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Promiscuous Problems and Vulgar Fractions: The Early-Nineteenth Century Schoolbook of Sarah DuBois (New Paltz, NY: The Huguenot Historical Society)

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Integrating accounting history into the classroom is one way to motivate students in financial accounting courses, to help them gain an appreciation of the evolution of accounting, and to challenge them to conceptualize and think constructively [Bloom and Collins, 1988; Coffman et al., 1993]. This paper presents examples of some familiar and some unfamiliar business and accounting concepts as they were taught in the early-nineteenth century to help accounting students and faculty members to gain further insight into how today's practices evolved.

In early American education, bookkeeping and arithmetic were closely connected [Sampson, 1960, p. 462]. While arithmetic books did not always cover accounting in its present-day sense, various mercantile topics were often included [Sheldahl, 1985, pg. 4, 9]. During this period the lack of a sound monetary system required that accounting accommodate not only a variety of monetary units, but also other items of value that served as a medium of exchange in barter [Previts and Merino 1998, p. 26].

Student workbooks from the early American period examined by the authors typically included the study of basic topics in arithmetic, including vulgar (common or non-decimal) fractions, as well as some basic business and accounting concepts. Such

concepts would include calculating simple interest and commissions, computing the total cost for a quantity of goods at a given unit price, and translating foreign and domestic currencies. The schoolbook of Sarah DuBois is of interest because it includes not only the business topics commonly seen in such schoolbooks, but also several more advanced business concepts.

Perhaps Sarah DuBois received more extensive instruction in business topics because she was the daughter of a mercantile family that had operated a general store in New Paltz, New York for several generations. Sarah was descended from Jean Hasbrouck, one of the original twelve French Huguenots who settled in New Paltz, New York. A whole street of stone houses built by its early settlers of New Paltz has been uniquely preserved to the present day. Jean Hasbrouck's stone house, completed around 1712, would become the site of a thriving general store and tavern that his son Jacob opened in one of its front rooms. Sarah DuBois was Jacob Hasbrouck's great-great-granddaughter. Sarah's mother, Elizabeth, who operated the store with her husband Josiah DuBois, was the last Hasbrouck generation to run this store.

The mercantile topics studied by

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Sarah DuBois are comparable to those covered in a 1788 text by Thomas Sarjeant, *The Elementary Principles of Arithmetic, with their application to the Trade and Commerce of the United State of America, In Eight Sections*. In addition to basic arithmetic topics, Sarjeant's text covered mercantile arithmetic topics such as exchange of money, weights and measures, simple and compound interest, determination of a time for joint payment of sums due at different dates (equation of payments), discount for early payment, gross gain or loss on an individual sale, and fellowship [Sheldahl, 1985, 9-10]. As the eighteenth century drew to a close, a number of texts also sought to address the nascent Federal monetary system [Sheldahl, 1985, p. 21-24]. The schoolbook of Sarah DuBois illustrates how the concepts contained in texts of the era would be transcribed by a student in the classroom. The schoolbook also shows how these concepts were applied in exercises, and helps to inform us about business instruction in the early part of the nineteenth century.

This schoolbook comprised one half of a cloth bound volume. The other half was completed by another student and included the date 1821. Sarah's side is undated, but it is likely that her work would have been completed within a few years of 1821, since she was born in 1806. The title page of the workbook bears the inscription: "The Elements of Arith'c, Commenced by Sarah DuBois, Gilbert Cuthbert Receptor." Receptor is apparently a variant of preceptor, or

teacher. This book is in the archives of the Huguenot Historical Society in New Paltz, New York.*

Among the topics that Sarah DuBois studied were simple interest, compound interest, discount, and equation of payments. Her transcription of each of these concepts appears (as Example I), accompanied by one of the many promiscuous (mixed; unordered) but numbered problems solved in the schoolbook to illustrate the concept. Sarah's schoolbook also included supporting calculations, which have been omitted here because of their length. We have endeavored to adhere to the spelling, capitalization, and punctuation of both words and numbers used in the original document. The document's use of the words vulgar and promiscuous, used in a context different than today, highlights shifts in our lexicon over time. In the compound interest problem, note that the final answer has been calculated in dollars, cents, and mills (one tenth of a cent), which is typical of the period.

Currency translation would have been an important topic during this era due to the multiplicity of currency units that had to be dealt with. Sarah's examples (as in Example II) illustrate foreign currency translation based upon the monetary units of England, Ireland, Portugal, France, Holland, and China, and domestic currency translation using Federal Money and the state currencies of Massachusetts, Rhode Island, New Hampshire, Vermont, New Jersey, Pennsylvania, South Carolina and

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* This book is included in Locust Lawn Collection No. 4 of the Huguenot Historical Society, New Paltz, New York. The authors appreciate the assistance of archivist Eric Roth and curator Leslie LeFevre-Stratton in completing their ongoing work with these collections.

Example I

Simple Interest

Simple Interest is that which arises from the principle only _ _ _

No. 12 What is the amount of a Mortgage of 1256 dollars which has continued 4 years at 6 per cent per annum.

Ans \$1557..44Cts

Compound Interest

Find the amount of the given by Simple Interest for the first year, which will be the principle for the second year then find the amount of that principal for the second year, and that will be the principal for the third year, and so on for any number of years. From the last amount subtract the given principal and the remainder will be the compound interest. _ _ _ _ _

No. 4 What is the compound interest of \$500 for 4 years at 6 per cent per annum.

Ans \$131.23.8 _ _ _ _ _

Discount

Discount is an allowance made for the payment of a sum of money before it becomes due according to a certain rate per cent agreed on between the parties concerned. The present worth of any sum or debt due some time hence is such a sum, as if put to interest for that time at a certain rate per cent would amount to the sum or debt

As the amount of 100 pounds or dollars at the rate and time given. Is to the whole debt. So is 100 pounds or dollars. To the present worth. Subtract the present worth from the whole debt and the remainder will be the discount

Find the amount of the present worth for the time and rate proposed, which must equal the given sum or debt _ _ _ _ _

No. 1 What is the present worth and what the discount of £500 payable in 10 months at 5 per cent per annum.

Ans. Present worth £480. Discount £20 _ _ _ _ _

Equation of Paym'ts

Equation is a method of reducing several stated times at which money is payable to one stated or equated time.

No. 1 A owes B 380 dollars to be paid as follows. \$100 in 6 months \$120 in 7 months and \$160 in 10 months. What is the equated time for the whole debt.

Ans. 8 months

Example II

Exchange

Exchange is a rule by which the money of one state or country is reduced to that of another. -----

Par is equality in value but the course of exchange is frequently above or blowpar. -----

Agio is a term used to signify the difference in some countries between bank and current money. -----

Note. A Spanish dollar is valued at \$4.6D sterling and at \$8 New York currency \$4.6D sterling is therefore equal to \$8 New York currency and £100 of the former is equal to 177 7/9 of the latter. When exchange between England and New York is at this rate it is said to be at par.

No. 13 A Merchant in Virginia consigns to his agent in New York a quantity of tobacco which when sold and all charges deducted amount to £625.6 what is the value thereof in Virginia currency also in Federal Money

Ans: £468.19.6D Virginia Currency
\$1563.25 Cts Federal Money

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Virginia. Whereas state currencies were denominated in terms of pounds (£), shillings (S), and pence (D), Federal money was denominated in dollars. The fact that currency rates fluctuated during this era is apparent from Sarah's definition of "exchange," which could occur at other than par value. The term "agio" is no longer commonly used, but connotes a premium on money in exchange, or an allowance for the difference in the value of two currencies. In solving the exchange example below, Sarah used the par exchange rates per Federal dollar of 96 pence New York currency and 72 pence Virginia currency.

Sarah DuBois also studied accounting for fellowships (partnerships), learning how to allocate a gain between partners in relationship to their investments, both without regard to time (plain fellowship) as well as in proportion to

each investor's capital weighted by the length of time during which the capital was committed (compound fellowship). Sarah apparently made an error in transcribing her answer for the plain fellowship exercise (shown as Example III). As her supporting calculations correctly showed, C should have received \$200, rather than \$600. In the answer to the compound fellowship exercise, we see the answer taken to fractions of mills to avoid a rounding error.

The examples (as Example IV) in the book indicate that the commodities commonly traded during the era included rice, sugar, wheat, tallow, tobacco, snuff, muslin, and chalk. The barter economy that predominated during the pre-colonial and colonial period continued to operate in the young American nation, while cash transactions also occurred. Sarah was

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Example III

Plain Fellowship

Single Fellowship Is when the several stocks in company are considered without regard to time -----

No. 1 Three merchants trading together gained \$800 \$800 A's stock was \$1200, B's \$4800 and C's 2000 what was each man's share of the gain

Ans. A's \$120 B's 480 C \$600

Compound Fellowship

Is when the respective stocks in company are considered with time -----

Multiply each man's stock by its time and add the several products together, then as the sum of the products. Then is to each particular product. So is the whole gain or loss to its share of the gain or loss -----

No. 2 Three merchants traded together with a capital of \$2300 of which A put in \$620 for 8 months B \$950 for 11 months and C \$730 for 13 months and they gained \$1800 what was each man's share

		\$	C	M
Ans.	A's share	358..55..4	54	/249
	B's	755..42..1	171	/ 249
	C's	686..02..4	24	/249

Example IV

Rule of Barter

Barter is the exchanging of one commodity for another according to the price of value agreed upon by the parties concerned -----

No. 4 How much at \$1.25 Cts a bushel must be given in barter for 50 bushels of rye at 70 Cts a bushel.

Ans 28 bushels

Loss & Gain

Loss and gain is a rule that discovers what is gained or lost in buying or selling of goods and teaches to rise or fall the price so as to gain or lose so much per cent or otherwise

No. 1 A storekeeper sold 100 yards of silk at \$1..50 Cts per yard which cost him \$1..25 Cts per yard how much did he gain by the sale.

Ans \$25.00 Whole gain.

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introduced to rules for determining the amounts to be bartered and for computing gains and losses on transactions.

The above explanations and examples from the schoolbook of Sarah DuBois's illustrate the concepts studied by the daughter of a mercantile family in the early part of the Nineteenth Century, and help inform us about business instruction during that era.

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The Academy of Accounting Historians Awards (continued)

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ELIGIBILITY AND GUIDELINES FOR SUBMISSIONS

To be eligible, the innovation must have been used in a course that the applicant has taught or is currently teaching. Individuals nominating themselves or those nominating individuals for this award should submit five copies of

- A description of the innovative technique/method;
- Submission of the case, video, audio, or other innovation, as appropriate, and teaching notes;
- Identification of the course in which the innovation is used and a description of how it is implemented; and
- An explanation of how the innovation has enriched the accounting course being taught.

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