The Past in the Present, Part II:
Methodological reflections on computer assisted teaching in history

I think learning to listen to sources from the past is the most important skill a history student can acquire. This skill enables students to think historically and it can be an essential guide when constructing an historical discourse of proof. Admittedly, to argue that historical sources have distinct ontologies and that their epistemological autonomy needs to be respected is unfashionable, for it means Derrida is wrong. Not only is there an *hors-texte*, but what a source has to tell us cannot be understood outside of this historical specificity. In history, we do not read a source as if it were a book; rather, if the metaphor is an appropriate one then it is in the sense that Marc Bloch used it: we read the tracks left by the past in the present. Our task in the classroom, therefore, is to develop our students' historical sensibilities so that they can understand what these tracks from the past have to tell us in the present. At last year's CHA, in my paper on the epistemological challenges raised by computer assisted teaching, I stressed this importance of listening to sources. The reaction was revealing: I was asked if I often heard voices. At the risk of confirming this questioning of my sanity, today, I would like to explore the relevance of history as a creative dialogue with the past in the present for our teaching of quantitative methods.

To structure this exploration, I draw upon my experience in developing a series of computer programmes for use in undergraduate teaching. Indeed, to showcase this series, rather than to discuss the teaching of quantitative methods, was to be the purpose of this session; but, as so often seems the case when Ottawa is involved, somewhere between St John's and Victoria the lines of communication became tangled. Be that as it may, let me briefly outline how the series was conceived and of what it consists.

The basic idea is that by working with a variety of sources, which all relate to the same time and place, students can learn why it is important to listen to what each source has to say. The time and place chosen was Montréal in the 1820s, a community small enough to be explored in a single term and yet sufficiently diverse to allow a variety of historical problems to be addressed. My principal assumptions in developing the series were simple enough: each source has significantly different things to tell us about the society which produced it and a society as complex as Montréal in the 1820s has no single coherent narrative history. So these distinct sources offer a wide variety of often contradictory stories, which are each in their own way historically accurate. By entering into conversations with distinct sources, students can learn to explore critically the complex and contradictory nature of this past. Such creative dialogues with the past in the present should, I think, be at the heart of an undergraduate's apprenticeship in quantitative historical method.

The series is open-ended. Presently in use in the classroom are six sources: the 1819 Doige city directory; the 1825 manuscript census; a reconstructed 1825 tax roll; three sets of apprenticeship contracts, 1820-29; monetary protests lodged by the Bank of Montreal, 1820-28; and firewood supply contracts notarised in the city, 1820-29. In addition, the highly detailed

Adams map of 1825, several non-conformist congregations' collections of baptismal, marriage and funeral records, complementary material to the 1825 census, the 1831 census, the monetary protests of the Bank of Canada and lists of eligible voters in three wards are presently in various stages of development.

Save for the map, each source in the series is a stand-alone executable database with its own query and print functions that I created using Visual dBase. A compressed runtime version of each source fits on a single diskette, so if they want students can load them on to their Windows-based machines at home without any purchase of relational database software being necessary. Perhaps more importantly, they do not have to learn how to use a sophisticated software package. I kept the design simple. Students without any prior computer experience were able to use the series without any serious difficulties. Each database appears on the screen as a tabbed notebook, on whose first page is the source. Students can view the entire source using standard navigational tools. The presentation of the source was designed to be as evocative of the original as possible, so all default values correspond to those of the original. Various indexes and filters to query the source are available. By design, however, the student must invoke these each time, because I want to foster awareness on the part of the students of how each step in the research, by modifying the computerised version of the source, further distances them from the original source.

The number of additional tabbed pages in a notebook depends on the source. The reconstructed tax-roll, for example, includes: a page which explains how and why the source was initially created; a page which discusses the significant analytical problem of what types of property were subject to taxation; a page for calculating totals by criteria selected by the student or subtotals by person; and a page on database construction, where the emphasis is on how the form and content of the original source were transformed by computerisation. Throughout the series, I deliberately restricted the types of data manipulation available to the students. Essentially only simple calculations consistent with the logic of the source are permitted. Students can query on a particular field, or a complex combination of fields, but they cannot eliminate parts of a record, nor can they create new fields. All numeric fields are recalculated each time a new query is posed and all these totals appear on any print-outs, along with their selection criteria. In short, students cannot easily isolate out one small part and ignore the rest. Overall, the aim of these additional pages is to help the student grasp the significance of the source as a whole, while highlighting the limitations and changes wrought by computerisation.

By design, students cannot mix and match data. They cannot from within the series combine material from two or more sources to create a new composite image, because to do so would impede precisely the type of discrete dialogue with each source that the series is designed to encourage. The exception is the map. The map was drawn in Micrografix Designer with each building treated as a distinct object, in the sense of object oriented programming. So the properties of each building can be defined by linking them to one or more databases. When fully functional, this map will be the student's primary way of integrating the differing sources. Students will link temporal series spatially.

This choice to privilege a particularly detailed map as the primary integrative tool further limits the options available to students. The decision not to develop a nominal linkage system was deliberate. Whatever the merits of sophisticated weighting systems for nominal linkage may be, and frankly I think they are extremely limited, undergraduate students have much to learn by being required to justify on a case by case basis the nominal linkage of people they identify in different sources. Indeed, my fourth-year level students found the required manual nominal linkage exercises to be among the most difficult and yet revealing parts of the course.

Beyond this object lesson in methodological scepticism, my choice to use a map was based on two reasons. First, I want the students to realise that space is in time and time is in space, for although this dynamic relationship is essential to history, it is not something most undergraduates have thought about, because in most history courses spatial considerations are at best background material. Linking differing sources to a particular map has its obvious limitations, but it does recognise the importance of space and places it in time. Concretely, the students have to evaluate the effect of a source's temporal distance from when the map was drawn in proposing any linkages. My second reason is that Montréal of the 1820s was a late pre-industrial town experiencing very significant migration. In this society, access to real property was a fundamental defining characteristic of both social and gender relations and was intimately linked to both ethnicity and life-cycle patterns. So the linkages the students make are not abstract, they have intrinsic historical significance. Furthermore, the historical significance of people, families and firms in a particular source does not depend on them being successfully linked to another source. Indeed, by respecting the integrity of each source, they retain an analytical importance which would be denied them were we to privilege nominal linkages.

When have I used the series? The series is being developed for a third year level course on the problems of the transition. While still under construction, I use it in my fourth year level seminar on the industrial revolution in 19th century Canada. The modular nature of the series' construction does allow for parts of it to be used in courses with quite different historical contents. It is important to note, however, that for two quite different reasons the series was not conceived as a tool for a course in quantitative methods. First, my longer-term aim is to find ways to have computer assisted analysis of historical sources integrated into our regular course offerings, rather than have it the subject of a special, necessarily limited, higher level course. Second and perhaps more controversially, I think the quantitative methods appropriate to history are not those of the social sciences.

Where have I used the series? The series is loaded on to a network of micro-computers in the engineering building of Memorial. A location which says all I need to about how the senior administration of Memorial thinks of computing in the humanities. I meet my seminar there once a week for a computer lab. A number of students opt to load the series onto their personal computers and so I maintain an e-mail discussion group for the course. This listserv allows all the students to discuss informally both the specific exercises and readings, but it has proved particularly useful in rapidly identifying bugs and for suggestions on how to improve the programmes. However, the first and perhaps pedagogically most important place I use the series

is in the classroom itself. So before I present the thinking behind my computer-based exercises let me mention briefly what I do in the classroom.

Essentially there are two ways the students are introduced to the specific sources in the series and both take place in the classroom rather than in the computer lab. The first involves a detailed discussion of the original source using photocopies and microfilms. We start with the question why the source exists? After all the routine of daily life normally goes unrecorded, so the simple fact that 170 years ago people in Montréal chose to write down certain information makes it exceptional. Frequently this exploration of the reasons why a source was created raises questions about the nature and exercise of power in the society, because censuses and tax-rolls are the product of particular institutional arrangements and structures. Here the students are introduced to historical questions which they can ask of the source later in the lab. We then move on to the more complex questions of why has the source been preserved? And how has the source been modified over time? If the former is primarily an historical question, the latter is essentially historiographical because it deals with how we perceive the past.

This historiographical discussion raises both practical and theoretical issues. The most obvious practical problem is that several of the sources were created as series by historians in the present. The three sets of notarised apprenticeship contracts, for example, are my own construction: they consist of all deeds of apprenticeship in the baking and iron working trades, as well as all apprenticeships signed before Pierre Ritchot, a notary who was particularly active in the popular class ward of St Joseph. Here my own assumptions about the relative importance and nature of particular trades and neighbourhoods need to be discussed. But even if the series includes all of a particular type of deed, as is the case in the firewood supply contracts, or all of a particular client, such as in the Bank of Montreal's monetary protests, the question of the active role of the historian would still need to be addressed. This dialectic, between how we see the past and what of the past there is to see in the present, was central to last year's paper on epistemology and I won't repeat myself here. Suffice it to say, that the way changes in the form of a source transforms our perception of its contents is a recurring theme in our discussions.

The second order of classroom discussions is historiographical in the more generally understood sense of the term. The socio-economic changes which permitted an industrial revolution in Montréal have been a major concern ever since the pioneering work of the late Stanley Ryerson more than 30 years ago. Indeed, there is a substantial body of literature which uses the specific sources I included in the series. More broadly speaking, from the work of Ian McKay on Halifax to Robert MacDonald on Vancouver, our understanding of 19th century Canada is now primarily based upon sources analogous to those which make up the series. Of course most higher level undergraduate courses have a strong historiographical component, but since my students are going to be working with the same or similar sources, here methodological discussions do tend to occupy pride of place. Nor are these necessarily dry, abstract exchanges about how one should construct a discourse of proof. Joanne Burgess' flat-files, Michael Katz's nominal linkage and Bettina Bradbury's random sampling have all been the subject of quite heated debates animated by a shared concern: how did they get there from here? Frankly, I

suspect this enhanced critical awareness of method is what will stay with the students long after the specific course content has been forgotten.

Work in the computer lab builds on these classroom discussions, however, the focus shifts from what we know about a source, to what the source can tell us. Initially students explore the historical logic of each source through questions. Why would someone want to have an entry in a city directory? Why is the census based on households rather than families? Why are the age classifications for males and females in the census different? Are the differing wards of the town important in the tax-roll? Such deceptively simple questions help students to see how the form and content of each source bears witness to the society which created it. By listening attentively to a source they learn to identify and to respect this historical logic. I think this is extremely important conceptually for an undergraduate's apprenticeship in history, because it means recognising that what a source can tell us about the past is historically constituted. Both the richness and the limitations of a source are inherent; neither is the product of the historian's method. Seen in this light, our task is not to make a source say what we want to hear, but rather to enable us to hear more clearly what it has to say.

To learn what these concepts mean in practice, students do a series of source-based exercises in the lab. We start with three primarily descriptive sources: the directory; the census; and the tax-roll. The exercises focus on the historical specificity of each source and the students learn some of the important things these sources have to tell us about the past: Where people of differing occupations lived? What was the size and demographic composition of households? Who was a prominent landlord? More importantly, however, they learn that these "routinely generated" sources have very little to say to us about why change took place. As the students become more confident in working with the series, they progress to sources which are more eloquent in this regard. Sources created by people doing things, sources which bear witness to the dialectic of agency and constraint over time. The deeds of apprenticeship, for example, permit a comparative textual analysis of the evolution in contractual rights and responsibilities of masters, apprentices and their parents or guardians, while the monetary protests permit a partial reconstitution of credit networks centred on the Bank of Montreal during an entire trade cycle. The pedagogical process, however, remains essentially the same.

By establishing why a source exists, students are better able to define its historical logic. This is important for two reasons. First, it places into context evidence which is frequently conflicting and contradictory and so provides an historical basis for any linkage of sources. Second, it enables them to identify when evidence internal to a source explains change and when is it primarily descriptive. If our students are to learn to think historically, they must be able to explicitly justify these analytical distinctions because they determine when and how a particular source may be used to explain change over time.

In conclusion, as I hope I have made clear, I have built into the series numerous limitations and restrictions. I have treated the computer, in the words of Bob Morris, as if it were simply a very fast shoe-box. In so doing, I have denied my undergraduate students access to almost all of the wide range of quantitative methods and statistical techniques which the very considerable

computing power now available places at our disposal. Iconoclast that I am, I think this is perhaps the most positive feature of the series. For I know of no more wide-spread problem in quantitative method than the combination of sophisticated statistical techniques with a-historical thinking which reduces complex historical sources to so many inert, partial, biased data sets. Whatever the intrinsic merits of these techniques maybe, which is a separate debate, surely their utility as tools for historical analysis by students ultimately depends on mastering the skill, art and mystery of the historian's craft.

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