for breaches, of which, the administrators themselves are guilty. Indeed,

attempts to contain their own guilt can entangle administrators in far more serious crimes than the crimes for which they have exacted punishments. Trevor Sykes illustrates the point, for having reviewed *Two Centuries of Panic*, he reaches the conclusion that (p553);

> There is no more disgusting episode in this book than the long and successful campaign by Sir Matthew Davies, aided by his friends in government, to escape penalty for his corporate crimes.

Consequently, getting to the truth of a matter may require the truth seeker to take innovative and imaginative measures. In *Measure for Measure* Shakespeare has the Duke of Vienna disguising himself as a friar. As such the duke was able to gain freedom to move about his duchy in a way that enabled him to discover the true state of affairs. The duke needed to observe the operation of his administration from outside in order to evaluate actual performance in terms of his desired style of governance. Accountants aim to reveal the truth by more formal and conventional means in that accounting processes are designed to produce financial reports that are true and fair. For, while lacking some of the novelty of the Viennese initiative, financial reports are also intended to enable interested parties to evaluate a system from the outside. In short, this detached, objective view provides a primary source of information for decision-making associated with economic activities. These financial reports are compiled from accounts prepared by measuring specific attributes of financial transactions and events. However, measurement of these attributes has given rise to several problems for those people charged with the development and implementation of accounting services. These problems stem not only from inherent limitations of the measurement process, but also from application of the process to a specific area, namely accounting. Action taken by the accounting profession, both overseas and within Australia, to address measurement issues is reviewed in the first section of this paper. The measurement problem is then considered in an historical context by reference, in very broad outline, to the experiences of the Pythagoreans. This experience serves to illustrate the vital importance of trust in the decision-making process. This awareness is then related to the issue of measurement in accounting. Accordingly, the purpose of this paper is to review recent treatment of the accounting measurement problem in terms of historical attempts to deepen understanding of measurement principles.

Concept Statements

A well recognized and much debated limitation of accounting measurement proceedings is the dependence on money as a unit of measure. In 1983 the Financial Accounting Standards Board (FASB) attempted to address this problem by issuing *Concepts Statement No.5 Recognition and Measurement in Financial Statements of Business Enterprises.* Distinction was made within the statement between categories of financial reporting as follows (FASB p.5);

a. information useful for investment, credit and similar decisions,
b. financial reporting,
c. basic financial statements, and
d. recognition.

By providing several categories of financial reporting the FASB attempted to accommodate both breadth of scope and precision of definition. Each category was defined with increasing rigour to contain a progressively more selective grouping of financial transactions and events. The most rigorously defined category was *recognition* which 'means depiction of an item in both words and numbers with the amount included in the totals of financial statements ... disclosure by other means is *not* recognition.' (ibid p.3) Accordingly, the test for making entries into the most rigorously defined category of financial reporting was based on valid inclusion of associated numbers in arithmetic totals. This validity depends on the compatibility of the numbers involved, which means that the numbers must relate to the same attribute of the phenomenon being measured. For only compatible numbers can be validly included in an arithmetic total.

However, transactions and events amenable to accounting measurement procedures have several attributes. As a consequence, choice of the most appropriate attribute has generated vigorous discussion among both accounting theorists and practitioners. Ray Chambers, for example, stressed the vital importance of additivity as a prime reason for adopting Continuous Contemporary Accounting. In general terms the normative theorists of the 1950's and 60's criticised decisions based on historical cost reports claiming that such reports were provided defective information. They argued that decisions based on historical cost information could, for example, result in payment of excessive tax or the declaration

of inappropriate dividends. However, in concept statement No.5 the FASB included historical cost with a number of accepted measurement methods. The FASB suggested that each method addressed a different, but relevant, attribute of a financial transaction or event. Moreover, 'the Board expects the use of different attributes to continue'. (ibid para.66) In acknowledging the possibility of different acceptable measurement methods the FASB recognized that a particular financial phenomenon may have different measurable attributes. However, academic debate centred on identifying the most appropriate measurement procedure; in Shakespearean terms of establishing the correct 'measure for measure'.

Clearly, users of financial statements would need to understand that different measurement methods produce information about different attributes of a financial transaction or event. Moreover, since information is part of a communications process it is essential that all interested parties relate specific information to the same relevant attribute. There will be confusion if those preparing reports measure one attribute of a financial phenomenon while those using reports relate the measurement to some other attribute. Such confusion would result in communication failure that would quickly erode confidence in the information system. However, information is a key component of the decision- making process which necessarily involves making choices in conditions of uncertainty. On the other hand, while uncertainty may be reduced by prudent use of available information and evidence, uncertainty cannot be entirely eliminated from the decision-making process. Indeed, if no choice is needed then no decision and no information are required. Thus the confidence with which a decision is made depends, substantially, on the trust placed in the information used during the process. Information and evidence seen to be of doubtful trustworthiness are likely to result in hesitant decisions.

The FASB Concepts Statement No.5 was subjected to considerable criticism from both accounting theorists and practitioners. Indeed, one member of the FASB, John W. March, insisted on including dissenting comments within the statement. John March dissented because he believed that the FASB 'did not adopt the most useful single attribute for recognition purposes, the cash equivalent of recognized transactions reduced by subsequent impairments or loss of service value.' (FASB p.32) Mr March also expressed concern that 'a "rubber yardstick" is a poor

measuring tool.' (ibid p.33) The Australian Accounting Research Foundation (AARF), no doubt benefiting from the FASB experience, appears to be adopting a relatively cautious approach to the question of measurement. Certainly, the AARF seems to endorse Shakespeare's aphorism that 'haste still pays haste' for development of a concept statement is planned to take from July 1994 to April 1997. The AARF *Proposed Program for the Development of Concepts on Measurement of the Elements of Financial Statements* includes the statement that 'measurement is one of the most significant contemporary issues in financial reporting.' (AARF p.13) This contemporary significance is undoubtedly attributable, at least in part, to the loss of confidence in financial reports caused by experiences of the 1980's. In *Accounting for Growth - Stripping the Camouflage from Company Accounts*, Terry Smith analyses some of the business practices and procedures which characterised the 1980's. Acquisitions and disposals, virtual symbols of the period, provided fertile grounds for imaginative accounting techniques. Extraordinary items, contingent liabilities, capitalisation of costs, depreciation and pension funds were other areas providing scope for confusing practices. The AARF notes that the effects of this confusion has been to shake confidence in conventional accounting methods. The Foundation expresses concern about

> the existence of widely divergent views amongst practitioners, users of financial reports and other interested parties regarding the adequacy of the modified historical cost basis ... (AARF p.13)

Accordingly, the proposed AARF concept statement is effectively directed to harmonising the divergent held views within the accounting profession, and to restoring confidence in accounting practice.

Measurement in Accounting

The divergence observed by the AARF is somewhat surprising because accounting has a long history of practical support for human affairs. Accordingly, a substantially agreed upon measurement procedure might be a reasonable expectation since accounting is essentially an application of a measurement process. The widely divergent views provide clear indication that this is not the case. To some extent the increasing complexity of business operations provides some explanation for this unsettling situation. For example, the 1993 Canadian

workshop sponsored by The Ernst and Young Foundation and the School of Accounting at the University of Waterloo was;

> a call to arms for Canadian accounting academics and concerned practitioners. [The workshop dealt] with the deep concerns, expressed in Canada and elsewhere, that financial reporting [had] been placed under extreme strain by evolving business practices and by the increasingly sophisticated information requirements of a variety of decision makers. (Ernst et al. p.1)

Accordingly, the prime objective for the Canadian workshop was 'to assess whether rigorous accounting research can be brought to bear on financial accounting measurement problems that are arising as traditional accounting principles are being severely challenged by complex financial instruments and transactions...' (ibid) To this end the major issues discussed at the workshop were;

a. the meaning of 'financial accounting measurement research',

b. practitioner interest in such research,

c. academic interest in such research, and

d. impediments to matching practitioner and academic interest.

The direction of the workshop was set by two keynote speakers. The remainder of the workshop consisted of responses from members of a group of academics and members of a group of practitioners. In his keynote paper, Alex Milburn (ibid p.19) distinguished between an engineering and social scientific treatment of the measurement question.

> A social scientist ... is interested in rigorously assessing the goodness/value of accounting information by examining its logical effects within the agency theory model. The engineer on the other hand is primarily concerned with the engine itself (the underlying measurement system) in accounting.

In this Milburn identifies two levels of inquiry. One level involves application of measurement processes within a received accounting paradigm. The goodness/value of the information is assessed by the confidence placed in the information by practitioners operating within the paradigm. A more fundamental level of inquiry called for examination of the measurement process as such. Clearly the application of a measurement process is subject to constraints inherent in the nature of the process. Hence, evaluation of an application of a measurement procedure is necessarily based on a clear understanding of the nature of the underlying process. This is particularly important when 'evolving practice and increasingly sophisticated

requirements' (ibid p.1) may erode confidence in the perceived capabilities of traditional measurement procedures. In short, the search for an optimum match between the measurement process and the valid application of the process is ongoing. Valid application, in turn, rests on valid assumptions underpinning these processes. Review of an historically significant attempt to match process and application may expose assumptions, implicit in the attempts, and still implicit in contemporary attitudes to measurement. Exposure of such assumptions may indicate aspects warranting further evaluation in order to achieve more effective application of the measurement process to accounting.

The Pythagoreans

In the introduction to his treatise *From Pythagoras to Einstein*, K.O. Friedricks notes that:

> The Pythagorean theorem has suffered the same fate that so many mathematical facts have suffered in the course of the history of mathematics. At first, these facts were surprising when they were discovered and deep in that they required original inventive proofs. In the course of time such facts were placed in a conceptual framework in which they could be derived by more or less routine deductions; finally, in a new axiomatic arrangement of this framework, these facts were reduced to serve simply as definitions.

Is the essential problem with measurement in accounting attributable to loss of appreciation for the surprise inherent in a deep understanding of the measurement process? The value of this surprise flowing from discovery and proof is affirmed by E.S. Loomis who recounts the many possible proofs of Pythagoras' Theorem. Indeed there was a time 'when from every one who submitted himself to the test as a master of mathematics a new (original) demonstration was required.' (Loomis p.7)

Clearly there is a marked contrast between the exhilaration and excitement stimulate by discovery: and the monotony that can accompany a routine application of defined procedures. In Friedricks' view such transition from understanding to routine application erodes the potential effectiveness of the initial insight gained from discovering the principle of measurement involved. The erosion also degrades the force with which the principle is applied in practice. The Pythagorean experience serves to illustrate the nexus between understanding and application.

Pythagoras (549-470 BC) was born at Samos in the Greek isles at a time when

Greek culture was undergoing profound changes. Philosophy was emerging and was beginning to challenge traditional mythological explanations of the nature of reality. While Thales, Anaximander and Anaximenes were considered to be the first philosophers, 'Pythagoras was apparently the first to use the word "philosopher".' (Hyland p.98) Hyland notes the distinction between adherents to mythology as an expression of religious interest, and philosophers who 'were fundamentally scientists.' Yet both the myth-tellers and the philosophers shared common ground in their desire to discover 'the *arche*, the principle, origin, or beginning of all things.' (ibid p.98) The myth-makers sought to make their discoveries in poetry. They were the forbears of story tellers, such as Shakespeare, and of those students of the humanities who seek basic truth in literature. By way of contrast, the philosophers sought their explanations in a close study of the material world. Early philosophical/scientific research attempted to identify the *arche*, at different times, as the primordial element embodied in water, fire, earth or air. Pythagoras rejected these materialistic ideas by claiming that the *arche* was enshrined in numbers. He urged people to 'consider mathematics not simply as an interesting and useful formal system but as a way of viewing, and experiencing the world.' (Ibid p.127) The Pythagorean odyssey therefore provides an insight to a mentality that saw number and mathematics as providing an explanation of 'the principle, origin or beginning of all things.'

Pythagoras left Samos for Miletus during his late teens in order to escape from the tyrant Polykrates. He journeyed to Egypt where he took great pains to gain entry to the company of the priests at Memphis and Diospolis. (In this he followed another great influence on Western culture as the recipient of the Mosaic Law was raised as an Egyptian prince some 700 years earlier). In Egypt Pythagoras learned of the 'Carpenter's Rule' which had been known by the Egyptians for some 'fifteen hundred years. ... The Egyptians constructed right angles by so placing three pegs that a rope measured off into 3, 4 and 5 units just reached around them ...' (Loomis p.11) Loomis recalls that the Egyptian priests gave the Carpenter's Rule spiritual significance by designating the short leg as Osiris, the middle leg as Isis and the hypotenuse as Horus.

Subsequently Pythagoras was taken in captivity to Babylon with other

Egyptian priests. There he associated with the Magi and formed relationships which developed to the mutual benefit of the parties. In this company he not only expanded his knowledge of geometry, but also studied astronomy, mathematics and music. Eventually he returned to Samos, some 40 years after leaving, with the intention of establishing a school. However, he was able to attract only one pupil, and this by paying the pupil to attend lessons. (Possibly a case of one of the earliest football scholarships.)

> [Pythagoras], kept his eye on a gifted and well-coordinated ball-player at the gymnasium, one of those who were athletic and muscular but lacked financial resources. ... Pythagoras set out to instil in him arithmetic and geometry. He demonstrated every point on a drawing board, and paid the young man three obals per figure (geometric figures, that is) in return for his trouble. (Clark p.9)

In time Pythagoras' student became absorbed in his lessons and willingly paid for more lessons when his teacher feigned an intention to leave Samus, pleading poverty. Pythagoras maintained the new relationship for some time, but clearly, such an arrangement had very severe limitations.

Eventually Pythagoras did leave Samos for southern Italy. At Kroton, located in the foot of Italian, he achieved much greater success with his ambition to establish a school.

> The young men flocked round him, and tradition says that he addressed them, urging them to respect their elders. He demonstrated that in the universe, in life, in cities, in nature, that which comes before is more honoured than that which follows. ... He said this to induce them to value their parents more highly. (ibid p.15)

The effect of this instruction was swift, spectacular, and undoubtedly exceeded Pythagoras' greatest expectations for,

> the young men told their fathers what Pythagoras has said, and the Thousand summoned him to the council. First they thanked him for what he had said to their sons, then they asked him, if he had good advice for the people of Kroton, to give it to those in charge of government. (ibid p.18)

Pythagoras saw that such good advice would be formulated most effectively with the support of a community. Thus it was that at Kroton he realised his ambition of establishing a school. The prestige of this school grew rapidly and the demand for places was so high that the Pythagoreans could set very high standards.

> [Pythasoras] would not immediately accept young men who came and wanted to study with him, until he put them through an examination and made a judgement ... The person he had examined was then sent away and ignored for three years, to test his constancy and genuine love of learning. (ibid p.31)

Having negotiated this hurdle the aspirant was required to keep quiet for another five years before gaining admission to the inner circle. Within this circle there were Hearers and Learners. The Learners formed an elite group known as Pythagoreans and commanded very high prestige and trust. Indeed, these philosophers and scientists were held in religious awe.

> If it is asked where these men got so much piety, the answer is that Pythagorean "number theology" has a clear precedent in the works of Orpheus. ... Number is the eternal and provident principle of heaven and earth and what is between, and source of the continuing existence of divine persons, gods and spirits ... so called "total truth" which is based on mathematical knowledge. (ibid pp.64-5)

In short, the Pythagoreans believed that they had discovered the *arche* in numbers. However, this discovery was a closely guarded secret. Qualities that would debar aspirants from entry to this elite group, entrusted with these mysteries, were self indulgence and greed. Hence, while Pythagorean 'number theology' originated in the practical experience embodied in the 'Carpenter's Rule', the Pythagoreans resorted to normative criteria when acting to protect their mystery. For Pythagoreans were expected to be totally committed to the quest for the *arche*. Clearly such a quest was necessarily based on a belief that the *arche* actually existed. In short, philosophy was directed to establishing the existence of the *arche* in terms of prevailing human experience and values. Theology was a study for those seeking a deeper understanding of the implications of this existence. Thus, Pythagoras analysed the Carpenter's Rule and developed his famous theory. Having reached an effective level of understanding, the Pythagoreans realised that the implications of the theory went far beyond explaining the construction of right angles. Indeed, when developing good advice for the people of Kroton, Pythagoras made full use of his mathematical insights to address people problems.

> He wanted to show how justice, in the midst of unequal, disproportionate and indefinite things, is defined. So he said justice was like the geometrical figure which has an unlimited number of combinations of lines; they are disparate in relation to each other, but the demonstrations of the squares remain equal. (Clark p.79)

Shakespeare's definition of justice as 'measure for measure' appears simpler, but clearly depends on the meaning given to the term 'measure'. Pythagoras, on the other hand, recognizes the element of mystery embodied in the measurement process for,

> mysteries are literally things to be kept silent, specifically things known only to initiates in the mystery-cults, who were under oath not to reveal them. (idib p.31)

Clearly mysteries are unavoidable if knowledge and understanding are gained only after long and arduous periods of study. An inappropriate level of knowledge or understanding can result in either intentional or unintentional abuse of the knowledge. The Pythagorean practice of excluding the self-indulgent and the greedy serves to illustrate the point. Yet there is difficulty in reaching a level of understanding and commitment that allows mysteries to be managed with complete integrity. For example, in the course of time

> what [Pythagoras] discovered, on the basis of a mathematics based on whole numbers, with no fractions as such or square roots, was that the relationship [between the hypotenuse and one side] could not be determined. Pythagoras had discovered incommensurable numbers. We can appreciate the profound disturbance that this must have caused if we remember that mathematics was not just a formal system but the ontological basis for the being and intelligibility of the world! If incommensurables really exist, then the claim that the world is through and through rational, that everything is related by a determinable mathematical relationship, is made utterly precarious. Apparently, the reaction of the Pythagorean society was to keep this news a deep secret. (Hyland p.131)

The situation, then, was that the people of Kryton placed their trust in the Pythagoreans who placed their trust in numbers. When trust in numbers was shaken, the Pythagoreans realised that their public image was less substantially based than they had previously thought to be the case. The problem was with Pythagorean understanding: the number system was subsequently extended to include irrational numbers and square roots. Thus the limitation of Pythagorean understanding was effectively a limitation of 'number theology' as perceived by this elite. Pythagorean faith needed further examination to achieve a level of understanding appropriate for the measurement issues being addressed.

<u>Measurement and Trust</u>

Theology, then, like philosophy, originated in the early period of classical Greece and the two studies are closely related. Both studies were subsequently adopted by Christian thinkers and Abelard coined the serviceable definition of theology as 'faith seeking understanding'. The clear message here is that an elite's insight may give rise to a level of understanding beyond that of the general populace. This understanding is likely to gain for the elite the confidence, trust and even the veneration of the populace. Thus, the exhilaration and excitement achieved by discovering, or by understanding a successful proof, can be increased. This happens when the discovery enables the 'knowledgeable ones' to satisfy the need that a community has for somewhere to place its trust. The difficulty is that such trust or faith can be blind; thereby places heavy demands on an elite becoming aware of the limitations of its own understanding. This awareness obliges the elite to seek greater understanding of their faith so that popular trust is firmly based, and popular blindness redressed. The awareness also obliges the elite to acknowledge the limitations of their understanding. Norman Macintosh recognized the problem in what he terms the 'expert judgement problem'.

> The process of how professionals in all fields use information systems to make judgements is germane to the social engineering of accounting and information systems. ... For the past thirty years a host of scientific studies investigating the accuracy of expert clinical judgements have appeared. The overall results have been both discouraging and alarming. In study after study, using a variety of subjects ... the judgements made by professional experts proved to be inaccurate. (Macintosh p.44-5)

Consequently, the limits to elite comprehension must be made explicit so that people making decisions based on elite appraisals can be aware of constrains to decision-making options. This requirement is illustrated within contemporary accounting issues by recognition of the need to reduce the audit expectation gap. Yet, trust or faith placed in financial reports has even wider implications. In the famous appendix to his *Suma de Arithmetica, Geometria, Proportioni et Proportionalita* Pacioli analysed the bookkeeping system used in Venice. By way of an aside, it is relevant to note a similarity between Pythagoras and Pacioli. In his analysis of the System of Venice, Pacioli, like Pythagoras, expresses the experience of practical people in mathematical terms. Pacioli identified three things needed to carry on a business; cash, good accounting and well-ordered affairs. However, given an adequate level

of trust, cash is not necessary because,

> it has happened that many, entering business with nothing but good faith, have yet carried on big business; and through their credit, faithfully served, they have attained to great wealth. (Pacioli p.11)

In this, Pacioli clearly understood that well founded trust expanded the range of business opportunities. He also recognized that this trust was fostered by accounting which was essentially a practical application of Pythagorean 'number theology'. Indeed, while Pacioli's theology was based on the Christian tradition, there are some close parallels between Christian and Pythagorean viewpoints. For example, after Constantine adopted Christianity as the religion of the empire in 313 AD, his nephew Julian attempted to reverse the avuncular initiative by reviving the Pythagoreans. This reaction illustrates the difficulties inherent in ministering faith. For trust is a human response that is both personal and institutional. In both spheres trust is a crucial element of the decision making process and actions taken at both the personal and institutional level flow from decisions. As has been shown, decision-making involves evaluation of available information and evidence, and then resorting to faith to dissipate residual uncertainty, even in business circles. Indeed, the growing interest in business ethics is a clear indication that moral philosophy is seen as a means of bolstering this trust. As a companion discipline, theology has equal relevance for opening up a systematic study of the fiduciary issues involved in the business process.

Accounting Theology

While a firm definition of accounting has proved to be an elusive goal, measurement is clearly a part of the accounting process. Indeed, the basic elements, assets and liabilities, are prime objects for accounting measurements. The other elements; equity, revenue and expenses are essentially derivatives of assets and liabilities. In SAC 4 both assets and liabilities are defined in terms of future economic benefits. '"Service potential" or "future economic benefits" is the essence of assets.' (SAC 4.16) This begs the question of what is meant by service potential or future economic benefits. In their *Boxing Clever: For, Against and Beyond Foucault in the Battle for Accounting Theory* Hoskins and Macve identify economics as a discipline. They also provide a description of contemporary disciplinarity.

> The disciplines are not a simple expression of the Logos, they are an immensely powerful invention. They - all of them, not just the human sciences which Foucault referred to in *Discipline and Punishment* - date only from around 1800. The modern laboratory-based sciences, the seminar-based researches of the Arts PhD, all equally become constituted at that time (again not least because the seminar and the laboratory as teaching/examining apparatuses are only invented in the late 18th century). They have, over the past century, become major carriers of the joint power of writing and examination. (Hoskins p.27)

The Hoskins and Macve analysis leads them to have serious misgivings about 'the crisis of meaningless engendered by the inherent theoretical inadequacies of the disciplinary approach' (ibid). This shattering realisation has echoes of earlier Pythagorean experience when the elite was confronted with a perceived limitation to their understanding of mathematics. Hoskins and Macve saw economics, as a discipline, caught in the theoretical maelstrom caused by the crisis of meaninglessness. Moreover, accounting was dragged into the whirlpool in the wake of economics. This purported subordinate role of accounting is ironic and;

> the irony is two-fold. First this economics begins only as a response to the invention of the modern business enterprise, in which accounting played such a central constitutive role. Economics therefore follows where accounting leads. Second it forms such an inadequate theoretical response, as Chandler, in particular notes: for managerialism, or the visible hand of 'administrative coordination', has proved from the 1850's on to be more powerful than the invisible hand of market forces, leading to the establishment of the still-dominant form of oligopolistic market economy. This is perhaps the single most arresting modern example of power-knowledge in action. But at the same time "much basic economic theory" ignores this, preferring to start from the invisible hand set of assumption ... (ibid p.29)

Hoskins and Mavce may be challenged with being unduly reductionist in their evaluation of economics. For Aristotle, by way of contrast, saw economics was the art of managing a household. Politics, in turn, was the art of managing a city. In this context, 'economics is prior in origin to politics for its function is prior, since a household is part of a city.' (Barnes p.2130) Certainly Aristotle predates the nineteenth century and views economics in quite expansive terms. Again, the Catechism of the Catholic Church paints on an even broader canvas, clearly not limited by restrictive concepts of disciplinarity.

> The Fathers of the Church distinguish between theology (*theologia*) and economy (*oikonomia*). "Theology" refers to the mystery of God's inmost life

> within the Blessed Trinity and "economy" to all the works by which God reveals himself and communicates his life. Through the *oikonomia* the *theologia* is revealed to us; but conversely the *theologia* illuminates the whole *oikonomia*. (Ratzinger p.62)

Accordingly, measurement in accounting is subject to closer research and study at two levels. In the case of 'number theology' accountants need to recognize that numbers are an attempt to plumb 'the principle, origin, or beginning of all things.' At a second level, measurement of 'economic benefit' may prove to be an all embracing task if not constrained by restrictive concepts of economics. In the past implicit belief systems have, in practice, served to resolve the uncertainty that would otherwise frustrate the decision making essential for effective business activity. However, the unhappy experiences of the 1980's have shaken confidence in such widespread implicit beliefs as 'greed is good'. Accordingly, recognition by the accounting profession of the need to look more critically at measurement processes is an opportune time to review the overall approach to accounting research. Indeed, in his keynote address to the Canadian *Measurement Research in Financial Accounting* workshop Milburn stated;

> three theoretical orientations - capital markets (EMH), agency theory and positive accounting theory - constitute the predominant schools of academic thought that have developed and increased in influence over the past 20 to 30 years. ... The empirical and conceptual findings of these research orientations are helpful in improving accounting information up to a point, but they do not themselves provide a sufficient basis for accounting standard setters and practitioners to resolve accounting issues. (Ernst et al. p.19)

The growing interest in business ethics is, inter alia, a tacit acknowledgment of the limitations of the positivist approaches of the 1970's and 80's. The prevailing enthusiasm for the scientific method may thus prove to be transitory; but it would be a mistake to dismiss the method entirely. The inclination to shift from paradigms when abnormalities are encountered is a tendency noted by Kuhns. The implication is that paradigms are necessarily competitive in some sort of Darwinian sense. The paradigm that survives is the fittest until it, in turn, is surpassed by a more fitting methodology. Accounting theology makes explicit the element of uncertainty in the decision-making process and hence the need to accommodate uncertainty on an ongoing basis. Careful study of empirical data uncovers

information and evidence that is essential for effective decision-making. However, at the point of decision and action, information and evidence are incomplete and the decision maker necessarily draws on a belief system or a faith. These belief systems are also amenable to systematic study; indeed 'number theology' is such a study. Accounting theology, then, is not an attempt to displace existing methods of research in some Kuhnian fashion. Rather, accounting theology is simply recognition that attempts to identify 'the principle, origin, or beginning of all things' is manifestation of an enduring and pervasive human quest. In accounting terms, as Pacioli recognized, good faith can lead to great wealth. Accordingly, theology, as a systematic attempt to understand this faith, is clearly an efficacious and contemporary means of conducting accounting study and research.

Conclusion

The theme for the AAANZ conference; Finance, Culture and Ecology, invites extensive rather than intensive treatment of accounting issues. Even so, culture may be properly seen in a corporate context for an accounting conference. For similar reasons, ecology may be seen in terms of the life of a business. Corporate culture and life depend on the relationships established between people; and on the actions flowing from the decisions made by these people. However, evaluation of these decisions and actions can present difficulties. Shakespeare, for example, recognized that the full import of decisions and associated actions, both individually and institutionally, is not always readily apparent. Indeed, there is uncertainty associated with both the decision making process and evaluation of the action resulting from the process. The accounting profession is established to reduce the uncertainty associated with business activity by providing decision-makers with financial information. This financial information is obtained by measuring various attributes of financial transactions and events. Both the FASB and the AARF acknowledge that there are difficulties with these measurement arrangements. There has also been significant academic interest in the measurement problem. A basic difficulty has been that of correctly discerning the appropriate use of numbers. Pythagorean experience serves to illustrate the importance of properly understanding numbers and associated mathematical proofs. Clear appreciation for the

assumptions implicit in use of numbers is a vital part of this understanding. Such understanding not only provides personal satisfaction for the *cognoscente*, but also inspires a community with the trust and confidence needed for decision-making. This process necessarily involves resolving uncertainty. At the outset this uncertainty is dissipated by means of information and evidence, such as are provided by financial reports. However, at the point of action, this evidence and information is likely to be incomplete and the decision-maker must rely on some belief or faith. In summary, decision-making and associated action is based on both reason and faith. Philosophy is directed to refining reasoning processes and philosophical methods are directed to providing optimum information and evidence. Theology, as faith seeking understanding, is a systematic approach to the faith dimension of the decision-making process. To the extent that both faith and reason are integral parts of the decision-making process, both philosophy and theology have relevance for accounting research and study. This is particularly true for explicit appreciation of the assumptions underlying use of numbers and mathematical procedures. In Shakespearean terms it is a case of applying 'measure still for measure'.

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