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RAY CHAMBERS AND ERNEST WEINWURM – SCHOLARS IN UNISON ON MEASUREMENT IN ACCOUNTING

Abstract: Drawing on new evidence (Napier, 2002), we examine how ideas on measurement in accounting developed in the 1950s and 1960s. We show that for the question of measurement to be addressed properly, there is a need to consider the function of accounting. The analysis of private correspondence between Professors Ray Chambers (Sydney University, Australia) and the U.S.'s Ernest Weinwurm (DePaul University, Chicago) reveals that those ideas were nurtured in a way not previously disclosed. We provide unequivocal insights into how the latter, a scholar relatively unknown in accounting, mentored the former through the maturation of Chambers' accounting measurement ideas following his 1955 a "Blueprint for a Theory of Accounting" and 1957 "Detail for a Blueprint" articles, his theory matters in general, and other matters in particular being considered by the profession's standard-setters especially in the U.S. The analysis reinforces the differing notions of what accounting researchers perceived as "scientific," from the so-called "Golden Age" theorists' [Nelson, 1973] reasoned thinking based on observations of the commercial foundations within which accounting sits, to the narrower notions emerging from theorists within the economic capital-markets paradigm.

AN INCONSPICUOUS BEGINNING

Accounting measurement issues at a high level of generality emerged in the 1950s and 1960s as part of the desire by many to seek sounder principles for accounting practice. They proved problematic and remain unresolved notwithstanding extensive conceptual framework (CF) deliberations over the last 50 years. Consider, for instance, recent concerns expressed as part of the CF deliberations by the International Accounting Standards Board (IASB), specifically over implementation aspects of fair-value measures in International Financial Reporting Standards. Mark-to-market valuations for so-called "toxic assets" became a

critical issue during the 2007-2010 global financial crisis (GFC).¹ Resolving that issue among others, such as whether to allow multiple measures or prescribe a single measurement property for reporting assets and liabilities, is alluded to in the references in footnote 1 and the text below to have been politically sensitive and seemingly intractable issues for standard-setters for over half a century.

Chambers [1955a, b, 1957], along with Mattessich [1957], were early academics who explored at a higher level of generality the issue of measurement in accounting. Chambers perceived the need for practice to be underpinned by more reasoned thinking than mere custom based on special pleading. Accordingly, reference is made throughout this paper to a desire by Chambers and others for a more “scientific” underpinning of the art of accounting. Not long after those 1950s forays, Homburger [1961] and Bierman [1963] discussed accounting-measurement issues, with the latter using the term “revolution” to flag the prospect of a major breakthrough.

Through private, previously unexamined correspondence (1955-1964) between Professors Ray Chambers and Ernest Weinwurm, we re-examine here several recurring measurement issues, in particular that accounting measurement had to conform to the rules of measurement well established in other disciplines [Stevens, 1946].² This new evidence (Napier, 2002) provides insights into how a more rigorous, more “scientific” approach to accounting thought arose in the late 1950s and early 1960s. That evidence also highlights the need for the function

¹See Laux and Leuz [2009, 2010] who reject the claims that the reporting of fair values caused the GFC. To put things discussed in the current article in perspective, Barth [2010] notes the standard-setting debate about measurement is taking place in two parts – the measurement phase of the IASB’s CF project and the fair-value measurement (FVM) project. Specifically she states: “The Measurement phase of the Conceptual Framework (MCF) project addresses issues related to developing concepts to identify measurement bases that are appropriate to use in financial reporting and to select a particular measurement basis in a particular standard-setting circumstance. In contrast, the FVM project addresses issues related to defining the term ‘fair value’ as it is used in accounting standards.” Further, the 2009 Tampere EAA Measurement Symposium [Dean et al., 2010], from which this extract from Barth appeared, covers many aspects currently being canvassed by the international standard-setters.

²The correspondence is part of the R.J. Chambers Collection Archive held in the University of Sydney Archives Unit (USA P202). The Chambers Collection Archive, described in Dean et al. [2006] is directly accessible at <http://chamberslibrary.econ.usyd.edu.au>, and, also indirectly, along with several digitized accounting databases, through the auspices of a joint EAA/AAA project, known as GADAN.

of accounting to be determined before any question of measurement can be addressed properly.

In addition to that private correspondence, we also review an unpublished 1975 paper “Accounting, Measurement and Mathematics” that was to be a part of an *Abacus festschrift* for Ernest Weinwurm.³ Those materials reveal that what has been published to date about many early theorists’ works on those matters is a partial account. Our analysis augments Chambers’ public recollection of events and those of commentators, such as Gaffikin (1986, 1988, 2000) and Zeff [1971, 1982].

Before addressing measurement issues systematically, Chambers [1955 a, b, 1961] felt it necessary to resolve in his mind what was the *function* of accounting. To do this, he observed accounting, finance, and management practices. This led him to deduce the primary function of accounting as providing financial information about an entity, particularly its capacity for adaptation. That required accounting measures to be contemporary and, most importantly, by implication the exclusion of expectations. But others, like Mattessich, disagreed. At this stage, there was minimal recourse by most accountants to the foundations (or canons) of measurement. It is shown here that later, due primarily to Weinwurm’s promptings, additional constraints of adhering to those foundations resulted in Chambers’ advocacy of a single valuation principle, current cash-equivalent (in most situations, current exit price) measures for reporting assets and liabilities to show an entity’s capacity for adaptation.

Total correspondence between Chambers and Weinwurm, comprising over 120 letters spans the 1955-1983 period, with few “nil-correspondence” years. More than 60 letters were written in the first ten-year period, in which they discussed research and theory generally and, more particularly, the function of accounting and business decision making, the issue of postulates, measurement, and price-level implications, as well as personal matters. Their discussions were persistent and substantial relative to Chambers’ average annual correspondence with all par-

³ This proposed *festschrift* paper by Chambers was unearthed as we researched the now publicly accessible Chambers Collection Archive held in the University of Sydney Archives Unit (USA P202). The paper is found under the collection reference C#9131. The following catalogue source and date system is used: USA P202 (W#8090-250855) which refers to the Chambers Collection Archive item number #8090, written by Weinwurm on August 25, 1955 (the USA P202 prefix is not cited hereafter). To our knowledge the *festschrift* paper’s existence has not previously been referred to publicly. Letters in the collection show that Weinwurm requested that the *festschrift* be aborted.

ties of well over 200 letters, specifically 1955 (3), 1956 (5), 1957 (6), 1958 (8), 1959 (5), 1960 (10), 1961 (6), 1962 (11), 1963 (4), 1964 (4).⁴ By way of comparison, over a 30-year period, Chambers and Abe Briloff corresponded 40 times, with lengthy periods of silence.⁵

Examining the first ten years of their correspondence reveals major common concerns over the lack of accounting fundamentals underpinning practice. We concentrate here on the development of Chambers' ideas on measurement (and Weinwurm's influence) as Chambers' contemporaries acknowledged him to be one of accounting's "intellectual giants."⁶ While the work by Chambers [1974, 1991], recalling early efforts to promote his ideas is revealing in many respects, it provides only partial insights into many questions, such as why he was able to enter the international stage in the context of accounting measurement and theory development in the late 1950s and early 1960s and why his ideas on measurement would take, in some commentators' view, a dramatic change from the late 1950s to the mid-1960s. As we show below, Chambers viewed the change as subtle but crucial. When Chambers wrote his 1955a and 1957 articles, concerns about accounting fundamentals were as pressing then as they are now.⁷

Reviewing this correspondence elicits new inferences regarding how Chambers' ideas eventually gained international academic respectability, though admittedly failing, initially, to influence practice, especially the postulates and principles underpinning it. Arguably, the present moves by the IASB to cement fair-value accounting in its mark-to-market accounting guise, tag Chambers as a man whose measurement ideas were ahead of his time. He corresponded widely with leading aca-

⁴As noted above, the RJ Chambers Archive reveals myriad letters in the review period with academics, practitioners, regulators, and business people both locally and internationally. Though weeks, sometimes months, would pass before correspondences were received and responses prepared, Chambers and Weinwurm maintained the threads of their conversations, argument, and counter-argument. Overcoming the hurdles of living on different continents and related difficulties makes that endurance all the more significant. Our work shows Weinwurm to be a relatively frequent, on-going sounding board and advisor on matters germane to Chambers gaining networks in the U.S. The letters to and from Weinwurm were augmented by related correspondence with officials of The Institute of Management Science (TIMS) as it was increasing its influence at that time.

⁵See Dean [2008].

⁶See Mathews [1982], Moonitz [1982], Edwards [1994], Staubus [2003], and Colasse [2005].

⁷See Devine [1960] and Deinzer [1968].

demics and practitioners – in the U.S., for example, Paton, Vatter, Littleton, Mattessich, Staubus, Moonitz, Davidson, Edwards and Bell, Zeff, and such scions of practice as May (Price Waterhouse & Co), Spacek (Arthur Andersen), and MacNeal (a leading businessman and CPA who also originally worked with Price Waterhouse). They discussed issues that over half a century later remain at the heart of contemporary accounting standard-setters' deliberations regarding the "forging" of an accounting CF and related measurement issues.⁸

But who was Weinwurm? He is not well known in the accounting literature and little is known of his early, albeit subtle, influence on Chambers' thinking on measurement. As a leading figure in the newly emerging TIMS, Weinwurm (as the listing of publications in Appendix I shows) was generally concerned with business, decision making, and related accounting issues. His correspondence promptings resulted directly in Chambers' ultimate ideas on measurement becoming the foundations of his accounting reforms, eventually coalescing into the core of his Continuously Contemporary Accounting⁹ (which, interestingly, was initially badged as CCA, then CoCoA). That influence commingled with Chambers' attention in the early 1960s to the work on accounting postulates, particularly Moonitz's *ARS #1*,¹⁰ as

⁸See Zeff [1971, 1982] for a discussion of the "forging" of accounting principles in numerous countries and an anthology of articles occurring around the time the AICPA's *ARS #1* and #3 were published. Relative to our account, less emphasis is placed on individuals and their private debates that underpinned the profession's ultimate initiatives on research, postulates, and principles, especially as they relate to measurement. Zeff [1982] notes that this 1950s period of "research push" in accounting mirrored the general push for more research and a more scientific approach to things. Our analysis of the private correspondence puts the published works in perspective, revealing accounting's "research push" to be driven also by a desire of some individuals to eradicate clear deficiencies in the practice of accounting.

⁹This episode reveals that ideas, rarely developed in isolation, are difficult to unravel *ex post* without access to primary sources like letters or diaries. Developing the narrative of accounting history by drawing on primary sources mitigates some of Taleb's [2007] and other populist concerns with any historical interpretation involving "cause and effect" inferences.

¹⁰Chambers visited *inter alios* Moonitz and Mattessich at UCLA, Berkeley on his 1959 (first) overseas sabbatical, not long after Moonitz became familiar with Chambers' research works (e.g., his 1955a and 1957 articles). Moonitz's first letter to Chambers (April 29, 1960) sought his "untrameled views" as part of a wider desire to "take all reasonable precautions to make sure that we (AICPA Research Division) do not overlook attitudes that are prevalent elsewhere than in the U.S. (# 7687). Mattessich had corresponded a couple of times after his first contact with Chambers on April 23, 1957 (M#245).

well as his own concurrent consideration of price and price-level changes on accounting.

ERNEST HERMANN WEINWURM

Born in Vienna on April 20, 1895, Weinwurm died in California on April 16, 1988. His LL.D from the University of Vienna in 1920 permits speculation that his early university training would have exposed him to the business economics ideas of the early German *Betriebswirtschaftslehre* theorists, Schmalenbach, Schmidt, and Mahlberg.¹¹ Were that so, it possibly explains why he placed so much emphasis on the needs of the decision maker in his management science and accounting articles (see Appendix I).

New York Public Library records reveal that Weinwurm arrived in America as a World War II displaced person.¹² DePaul University records show that he received an MBA from New York University in 1945, was appointed associate professor of accounting at DePaul in 1954, and a full professor in 1959.¹³ He was influential in the formation of TIMS, being its president in 1954. He was clearly in the thick of business matters.¹⁴ He was involved in the emerging Operations Research Society of America (ORSA) being one of six foundation contributing editors of the *Engineering Economist* in the mid-1950s. He was president of the Chicago chapter of the Budget Executives Institute in 1964.

During the period of this analysis, Weinwurm wrote several articles and books on cost accounting, planning, and management-science issues. He and Chambers nurtured similar reserva-

¹¹ Interestingly, Clarke and Capalbo [2004] detail how Chambers' views on the theory of the firm were similar to those of the German *Betriebswirtschaftslehre* and the Italian *Economia Aziendale*. This similarity may go some way to explaining why Chambers and Weinwurm quickly felt comfortable corresponding.

¹² Humanities and Social Sciences Library, Manuscripts and Archives Division "Emergency Committee In Aid Of Displaced Foreign Scholars Records, 1927-1949," Box #128, Folio 41; 1929-1942.

¹³ Based on information supplied by DePaul University, John T. Richardson Library Special Collections and Archives Department, email correspondence dated February 4, 2009.

¹⁴ In "Reminiscences of the founder and editor of the *Engineering Economist*," Arthur Lesser, Jr. [2005] notes: "In the Winter 1956 issue, there appeared an announcement to the effect that six named individuals had agreed to become Contributing Editors....Of these, Eugene L. Grant of Stanford University and Ernest H. Weinwurm of DePaul University were actively helpful during my entire editorship."

tions regarding contemporary accounting practice. Both were concerned that the data from conventional accounting did not provide serviceable information for use in cognate disciplines (economics, statistics, and operations research (OR)). Weinwurm perceived that accounting needed injection of a more rigorous, “scientifically” derived base. The correspondence and literature drawn upon suggest that *scientific* as it pertained to theory development was interpreted by Chambers and Weinwurm in terms of *reasoned thinking* about accounting being drawn from observations of the commercial foundations of the environment within which it operated. This contrasts with the views on science and theory development of some of the subsequent accounting and finance academics, especially efficient capital-markets paradigm researchers, such as Watts and Zimmerman [1986, p. 7] who suggested that the role of theory is limited to explaining practice.

Like Chambers, Weinwurm was an avid reader of, and a contributor to, a leading 1950s British (and international) accounting academic journal, *Accounting Research*. Many of its publications addressed the need for accounting data to conform to classificatory and communicative criteria as in OR models and statistical tools. Thus, given this and Weinwurm’s interest among other things in measurement matters, decision making and how these related to accounting, it was not surprising to find in the Chambers collection that his 1957 papers mailed to Chambers included two entitled, “Improving Accounting Measures for Management: The Concept of Homogeneity in Accounting Data” and “The Limitations of Scientific Method in Management Science.”

Weinwurm’s initial August 25, 1955 letter (W#173) to Chambers shows his understanding that for present accounting to be serviceable, it had to be more commercially grounded. This underpinned advocacy for an Institute for Research in Accounting, with the plan that it be funded by the practitioner arm of the accounting profession. Chambers in his unpublished 1975 *festschrift* paper (for Weinwurm), noted that Weinwurm’s Institute proposal had “pointed out the pragmatic, trial and error origins of [conventional] accounting procedures, the absence of integration and coordination in accounting doctrine, and the general lack amongst accountants of belief in the value of a scientific approach to accounting problems.” But while Chambers supported the thrust of Weinwurm’s Institute proposal, he was skeptical of its practicability. His October 20, 1955 response (C#175) to the Weinwurm letter is pessimistic regard-

ing its likely success in view of the "... difficulty...in getting the [accounting] profession to sponsor it."

PROFESSIONAL RUMBLINGS – GREATER RESEARCH FOCUS AND APB FORMATION

The late 1950s and early 1960s was a turbulent time for business and the accounting profession. Businessmen, academics, and practitioners expressed their concerns about accounting's inability to accommodate the post-war inflation. Taxation was deemed by many to be excessive by virtue of the accounting inflation of profits. Costing and pricing problems (see letter extracts below) also created angst. Consistent with the above-mentioned general "research push" in the 1950s, there were general concerns regarding the lack of research about principles underpinning practice, and a questioning of the "process" by which accounting rules (including those related to measurement of assets and liabilities) were developed.¹⁵

A quick professional response was deemed critical. In 1956, the AAA commissioned a report from the Committee on Responsibility of the AAA in the Development of Accounting Theory, chaired by University of Nebraska Professor R.C. Dein. A plea for more research to underpin practice was contained in proposals in Alvin Jennings's presidential address to the AICPA's annual congress. In 1958, the AICPA created a Special Committee on Research Program, with Leonard Spacek as chair, to study Jennings's proposals. These followed ideas on accounting and research of the predecessor committees of both bodies – the AIA (cited as Sanders, Hatfield, and Moore, 1938), and the AAA [1936, 1941, 1948, 1957]. Given Spacek's persistent criticism of accounting and his input as chair, there was little surprise in the AICPA Special Committee's suggestion to create the Accounting Principles Board (beginning in 1959) with a view to producing *principles* (still being demanded today) to provide a "sounder foundation of accounting" to underpin conventional rule making.

Spacek had proposed an "accounting court" to adjudicate on and to specify appropriate accounting principles. In many addresses,¹⁶ he proposed a more detached view of how princi-

¹⁵The contemporary tone was evidenced by operations of the American Association for the Advancement of Science which had included a five-part symposium on measurement in its 1956 meetings [Churchman and Ratoosh, 1959].

¹⁶Spacek's main addresses are contained in an Arthur Andersen monograph [1969].

ples or rules should be determined, based on more academically grounded research [see Weinwurm's December 12, 1958 letter to Spacek, included in Weinwurm's letter to Chambers, December 15, 1958 (W#388)]. Spacek also proposed "fairness" as a *single* postulate of accounting. Such *single* postulate prescriptions were popular (e.g., Solomons' with "accuracy," Weinwurm's "factual information," and Briloff's "integrity," were current during our period of analysis). They competed with the multiple postulate prescriptions of the likes of Chambers, Moonitz, Mattessich, and Ijiri. Irrespective of the number, calls persisted for more research and for more rigor in determining the profession's accepted accounting postulates and principles that would underpin practice.

Within that cauldron of malcontent, Weinwurm facilitated Chambers' airing in the U.S. of his reforms for accounting rules to be based on research into the information needs of business. His intervention in the late 1950s was pivotal to Chambers considering measurement issues more systematically. Also assisting Chambers to expose his views internationally was Weinwurm's engineering of invitations to participate in the August 1959 AAA meeting as a follow-up to his delivering "Measurement and Misrepresentation" to the first TIMS national meeting in June 1959. These events fuelled Weinwurm's subsequent suggestions that Chambers should provide a more rigorous foundational support for his proposed "current cash equivalents" measures (a form of selling or exit price) and their promotion through the 1960s and 1970s inflation-accounting debates.

The lack of a grounded function of accounting underpinning conventional extant accounting is critical in this story as Chambers (like the leading OR researcher-cum-practitioner, C. West Churchman, in respect of prescribing appropriate measures more generally) viewed defining the function of accounting as a prerequisite to developing a defensible theory of accounting measurement.

To some "golden-age" theorists, the contemporary accounting thought and practice were deficient, the products of dogma and the captive victims of custom. As noted, many perceived a lack of an analytical framework based on scientifically derived foundations [e.g., Chambers, 1948, 1955a, 1960a, 1961; Mattessich, 1957, 1964; Edwards and Bell, 1961; Sterling, 1970]; what others like Moonitz [1961] would soon after label "postulates," and, more recently, others would label "concepts" forming an

accounting CF.¹⁷ To that end, consider Chambers' [1986, p. 64] observation on Sprouse and Moonitz [1963]:

Over an *interval* of 20 years [1939-1959] ... [U.S. professional bodies published edicts] on practical questions referred from time to time to its Committee on Accounting Procedures and Committee on Terminology... [which] exhibited little of the orderly, systematic development or presentation of ideas which might have been expected to be associated with a more or less orderly art.

Mid-way through that interval, Chambers [1948] had observed critically that one key foundation was the need for firms' "financial indicators to be relatable to one another in terms of a common and (most importantly) a financial dimension. The data in which they were expressed had to be *additive* – that is technically capable of having mathematical rules applied to them to yield results possessing "technical propriety."

Only data indicative of contemporary measurements of a common financial dimension could be "relatable to one another," a notion Chambers [1961] extended. There he argued the need to understand more clearly "measures" and "measurement" as the products of a scientific process. This motivated his bracket of publications on measurement.¹⁸ Measurement foundations had begun to influence his thinking significantly. In this regard, Weinwurm's assistance would prove pivotal.

The section on Chambers' changing views on measurement post-1960 reveals Weinwurm providing the necessary promptings leading to Chambers' firming-up and modifying (albeit subtly) his measurement ideas. One contestable area was whether to include expectations and predictions. Chambers' early measurement publications imply his uneasiness about accounting measurement, especially in respect of how to incorporate

¹⁷It is worth noting that a theory and a CF differ. The latter provides the basis of the former. One reviewer of an earlier version of our piece noted that standard-setters do not appear to note the distinction as "they propose qualitative characteristics using terminology that is more closely related to the concept of (empirical) theory than (conceptual) framework." This point is noted in a comment letter (#130) by Vermahnen [2009] to the IASB discussion paper: "Preliminary Views on an Improved Conceptual Framework for Financial Reporting. The Objective of Financial Reporting and Qualitative Characteristics of Decision-useful Financial Reporting."

¹⁸"Measurement and Misrepresentation," delivered at the 1959 TIMS Conference and published in its journal in 1960 [Chambers, 1960b], followed by two more measurement pieces as Chambers [1965, 1966]

predictions. This is aptly captured by the abstract of Chambers [1967]: "...mathematical treatment of accounting and business problems may contribute to rigour...may lead to unwarranted expectations. ... Interdependencies make difficult the formal or mathematical description of interactions in complex settings; oversimplification may yield trivial or unrealistic conclusions. The assignment of quantified probabilities to unstructured future events is of questionable value. (This abstract did not appear in the original but was published in Chambers, 1977.)

Other contemporaries expressed similar views, including the leading British economist, G.L.S. Shackle.¹⁹ More recently, Nicholas Taleb's [2007] criticism of much of the current research in economics, finance, and, by association, accounting, is based on similar reasoning.²⁰

Prior to the 1960s, Weinwurm kept suggesting to Chambers that his views on measurement lacked scientific rigor of the type being discussed in cognate statistical disciplines, such as in OR. Weinwurm's specific role at this stage of Chambers' changing ideas on measurement is explored further in the next three sections.

A ROCKY PATH TO MORE RIGOR IN ACCOUNTING THOUGHT

Chambers discussed accounting and related financial and measurement issues widely during this period of correspondence with Weinwurm. Most of those connections were either initiated by Chambers (as he pursued a better understanding of what others in the world were doing), or from those seeking Chambers' thoughts especially following publication of either his 1955a or 1957 articles or his 1956 critique of Littleton's [1953]."

Business and financial problems during the 1950s, noted previously, were especially in Chambers' focus. Accordingly, through books and personal discussions, he sought the views on science, theory, measurement, and decision making.²¹ What was happening in accounting education and practice overseas was

¹⁹ See Dean [2008].

²⁰ But some academics such as Mattessich were not convinced. Dispute over whether expectations are capable of being measured would be the basis of persistent debates between Chambers and Mattessich [1995b, pp. 45-50] over many decades.

²¹ His extensive library attests to that (available at: <http://chamberslibrary.econ.usyd.edu.au>).

investigated, often through correspondence. His many contacts led him to conclude that there were few academics who either perceived the need for, or indeed devoted effort to, seeking to understand better and articulate an intellectual framework of accounting practice. To him, accounting educational programs were littered with descriptions of practice with little other than resort to conventions to explain why those practices should be used.²² Writing to Weinwurm on June 2, 1957 Chambers (C#122) observes:

As far as I can gather conditions are far worse in Britain [than in the U.S.], here much of the tuition of accounting is done by correspondence schools, and the American literature is known to a very limited circle. I have just met a man from Belfast who has for the last year been teaching accounting in Melbourne University; he tells me he had never heard of Gilman [1939] until he went to Melbourne.

Chambers deplored accounting instructors' poor familiarity with the literature of their discipline; in particular, with the likes of Gilman [1939], possibly the most detailed chronicle of then-contemporary accounting practice.

Against this background, Chambers emerged in the 1950s and 1960s as a most forceful accounting iconoclast, alongside U.S. academic contemporaries like Paton, Vatter, Moonitz, Sprouse, Briloff, Mattessich, and Sterling. Interestingly, the most prolific correspondents with Chambers over that period were the little-known Weinwurm (more than 60 letters) and the higher-profiled Moonitz (just under 60). Of the contemporary U.S. practitioners, Spacek, who had a special bead on practice and its underpinnings, corresponded with Chambers 12 times (late 1958-1964).²³ Mattessich began corresponding on April 23, 1957 with a request for copies of Chambers' 1955a and other articles. Zeff and Chambers corresponded 13 times from 1962 and 1964. Staubus [letter of December 29, 1958 (#431)] corresponded, albeit less frequently, but effusively. He observed that Chambers [1958] "is a wonder. I personally rank it as the best accounting paper I have ever read."

In contrast, rejecting demands for major accounting reforms to the extant system, Gilman, Littleton, and like-minded

²² Consider Morgenstern [1963] and Gilman [1939].

²³ Interestingly, Spacek was influential in Arthur Andersen's sponsoring the publication of Chambers' major articles up to 1968 in *Accounting, Finance and Management*.

practitioners took heart from the lead of George O. May, described by Weinwurm in a letter to Chambers of October 5, 1956 (W#236)] as “the man to advance the concept of a theory of accounting if he were twenty years younger. I doubt that he ever gave much thought to general problems of scientific principles. But there is no doubt that he has been the most advanced thinker among anglo-saxon accountants.”

In that setting, rather than to describe practice, Chambers [1955a] seminaly advanced four fundamental theoretical premises of practice: (i) accounting systems are collaborative systems, (ii) which are rationally managed, (iii) by recourse to current and relevant financial information, and (iv) the derivation of which is a service function. There, he observed: “It is twenty five years since professor J.B. Canning had written in his 1929 magnum opus that ‘accountants have no complete philosophical system of thought about income nor is there any evidence that they have ever felt the need for one. Even today that statement is true. ... It is necessary to distinguish between systems of rules relating to practice and a theory of accounting’.” Nearly 25 years later in a retrospective review of Canning’s *Economics of Accountancy*, Chambers [1979, p. 766] noted that in the 1920s, Canning had nurtured concerns about the lack of measurement rigor, proposing that accounting reforms be constrained by the canons of measurement, including the need to specify a common property, a common unit of measure, and a constant measurement scale. Such concerns persist.²⁴

“Blueprint’s” impact on Ernest Weinwurm [letter of August 25, 1955 (W#173)] was immediate: “Accounting does not stand alone in the world, as you also point out in stating its service function. Therefore in setting up a theory of accounting the correlations with other neighbour sciences should be considered. Accounting theory must be a part of the general theory of science...” Chambers’ 1955 response (C#175) propositioned that only a theory of the subject could assist in evaluating the many conflicting and contradictory generally accepted accounting rules. On an accounting theory being linked to a general theory of science, he was more circumspect:

[It is] difficult to see your point about accounting being a part of the general theory of science, except in the sense that the general methods of scientific inquiry may

²⁴This is well illustrated in the EAA Symposium , “Wanted: Foundations of Accounting Measurement,” at the 2009 EAA Congress, published as Dean et al. [2010].

be applied just as easily and as efficaciously to accounting as to other subjects. With this view I entirely agree; a note of mine on the matter, 'A Scientific Pattern of Accounting Theory,' will shortly appear in Australia's leading practitioner journal, *The Australian Accountant*.

What should be of interest for contemporary standard-setters is Chambers' further observation: "In my view accounting is both a means of measurement and a system of communications; both should therefore *contribute to its concepts*" (emphasis added).

Chambers and Weinwurm then began their lengthy dialogue on measurement in particular and theory matters in general. It blossomed into a warm relationship between two scholars mutually concerned about their profession and the practices underpinning it. During these early years, they met twice, in 1959 and again in 1962. On two occasions when arranged meetings fell through, Weinwurm (the elder of the two) was clearly upset. But, these apparent breakdowns in communication were insufficient to override the issues-in-common drawing them together in a 28-year relationship. That Weinwurm's enthusiasm for Chambers' ideas to be more widely known in the U.S. is evident in his letter of January 2, 1962 (W#9128): "Of course it is wonderful that you come again [to the U.S.]; as you know I have been in favour of your staying here permanently to help to promote a new scientific approach to accounting."

THEORY, RESEARCH, AND MEASUREMENT – WEINWURM'S INFLUENCE

Little Publicized Connections: Published sources other than this correspondence provide few traces of the extent of Weinwurm's influence on Chambers' emerging thoughts on measurement and wider theoretical research issues. Nor is it likely that the resistance they faced in suggesting change is generally known.²⁵

²⁵The authors emailed several surviving contemporaries, including Ricco Mattessich, Hans-Martin Schoenfeld, and briefly discussed the matter with Steve Zeff. Their responses indicated an unawareness of Weinwurm's role in the measurement deliberations of professional bodies in the 1950s and 1960s. The published literature was searched, including Gaffikin [1986; 1988], failing to locate other references. Mattessich's [1995] memoirs, for example, do not refer to Weinwurm. Zeff [1982] makes one passing reference to Weinwurm: "In a letter to me Maurice Moonitz recalls the 1962 TIMS conference as follows: Professor Ernest Weinwurm, then of DePaul University in Chicago, asked me to take part in a meeting of the College on Measurements in Management of TIMS to be held in Ann Arbor in September 1962." In an earlier version of this paper, one reviewer suggested that "perhaps this lack of references was because it 'was common knowl-

Only Chambers has done so, and then only once publicly. “Development of the Theory of Continuously Contemporary Accounting,” an introductory section added to Chambers’ [1974, pp. xii-xiii] provides a guide to the influence Weinwurm had on his thinking:

For about 15 years I had been concerned with clarifying and arranging in an orderly fashion some of the principal accounting ideas....in the late fifties I had been urged by Ernest Weinwurm...to give attention to measurement aspects of accounting; but it seemed wise first to be sure what accounting was about. I turned to the literature of measurement in 1962. Campbell’s *Foundations of Science*, Churchman’s *Prediction and Optimal Decision*, Hempel’s *Fundamentals of Concept Formation in Empirical Science*, Margenau’s *The Nature of Physical Reality* and Stevens’ paper [in Churchman and Ratoosh, 1959], ‘On the Theory of Scales of Measurement’ were my main guides.

Not long after, in an unpublished, proposed *festschrift* piece, Chambers [1975] observed:

By 1961 I had examined critically most of the traditional ideas [in accounting] and had proposed modifications of some of them. In that I first attempted to set up a body of coherent ideas – in ‘Towards a General Theory of Accounting’....Was it proper to add an amount of cash to the replacement price of a non-cash asset? Did a replacement price represent, in respect of a particular asset, financial capacity for market action? I would have to turn to measurement theory and practice after all, as Weinwurm has been suggesting.

The change from replacement prices to exit-price measures using a common measuring unit would be a major product.

Later private correspondence provided more substantial acknowledgments of Weinwurm’s subtle contribution [Chambers, February 6, 1982, (C#8175) and January 25, 1983, (C#6651)]:

[C#8175] I still remember the prompting and the opportunities you gave me during the fifties and early sixties. I am not sure that you will be able to judge the shift in my views about the years 1955-62. But it was in

edge.’” We do not accept this given the above searches. Finally, in this section we reproduce the correspondence with little comment as we wish to highlight primarily the intercourse between Chambers and Weinwurm.

those years that this disciplinary effect of measurement notions (then almost non-existent in the [accounting] literature, but which you had urged me to consider) provided one of the foundations of what I developed into continuously contemporary accounting.

[C#6651] I remember a letter you wrote on some pieces of mine of the mid-fifties; and a *number of letters* in which you urged me to turn to the measurement aspects of accounting. I put off doing that for some years. It was your negotiations which put me on the 1959 TIMS program in Chicago; and the paper I wrote more or less forced me to give measurement much more attention over the next few years. It became, in fact, a key feature of the system I developed in the mid-sixties. I ...have always been grateful for, your insistence and persuasiveness in that regard. Out of the clarification of my ideas that occurred during our association of the 1960s arose much of my writing through that decade and the next. (*emphasis added*)

Twenty years earlier, the following extract from Chambers' letter to Moonitz on May 11, 1962 (C#772) reveals the fundamental accounting issues that Chambers had been grappling with in the 1950s and early 1960s prior to addressing measurement more rigorously:

The question of basic importance seems to be to discover first of all what accounting can or should do in a general way: what can and should be measured will emerge. Having attempted to do the former I have felt freer to proceed to the measurement problem... there can be no such thing as subjective measurement. There are no such things as subjective measurements of length, weight, volume; there are guesses of course, when one does not have a scale handy, but a guess is not a measurement. For accounting and business...the problem is complicated because there is not nor can there be a fixed scale for measuring: the implications of this are extensive and cannot be dealt with in any way short of an extensive study linked to the ultimate use of accounting information. I am certainly giving it serious thought.²⁶

²⁶About a year later, Chambers circulated privately a 48-page mimeo, "Measurement in Accounting," which would be revised and published as Chambers [1965]. In between, he published Chambers [1964].

For Chambers, resolving what was the appropriate function of accounting and what was the preferred measurement property were integrally linked.

Unquestionably, during the 1950s, Weinwurm and Chambers initially were swimming against the tide. These extracts from Weinwurm's 1955 "Institute of Accounting Research" proposal, *inter alia*, are apposite:

1. No lasting scientific progress is possible without constant and large-scale research. This is a generally recognized fact.

2. There may be doubts whether or not accounting should be called a *science*. It has often been described as an *art* by emphasizing the aspects of individual judgment and ability. But perhaps accounting may be most accurately classified as a *technique* at its present stage of development. This clearly...reflect[s] the viewpoint of its own practitioners.

3. Accounting has grown over the ages like other techniques and arts and has improved not through systematic research but more or less through trial and error... Modern accounting reflects a number of evolutions in that area such as:

- (a) large-scale business enterprises
- (b) increasing importance of production over traditional merchandising
- (c) the influence of scientific management and control.

4-6. of the proposal are not reproduced.

7. Accountants are sceptical about efforts by outsiders to look at accounting with the eyes of the scientists... convinced that accounting should not and cannot be influenced by or subject to the needs existing in other fields...do not believe in a scientific approach to accounting. (*This has been clearly apparent in their reactions to discussions regarding the effects of money value changes upon accounting procedures*). (emphasis added)

8. ...accounting is a branch of statistics, the general science of measurement...Accounting merely uses one special type of measure namely money. Accountants may question the significance of this relationship though the fact itself is undeniable. And yet, statistics has always been accepted as part of the scientific structure especially in view of its dependence on mathematical methods.

9-12. of the proposal are not reproduced.

Weinwurm [December 1, 1955 (W#177)] expressed his frustration that the more “scientific” approach outlined within his “Institute of Accounting Research” proposal was unlikely to be considered by the accounting profession or practitioners:

I agree...general methods of scientific inquiry may be applied to accounting as to other subjects. But this is exactly what the American (and as I feel also the British) [academic] accountants deny; they take a completely pragmatic position [in adopting calculated, allocation-based figures and a ‘matching’ approach] and pay no attention whatever to the broader significance of accounting data and statements...to arouse some interest and understanding among practitioners. Recent discussions with leaders of the profession lead me to take a very pessimistic attitude.

...where there may be some interest is in industry... the ever increasing use of scientific management techniques...cannot be pursued satisfactorily as long as accounting method does not conform with scientific prerequisites. I shall keep you posted on whatever progress will be made.

Later [August 24, 1956, (W#234)], he repeated those concerns:

...it seems to me that [‘Blueprint for a Theory...’]... is bound to be considered a classic once we shall have come closer to have accomplished a theory of accounting....it may be worthwhile to insert [in my Institute of Accounting Research proposal] a separate point or in combination with point three to emphasize the general concept of measurement...bring in statistics and accounting as a branch of statistics....in developing a theory of accounting we should rely a great deal on statistics where the ‘scientific method’ has already been quite successful....As another means for pushing the ‘theory of accounting’ I am trying to set up an interested group within The Institute of Management Sciences. Last spring we set up a chapter here in Chicago and I have considerable influence in setting its policies. Recently, a chapter was established in Paris...could [you] not do the same in Australia....The Institute publishes a quarterly ‘Management Science.’...I propose to attend the annual meeting of the Institute at Los Angeles on October 18-19 (I shall present a paper on the ‘Limitations of the Scientific Method in Management Science’ of which I shall send you a copy when it is ready).... [likely] there is no hope at this time to arouse interest

in 'Theory' among the professional accounting organizations in the country and...[that] situation is the same in the Commonwealth countries. Thus no frontal attack is feasible but only an infiltration movement from the flanks and that is what I try to accomplish.

At that time, Chambers received a letter on September 12, 1956 from George O. May (#8375) who had just read the Chambers critique of Littleton [1953]. May observed that "the time is not opportune to state or restate a general theory of accounting." Chambers on September 18, 1956 (C#235) noted to Weinwurm:

I...received a letter from G.O. May...question[ing] the possibility of deriving a general theory of accounting; in reply I simply asserted my belief that it could be done, for it would have taken too long a statement to set out the reasons....

Your letter and May's conditioned me to expect something quite devastating of Littleton. But it turned out to be rather disappointing. He appears to find objections to the constructions he himself places on my propositions, rather than the propositions themselves. There were, it is true, quite a few things one could quibble with but he does not provide any broad front to which I might reply. I don't think I told you earlier, but I have submitted to the [*The Accounting*] *Review* a critical article on Littleton's *Structure [of Accounting Theory]*; it is to be published in the October issue....

I am, of course, very grateful for your efforts to interest others in the matters that concern us, and even if your [Institute of Accounting Research] proposal to the AAA should not be accepted I am honoured that you should think the effort worthwhile. Your activities in T.I.M.S. interest me, and we subscribe to its journal; participation in the activities of three professional and examining bodies outside the university make it difficult for me to act as promoter of a local chapter. These things even prevent me from pursuing my own work in accounting with the freedom it seems to deserve.

Weinwurm promptly replied on October 5, 1956 (W#236):

Thanks for your letter...and the interesting information about your contacts with G.O. May...Littleton, of course, is unable to understand what you have in mind. He too cannot conceive of accounting as something related to

a general theory of science...he certainly has aroused a certain amount of interest in what you are doing and, there, I am very glad that you shall have a piece in... *The Accounting Review* and perhaps another one a few months later...you should, I think, assume [the likely readers have] no familiarity with the ["Blueprint..."] article in *Accounting Research* and expressly state so, since only a few of those reading the article in *The Accounting Review* will have read the one in *Accounting Research*. I am trying to enlist to our [TIMS College of Measurements] project one of the most influential accountants in this country, Mr Leonard Spacek, the managing partner of Arthur Andersen & Co.

Six weeks later, Weinwurm [December 6, 1956; (W#237)] outlined his attempts to promote the need for a "theory of accounting" and his promotion of Chambers' ideas in this respect.

As indicated in my last letter, I got in touch with Professor Moyer, the President-elect of the American Accounting Association and head of the Accounting Department of the University of Illinois...[suggesting] the topic of a 'Theory of Accounting' should be placed on the agenda of the next annual meeting of AAA and that you should be invited to attend that meeting as a speaker and guest of AAA...Finally, I proposed that a standing research committee on accounting theory should be set up... Copies of the letter and memorandum were mailed to all the members of the AAA executive committee.

...Moyer's answer was completely negative...[noting] the existing research committee on accounting standards which will make a report next year...he did not see why another committee and more theory would be helpful or required. I did not accept this refusal...Finally, he invited me to come to Urbana for a talk as I had suggested from the very beginning.

Chambers [December 21, 1956 (C#239)] was effusive of Weinwurm's persistence:

I hope you will not be affronted if I thank you too for the efforts you are putting into promoting the idea of a more rigorous accounting theory and my own connection with it. I am not surprised that my own work is little known over there, as I have until recently considered it my job to cater for local readers. I should be very grateful if you could convey any impressions, adverse or otherwise, which you have gathered about other

people's views either of the Blueprint article or the Observations on Littleton....Professor Vatter...thought the latter well done.

That persistence and frustration are evident in Weinwurm's [March 1, 1957 (W#121)] reply:

...I have not heard from him [Professor Moyer] at all ...Naturally this result is not unexpected...[but] I shall bring up the matter again at the annual meeting of the AAA at Madison. ... [notwithstanding] the terrific resistance of the rank-and-file of the profession against those who want to disturb the peace ..., I have been unable to gain any new [TIMS College of Measurements in Management] recruits of late. There is still a mere handful who are willing to look beyond the narrow confines. I don't think there is much difference in this respect among the different parts of the country as you indicated. And are conditions any better in Britain? I don't think so.

Mr Little (Editor of *Accounting Research*) has accepted my paper on measurements...I am preparing another (and I hope better one) for the meeting of the Operations Research Society in May. There is some interest... but not among accountants. I had the first part of your [Blueprint] paper mimeographed and we are using it in our graduate classes....In my opinion, the impetus for improving accounting methods must come from the users. It is for that reason that I am trying to get some interest among industrial engineers and management science experts.

Three months later a somewhat apologetic Chambers [June 27, 1957 (C#122)] responded with:

...I am most grateful for your persistent inquiries and for your encouragement in pursuing the elusive 'theory.' The only response I have had to the April 'Accounting Review' article [on Littleton] was an inquiry from Prof. Mattessich [January 23, 1957 (M#245)] of Mount Allison University, Canada. I have had no local comment.... It all goes to show how little interest exists in fundamental inquiry.

I ...note with interest [one 1957 Annual Convention of the AAA] session is devoted to accounting theory. It appears that your suggestions may have borne fruit.... In the honours school here we are concerned primarily with concepts; no formal bookkeeping or accounting

work is done but we rigorously examine contrasting methods and concepts. So many of the established principles, conventions and doctrines are not what they seem, or do not find expression in practical methods that their discussion occupies many hours. I have long wanted to reduce this to a written critique, but I am afraid it will have to wait quite some time yet.²⁷ Meanwhile, in Australia at least, there are many who go on peddling 'theory' based on Gilman's *Accounting Concepts of Profit* [1939]...It makes it very difficult to break into the hard crust of custom.

Weinwurm's [August 30, 1957 (W#123)] response arguably reflected a belief that any attempt to generate more theory was a forlorn exercise. It also mentioned several pressing AAA matters in particular, noting Leonard Spacek's advisory court proposal delivered at the 1957 AAA meeting:

...to settle disputes within the accounting profession. As you know he has brought up a number of good points but a special committee of the American Institute of CPAs recently ruled that those were without merit just as could be expected.

Last year, the AAA set up a 'Committee on Responsibilities of the AAA in the Development of Accounting Theory.' The chairman...Professor R. C. Dein of the University of Nebraska was one of the speakers. He mentioned your name once in passing but referred primarily to Paton & Littleton and dealt with such problems as the best method for setting up bad debt allowances. Two other members...were chairmen of a round table on 'What the AAA Should do to Further the Development of Accounting Theory.' They discussed a report by the committee which has drafted a beautiful organization chart of how its work should develop. One of the gentlemen stated the duty of the committee as to act as a sort of fire prevention agency²⁸ by settling arguments within the profession [not]...as Spacek has done to the dismay of most professional accountants.

...[in] a speech...I attacked the whole traditional con-

²⁷Chambers took many years to complete this – the first was an address [Chambers, 1962]; the second, "Conventions, Doctrines and Common Sense," published in New Zealand's *The Accountants' Journal*, 1964, pp. 182-187; and, finally, as part of Chambers [1966].

²⁸The "fire fighting, putting out bush fires" analogy would appear often in later discussions about standards setting.

cept of accounting theory as meaningless and referred to your writings. I think this makes August 28, 1957 a historical date of accounting that the problem as such was mentioned for the first time at such an official occasion. Of course, my remarks were greeted with stunning silence.

A Propitious Time for an Idea: There was, however, some action at the AICPA. Zeff [1982, Introduction] captures the mood for change in recalling incoming AICPA President Alvin R. Jennings' 1957 presidential address, addressing the need for a "re-evaluation of the process by which accounting principles were established, including the creation of a research organization to assist the Institute's Committee on Accounting Procedure"²⁹ It was at that time that Weinwurm [November 26, 1957, (W#124)] also proffered some hope regarding the TIMS Measurement College project.

The long contemplated plan to set up an organization for research in accounting theory has finally come to a result. A College (special group) of The Institute of Management Sciences will be organized shortly with this aim in mind. I have been able to drum up some support on both coasts in addition to a number of people in this area. Both the 1958 TIMS president George Kozmetsky and the 1959 president-elect Melvin Salvesson are in favour of the project and willing to support it. This means that we have now a framework and our task is to implement it and make it something living and active.

Chambers' [December 10, 1957 (C#381)] lengthy reply expressed enthusiasm to participate in the TIMS College of Measurements in Management, specifying possible aims of the venture, many (especially those regarding measurement) coinciding with what ultimately would appear as his CoCoA system):

In response to your invitation to set out my ideas on the aims of the proposed College, I submit the following outline. It is not in the form of a statement of objects – to do this, to do that –...The general purpose of the chapter may be considered as *the theoretical study of accounting as a system of measurement; as a system for accumulating knowledge; as a system of communications; and consequently as a significant determinant of human action in its economic aspects, i.e., in the making of per-*

²⁹Jennings [1958] contains the presidential address.

sonal and group decisions, in the allocation of resources, and in the development of economic institutions. This embraces a large number of different types of study. (emphasis added)

Firstly, the concepts implicit in financial and cost accounting practices may be examined; empirical studies of many of such practices themselves are desirable. The concepts and systems of concepts explicitly avowed by writers on accounting practices and theory may be studied; their inconsistencies and the overwhelming influence of expedience need exposing in the interest of management science.

Secondly, a considerable amount of empirical work on the financial and other practices of business can be done, which would throw light on the purposes and effects of particular methods of accounting. Financial and quasi-financial policies of many kinds are influenced by, and have influence on, accounting theory and practice – liquidations, mergers, recapitalisations, reorganisations, are some of the mainly financial matters; pricing, output levels and product-mix are some of the quasi-financial matters; all have obvious connections with accounting.

Thirdly, historical studies of the development of accounting methods and their economic contexts may throw light on contemporary practices. Institutional pronouncements and recommendations may be analytically considered with reference to their consistency, their commercial and professional acceptance, and their consequential effects.³⁰

Fourthly, the literature of economics, jurisprudence, politics, and other social sciences may be examined, insofar as concepts or practices in other fields have influenced, or been influenced by, accounting concepts and practices.

Fifthly, and generally, any studies of the decision-making process, or of accounting and statistical aids in decision-making, are relevant. The matters suggested above may be studied without regard for geographical or political boundaries – they may be localised or comparative studies over space or time – for there are

³⁰This point was elaborated in a letter Chambers penned a few years later (see Appendix II).

substantial similarities in commercial institutions although there are significant differences. Further, the College should consider itself free to inquire into any of the above matters, where relevant, in public or private undertakings and in non-commercial situations.

Measurement issues were now clearly to the fore. Six months later, Weinwurm [June 25, 1958 (W#382)] announced a TIMS College of Measurements breakthrough:

There has also been progress with our TIMS College. A meeting of interested individuals was held on May 16 [1958]....There will be a special program at the annual TIMS meeting in October. Furthermore, [a] list of topics suitable for research projects shall be prepared and distributed among Deans of Business Schools and chairmen of Industrial Engineering Departments which offer doctoral programs to encourage research in connection with doctoral dissertations, etc.

Chambers' 1959 International Travels – Further Initiatives on his First Geo-Accountant's Journey: All of this was to presage Chambers' international efforts to diffuse his ideas on theory generally and measurement in particular. This would be achieved through: further publications strategically placed in overseas journals; his maiden visits in late 1958 through most of 1959 to several U.S., U.K., and European universities; overseas conference presentations; and continuation of his prolific letter writing.³¹ In this context, accounting historian Gary Previts observed that Chambers, “arguably is the first geo-accountant.”³²

A letter to Weinwurm [July 2, 1958 (C#383)] outlined an intention to attend the TIMS' 1959 Chicago meeting. Other letters in 1958 discussed his proposed year-long sabbatical, with visits to the U.K., Europe, and the U.S.³³ In the interregnum, the AICPA had produced a “Report of the Special Committee on the Research Program” to which Weinwurm [April 24, 1959 letter

³¹The Chambers Collection Archive provides evidence that there are other letters not held in the Collection. But the Collection appears to hold about 95% of all letters Chambers wrote and received. It also reveals that Chambers wrote and received more than 11,000 letters between 1948 and 1999. This is an average of more than 200 per year, of which we estimate Chambers to have written an average of around 140 per year.

³²R.J. Chambers Memorial Research Lecture, The University of Sydney, November 2004

³³Chambers [2000] posthumously describes his ambitious 1959 sabbatical program.

(W#555)], on Spacek's urging, provided a critical commentary. He stressed the imperative that universities should have an input to research initiatives related to improving accounting practice.

Sponsors were needed for Chambers' travels, and several people were actively seeking to find a funding source. Having failed to obtain a Carnegie Foundation travel grant, Weinwurm then (unsuccessfully) suggested that Chambers should seek a Fullbright Scholarship and other funding. Ultimately, Chambers received a \$5,000 grant from the Relm Foundation, primarily on prompting and support from other University of Michigan colleagues and Professors Dein and Paton [Chambers December 10, 1975 letter to Paton (C#4637) recalls his help]. Clearly, Chambers' international supporters were growing.

Notwithstanding securing funding on this occasion, geographical and communication hurdles generally meant it was difficult for a non-American to influence U.S. academic thought in those days. This is quite understandable, especially for one arguing against U.S. academic and practitioner icons like Littleton and May. But, with funding and invitations now secured, Chambers agreed to deliver a paper on measurement at the 1959 TIMS meeting [Weinwurm's letter to AAA president and Duke University academic, Martin Black, November 28, 1958 (W#391), copied by Weinwurm to Chambers], and to participate in an accounting theory session at the 1959 AAA meeting. Other presentation possibilities and proposed consultancies, such as with General Electric in 1959, were being considered. Hindsight shows that attendance at those meetings and subsequent events placed Chambers firmly on the international stage regarding issues of how a better accounting theory and, in particular, a more rigorously derived accounting measurement could benefit practice. It would be the beginning of many other friendships, including lengthy associations with Maurice Moonitz and William Paton. In early 1960, following Chambers' visit to Berkeley the year before, Moonitz had asked Chambers' to comment on the AICPA's draft ARS #1 "Postulates of Accounting" monograph. Moonitz was keen to ensure feedback from knowledgeable parties all over the world. As noted in fn. 10, he sought Chambers' "untrammelled views" on ARS #1 [Moonitz, April 24, 1960 (#7687)]. Extracts of a letter to Weinwurm by Chambers dated April 3, 1962 (C#987), reveal a critique of the final version of ARS #1. For more detailed criticisms, see Chambers [1964, reproduced in Zeff, 1982]. Around the time of Chambers' initial critique (mid-March 1962), Moonitz was still keen to consider Chambers' ideas, and he invited Chambers formally to join him

and others in late 1962 for two months work at the AICPA Research Division [see Moonitz, 1982].

1950s Price and Price-Level Accounting and the Profession's Responses: Importantly, all of those post-WW II initiatives on measurement and prior attempts to resolve to the standard-setters' satisfaction of what was the function of accounting had been forged in the context of prior deliberations on how accounting should be altered to take into account the effects of changing prices and price levels. Specifically, those deliberations were set against a backdrop of what would prove critical in Chambers' honing his theory of accounting (initially badged CCA, but later CoCoA) on the international stage. There had only been brief discussion of the impact of changing price levels in Chambers' and Weinwurm's early correspondence on measurement. However, the 1955 "Institute of Accounting Research" proposal alluded to the price-level problem. Coincidentally, Chambers and others had been addressing price and price-level problems for several years.

Inflationary pressures following the cessation of WW II had coincided with Chambers' entry into the accounting profession post-war when many governments were pressured to consider the effects of inflation on the taxation base. The argument was that taxation was being levied on *inflationary profits*, mainly through closing inventories being stated at ever-increasing costs and depreciation charges based on (frequently) pre-war historical costs or being no longer possible on costs that were completely amortized. Concern with the use of out-of-date costs for pricing decisions was also a major concern.

The inflation-accounting debate inevitably turned to discussions of the measuring unit and whether "stable dollars" or "general purchasing power units" were best captured by scaling historical costs with numbers drawn from an index of the general level of prices. Chambers was familiar with the relevant economics and accounting literatures and thus recognized that inflation was inextricably linked to the measurement issue. Sweeney [1936], for example, had discussed these issues in the context of the 1920s German hyperinflation. Later, Alexander et al. [1950], Jones [1955, 1956], Hendriksen [1961], ARS #6 [1963], and Sandilands [1975] did so in a more general *inflation-accounting* setting, while Edwards and Bell ([1961] and Revsine [1973]³⁴ pursued replacement price valuations in similar con-

³⁴ Clarke [1976, 1982] describes Sweeney's many publications in this area.

texts. For Chambers, the inflation setting became a side-issue. The prevailing inflation and the need for any measurement system to ensure a constant measurement scale merely served to highlight measurement issues more generally. Subsequent recourse to fundamental metrological ideas, including those relating to price-level and price changes, would be woven into his CoCoA theory. It is here that Weinwurm's influence looms especially large.

CHAMBERS' CHANGING VIEWS ON MEASUREMENT POST-1960

Chambers' observations on how his views on measurement had changed are well captured textually in the following extracts from his unpublished *festschrift* paper in which he extends the text algebraically³⁵:

During 1962 I read variously in the literature on measurement, scientific method, scientific biography and basic mathematics....The distinction between quantifications which were and those which were not measurements became clearer. If the financial capacity of the firm, for action involving money or money's worth, were to be represented in a balance sheet, non-cash assets would have to be represented by their money's worth or cash equivalents. The cash equivalent rule satisfied the 'uniformity of valuation' principle. The cash equivalents, were in principle, ascertainable by the same process as other measurements: by taking a reading (the market) in a known scale (number of dollars); and in the case of monetary assets, by straight counting. This kind of quantification, described by some as 'fundamental measurement,' provided the pattern for more elaborate and complicated kinds in physics and other fields. It should do the same for accounting, finance and administration.

If it were stipulated that a balance sheet should represent something other than financial capacity for action,

³⁵ Chambers [1977, p. 9] notes that he first used this algebraic notation in the 1961 address "Towards a General Theory...", wherein the use of replacement costs was viewed as a legitimate measure for non-monetary assets in some cases. On further reflection to satisfy his "uniformity of valuation" principle and the canons of measurement, this idea would be rejected in his 1963 mimeo paper "Measurement and Misrepresentation." In his 1978 *Abacus* article, "Use and Abuse of a Notation," Chambers shows how this notation emerged in the literature and was later abused.

some singular 'property' of all assets [and liabilities] at a given date other than cash equivalent would have to be stipulated. No other system stipulated an alternative function *and* the singular property appropriate to it. Cash equivalents, or any subset of cash equivalents, of assets are appropriate figures to relate to liabilities, short or long term; no other figure is apt for this. And the difference between the total of the cash equivalents of assets and the amount of liabilities outstanding is the aggregate of the owners' equities; it has a quite definite and understandable significance since the figures from which it is derived have a definite financial significance.

Financial positions at successive points of time are represented by aggregations of 'point' or dated measurements. But to calculate the net change in owner's equity (i.e. to obtain a measure [albeit derived] of net income) during any period, account must be taken of changes in the significance of the monetary unit. These changes are commonly described as changes in the general purchasing power of money....We may speak of the coefficient of variation with respect to money, of the general level of prices, or for short, the price level variation coefficient. We may then define the price level variation coefficient as the proportionate change in an index of the general level of prices. Let it be denoted by p . If the period is denoted by two periods t_0 and t_1 , then every dollar t_0 and would be equal to $(1 + p)$ dollars at t_1 . (To go back to the 'purchasing power' analogy it would take $(1 + p)$ dollars at t_1 to buy the same general basket of goods as one dollar would have bought at t_0)....there is no temporally invariant standard in financial affairs akin to the meter, the gram or a coefficient of linear expansion. Current cash equivalents express the current capacity to command goods in general.

Chambers' unpublished *festschrift* contribution summarizes Weinwurm's promptings and influence on Chambers' measurement ideas at this point. His change from preferring replacement prices to exit-price measures for reporting fixed assets using a common measuring unit would be a major product of that influence. Chambers observed that: "This sketch of what I have called 'continuously contemporary accounting' is indicative of the way in which metrological ideas pervaded the development process and gave shape to the result."

Further, Chambers' [1974], especially the introductory note, provides insights into the critical metrological issues underpinning his accounting theory:

This literature [I had examined in the late 1950s and early 1960s] related principally to the physical sciences. But the parallels with financial matters were plentiful. The foot (or the meter), the pound (or the gram), the hour, the degree (of the angle or temperature) – were neither more nor less ‘conventional’ than the dollar or the pound. Measurements made with reference to these units were combined to yield derived measurements, such as density and velocity; there are analogous measurements, in financial matters, such as rate of return and gearing. All measurements of change entailed observations of initial and terminal states; and if the conditions differed under which the two measurements were taken, adjustments were made of one or both measurements to measurements under a set of ‘standardized’ conditions. On these last two points the practice of accounting differed from physical measurement; terminal states were obtained by calculation, not by observation; and no adjustment was made for the change in the conditions of measuring, changes in the significance of the unit and changes in the relativities of the measures (prices) of particular goods. Failure at these two points seemed to be the reason for the variety of ‘accounting results’ possible for the same set of events, and for the irrelevance of the figures to action at the terminal date.

Eventually Chambers settled on an accounting system complying with the main canons of measurement in the physical fields – a common property, scale, and a specified unit within the scale. He argued that the product of recourse to those canons would produce useful (serviceable) data for the many uses identified in his 1961 article and meeting the principles he had enunciated in his 1955a article.³⁶

By the 1970s, Chambers’ position on measurement had thus crystallized, as if predicting the debate during the GFC regarding mark-to-market valuations in illiquid or inactive markets, effectively where there is not a market [Plantin et al., 2008; Laux and Leuz, 2009, 2010; FASB, 2009; FCAG, 2009; Hertz, 2009]:

[convention] led me to suggest some ‘practicable alternatives’ as approximations where no market [exit]

³⁶This is confirmed, for example, in his March 1998 *Abacus* article, “Wanted: Foundations of Accounting Measurement.” With a new introduction written in 1997, this was a verbatim reproduction of an unpublished review written in 1972 of the 1971 report by the AAA Committee on the Foundations of Accounting Measurement.

price was available. But...they appeared to compromise the principle of uniformity of valuation. Critics were quick to point this out. By that time, however, I was so convinced of the value of mathematical and metrological rectitude that I was able to countenance even zero values for assets [and liabilities] which had no market price in their then state and condition [see "Second Thoughts on Continuously Contemporary Accounting, *Abacus* 1970].

Here, the significance of Weinwurm's influence is evident. Metrological rigor now underpinned Chambers' views on a serviceable system of accounting. It presaged his controversial advocacy in the mid-1970s of reporting a zero value for assets and liabilities in their then state and condition where no market price exists. Chambers [1976, p. 145] further suggested this be supported by a double-account approach to allow the showing of other attributes of those assets and liabilities reported at zero values.³⁷

THE FRUITS OF COLLABORATION

Chronicling a little of the personal drama underlying their attempts to influence such matters has exposed the shared frustration of Chambers and Weinwurm. Resistance to change by a profession under siege during the 1955-1964 period was evidenced. A bead on such things came by virtue of analyzing previously unavailable correspondence in the Chambers Collection. These archives provide a unique source of a previously hidden story of Chambers honing his ideas through collaboration with Weinwurm. They also reveal the assistance provided by Weinwurm to Chambers as he attempted to expose his measurement and related ideas internationally, especially to U.S. academics.

Weinwurm and Chambers certainly enjoyed their differences. But this episode demonstrates intellectual progress coming from developing their commonalities. Both desired that practice be injected with more rigor, especially in respect of measurement, and their published writings over the period examined reveal a more rigorous, *scientific* (as it pertained to theory development) approach to things. Chambers employed reasoned thinking about accounting drawn from observations of the commercial foundations within which accounting operated. This contrasted with the views on science and theory develop-

³⁷The use of the double-account system within a market selling-price system was recently demonstrated in Bloom [2008].

ment, especially much of that supporting the efficient (capital) markets paradigm. Chambers' unpublished *festschrift* article explains the motivation for this: "To press the case for something better has been the preoccupation of Weinwurm over these twenty years [1955-1975], a preoccupation which expresses a not very common [in accounting] respect for intellectual discipline and a constant commitment to the advancement of his profession."

A contemporary understanding of what melded their alliance is evidenced by the intertwined issues of measurement, the function of accounting, accounting theory, concepts (postulates/principles), and decision making. These issues remain foremost on the professional accounting standard-setters' agenda. Yet, critically, agreeing on a particular measurement approach remains unresolved to the profession's and users' satisfaction. It is not surprising that it emerged as one of the most contentious accounting issues in analyses undertaken during and in the aftermath of the GFC.

Our narrative suggests that a possible fruitful path for the profession entails examining more closely prior, relevant debates and the issues underpinning them, in this case those in the 1950s and 1960s on measurement. The Chambers and Weinwurm collaboration reveals the need for a verified system of accounting with the contiguous functions of communication and measurement. This account of that collaboration contains lessons for a profession that has failed to identify adequately the conceptual framework from the commercial environment within which accounting operates.

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APPENDIX I

Ernest Weinwurm's Major Publications Including

Several Books and Major Journal Articles.

Books with co-authors noted include: Wallace M. Carrithers (1967), *Business Information and Accounting Systems* (Columbus, OH: Charles E. Merrill Books Inc); George F. Weinwurm (1971), *Long Term Profit Planning* (American Management Association Inc.); and W.D. Knight (1964), *Managerial Budgeting* (New York: The Macmillan Co.).

Major articles by Weinwurm include: "The Limitations of Scientific Method in Management Science," *Management Science*, Vol. 3, No. 2, 1957: 225-233; "Improving Accounting Measures for Management: The Concept of Homogeneity in Accounting Data," *Accounting Research*, July 1957: 262-69; "A Middle Ground between Fixed and Flexible Budgeting," *N.A.A. Bulletin*, September 1958: 47-58; "Professional Accounting Examinations in Great Britain," *Accounting Review*, Vol. 32. No. 1, 1957: 60-67; "The Importance of Idle Capacity Costs," *Accounting Review*, Vol. 26, No. 3, 1961: 418-421; "Modernizing the Goodwill Concept," *Management Accounting*, Vol. 3, No. 6, 1971: 31-34); and with D.A. Edwards, "Communications to the Editor," *Management Science*, April-July 1955: 272-281.

APPENDIX II

Letter by R.J. Chambers to G.R. Gargiulo, Secretary

College on Measurements, C/- Arthur Andersen,

November 16, 1960

Mr. G. R Gargiulo'
Secretary, College on Measurements in Management
c/- Arthur Andersen & Co.,
80 Pine Street,
NEW YORK 5. N.Y. U.S.A.

Dear Mr Gargiulo,

.....

In reply to your letter of November 9 may I offer a few suggestions which might be considered in designing the program for 1961.

On point 2, would it be possible to initiate some comparative studies of measurement in different facets of institutional operations for the purpose of throwing light on measurement methods. My own interest [is] in the measurement of financial features and the debate which has surrounded certain of these suggests such questions as:

Are there any general notions, such as physical product, productivity, quality, etc., in the measurement of which there is a widely accepted or acceptable uniform technique?. The answer may indicate new approaches to the measurement of, say income or cost.

In any such field, is it accepted that a given notion may have a variety of magnitudes according to the purposes which its quantification will serve? In accounting something like this proposition has long been tolerated.

Following the last question, and in particular, is it accepted in any non-accounting field that a concept may be represented by different magnitudes, obtained by qualitatively different operations, according to the status of the persons using such magnitudes for appraisal or evaluation purposes (e.g. for management and for external interested parties)?

On point 3, I made some suggestion which may have some use in a letter to Professor Weinwurm dated December 10, 1957. I shall write to him immediately asking whether he now thinks they are relevant, and if so, whether he will bring them to the notice of the Committee.

Sincerely,
R. J. Chambers
Professor of Accounting.