

THE MILLER SYSTEM - A Catalog/Access System for Taped Materials Developed at Boston University's Geddes Language Center

Article by Gail King, Boston University

A language laboratory must include a tape library of some sort, I think; and tape libraries often present the problem of access to material, of finding that particular "chunk" of tape that is of timely interest. This problem is primarily one of filing tapes and information about them. Correlating the file to some tape identification code, which may be the old crutch of "alphabetical order" or the Dewey decimal system, is a common operation problem for language laboratory staffs.

The Miller System, developed at Boston University's Geddes Language Center, is a practicable solution which on the surface (that is, to our customers—faculty and students) is quite simple. It involves a distributable catalog of our source materials which lists our holdings by author and title of work within each language division. See Appendix A for sample catalog page.

THE PROBLEM

The Center's upper-level tape collection (recordings of music and literature, prose and poetry readings, drama, scholarly lectures) included approximately 250 tapes in 6 languages when we began trying to solve the problem in 1971. We discovered, in the process of our work in cataloging, that we hardly knew the details of ten percent of our holdings; and, more seriously, we were unaware of how little we knew. The tapes included material donated by various faculty for one-time use in a single class, tapes which were incorporated into the library by people who had since left the university taking with them what information was ever collected and stored in their minds; as well as lectures (whose only clues were the names of the speakers and the dates on which they spoke), anthologies, collections, and excerpts. Even in cases where contents were listed on the backs of tape boxes, information like the titles of the two poems by each of twenty authors on ANTHOLOGY OF FRENCH POETRY represents more information than can certainly be remembered in any useful form. "Is Prevert's "Familiale" on that anthology tape or on the Prevert tape, or perhaps on Miller: READING FROM MODERN FRENCH LITERATURE?"

Shelving tapes in any meaningful order is an added complication: shelving alphabetically is ineffective because often tape names are meaningless as is the one above. Reshelving to make room for new acquisitions is frequently required. The amount of material we were dealing with necessitated systematic shelving with cross reference to some usable form of content information.

THE BASIC PREMISES

There are two basic premises which the director of the Center,

Shelby Miller, set as guidelines for the work: first, that the catalog should be produced in such a form that it could be distributed to individual faculty and to convenient locations for student use; and, second, that the catalog should be made up, not of tape names which are often enigmatic, but rather of titles of individual works by specific authors. The reasoning behind the first premise is that the information on tape holdings is most useful to instructors in the planning stages of their courses, and that the most convenient method of access to that information is for each person to have his own list to work with. The second premise is based on our belief that instructors tend to think in terms of specific authors and titles within their fields and that general tape names such as FRENCH POETRY FROM RONSARD TO PREVERT might not suggest that we do indeed have a recording of Baudelaire's "Correspondances". Our ideal was that an instructor working in his office could pull his copy of our tape holdings out of his reference library to find out whether we have a recording of a specific work being studied that he might play in class the next day.

THE BEGINNING

The first step of our work was to assign a code number to each upper-level tape in our Master Library. We chose to use a modification of the University of Wisconsin Tape Index Correlation Code (TICC) as a basis for our coding (see Appendix B). This step represents a key to the success of subsequent work because it resulted in an essential phase of our cataloging, specifically, a retrievable one-to-one single tape-single code number correlation. It immediately solved the shelving problem, as well, since we could simply shelve our master tapes in TICC order.

The next step was to index the content of each tape. This step represents the major portion of the entire project since it involved listing tape contents by author and individual title. In most cases, a staff member was assigned to listen to the entire tape, writing down the information or checking already existing sketchy details. As the information was generated, we created files for each TICC number (hence each specific tape has its own corresponding file) where all technical as well as content information, including script, criticism, etc. is kept. These files represent another key to the success of subsequent work. They provide a simple usable storage place for all information we have been able to collect on a specific tape. As content information was collected, we were able to store it in the files until we could abstract it to catalog form. The final form of content information is an exact list of the contents by counter number. The counters on all of our equipment are standard, therefore we can index tapes by setting the counter to zero at the beginning of the tape and noting the number at the beginning of each selection or division. The counter numbers tell exactly where on the tape any selection can be found.

PRELIMINARY PUBLICATION

Once we had generated enough content information for a preliminary catalog, we approached the problem of putting that information in distributable form. First, we integrated our content lists alphabetically, by author and title within language. Each specific title was accompanied by the TICC number of the tape on which the recording could be found, serving the same function as any library call number. We maintained the language separation because we wanted to be able to send each faculty member a list of our holdings in his language. Thus, the forty poems, two each by twenty different authors, mentioned above as ANTHOLOGY OF FRENCH POETRY appear in the French catalog, not all together under "Anthology" or "Poetry" but separately under each author's name as it appears in alphabetical order with a reference number (the TICC number) for the tape ANTHOLOGY OF FRENCH POETRY (FR 6.074.001) beside it. Further, we were able to indicate the fact that we have several different recordings of the same work by listing the TICC number of each recording after the title.

THE CATCH

When we had finally typed one rough draft, we already had half again as much new material to be added; and we were brought face to face with the problem of manageable updating. We were not satisfied with either the idea of producing supplementary lists or reverting to a card catalog, both of which seemed unwieldy and contrary to our two basic premises. The problem of updating seemed insurmountable. We could see no way of publishing the material in distributable form that did not involve typing an original (whether ditto master, duplicator master, or clean copy for multilith) and then having to retype the entire thing in four months when the list of new materials had grown to the point where it warranted inclusion. The idea of repeating all that typing three times a year was overwhelming.

THE SOLUTION

A workable solution was offered to us by a graduate student in mathematics whose interests included exploring uses of computers in the humanities. He suggested the possibility of computer tape storage and computer print-out of the information for our catalog. Subsequently he wrote and donated to the Center programs necessary to store and printout the catalog, but more importantly to update it and amend it as well.

We transferred our initial lists to the "memory" of computer tape. That is, once we had typed in the information for storage on the computer tape, it was permanently stored, eliminating the need to retype it for each updated edition of the catalog. To update the lists, we simply ask the computer (in its own terms, of course) to add a new line or lines after an existing line, change an existing line to read differently, or

delete a line. The computer incorporates the changes requested into the original information and creates a new and updated "memory". Thus, for each update, we have only to type the new or ammended information.

When we have updated our tape "memory" satisfactorily (we always keep the final updated list for reference), we ask the computer to print our catalog in sufficient numbers of copies of each language section, as well as the entire catalog. We have only then to decollate and bind the copies for distribution.

For those who may be interested, here are a few statistics. Our first full catalog was 80 pages long, comprising approximately 3000 individual titles by 500 authors. Our first update involved nearly 1200 updates, correcting initial errors and adding new material. We initially distributed the following numbers of individual language catalogs to our faculty:

45 - French	6 - English	
23 - Spanish	6 - Italian	25 - full (all languages).
6 - Russian	9 - German	

Our holdings have grown substantially in the last five years. Our upper-level holdings now consist of approximately 950 tapes in 12 languages. We have expanded the catalog, which initially included only literature and music tapes, to list lower-level (formal language study) tapes as well. The current catalog (1977) is 267 pages long listing holdings in 20 languages. (See Appendix C for Table of Contents.)

AN IMPORTANT RELATIONSHIP

I would like to stress the importance of the interrelation of three aspects of this whole cataloging/access system, which are, in Geddes Language Center terms:

- MASTER TICC LOG — the record of what TICC number has been assigned to which tape;
- MASTER TICC FILE — individual file folders for each TICC number/ tape in which written information we have accumulated on a specific tape is kept (script, counter numbers of contents, technical information, critical comments, etc.);
- CATALOG — the content information abstracted into author/title lists based on the identification of tape by TICC number, organized alphabetically within language.

They interrelate in several ways. For example, an instructor may find that we have two recordings of a poem he wants to play in class. The files provide more detailed information to help him chocse between the two, e.g. what other selections can be found on the same tape, what kind of voice the reader has, whether the recording is in good shape technically.

If he is interested, on the other hand, in anthologies, we can quickly scan the Master TICC Log lists for French Literature to spot the generalized tape names like GOLDEN TREASURY OF APOLLINAIRE, COCTEAU, AND ELUARD, then check the file for specific titles on the tape.

The same three aspects may exist in different forms, superficially, in different operations. A tape librarian can file content information in or on the tape box, in a notebook, or incorporated into the catalog itself, as often happens with card catalogs. The actual functions might be combined, but their specific applications remain separate and distinct.

SOME PERSPECTIVES

Because of the volume of our holdings and the windfall of the initial donation of computer programming help, we welcomed the opportunity to update and produce our catalog by computer. I recognize, however, that computerizing the holdings of a small operation might be quite impractical. There are alternatives. If holdings are indeed small enough, one can abstract the content information to author and title lists and type them on ditto masters. Many university computing facilities included an IBM RAX-like time-sharing system which offers library file storage and edit capabilities. For language laboratory staff to whom formal programming assistance is not easily available, computer terminals and time-sharing accounts sometimes are. The IBM Mag Card Selectric, which is a simple form of computerized typewriter, can also be used to make changes without retyping an entire page. Edit capabilities of either time-sharing systems or the Mag Card Selection can be used to update information files which can then be typed out in final form by machine. David Hanson at Brandeis University has produced a catalog of his personal Russian tape collection using the edit and storage functions of a time-sharing system.

While the TICC system is the best choice among coding systems for the Geddes Language Center, and alpha/numeric code system in which a unique code number represents a unique tape could be used in the procedure described above. This catalog/access system can also incorporate other forms of media holdings (video tapes, film strips, loops) in the same way. The system might be very useful as an information pool in multi-school complexes, e.g. high school districts or university cooperatives.

The Miller System has proved to be a very useful and conveniently uncomplicated tool for both faculty and student users as well as for our own staff. The estimate made earlier that we found we knew, in any useful form, less than 10% of what we had was not a dramatic overstatement. Now, complete information on any tape or selection from a tape is almost immediately available to users. Our staff use the catalog to answer questions about our holdings from the day they begin working in the Center. Faculty, at their convenience, use their sections to plan uses for our collections. One true mark of how successful it has become is

that faculty and students take it completely for granted and are surprised that equivalent information is not always available everywhere. The Miller System as a whole allows us immediate access to a maximum of information with a minimum of complication.

AFTERWORD

The Geddes Language Center's holdings catalog is produced by two separate computer programs. The first updates the information for the catalog and the second prints out that information in appropriate formats. In general, the UPDATE program merges two files of data, the latest full catalog file as stored on tape and new entries or amendments on punched cards. The merged file stored on a new tape constitutes the new latest full catalog file. THE CATALOG PRINTER program processes the latest full catalog file and prints out both full catalogs and sections in required numbers and formats.

Although these programs are tailored to the Geddes Language Center's specific needs, source listings and procedures are available simply for copying costs. They are written in PL/I and include:

GEDDES LANGUAGE CENTER CATALOG PRINTING PROGRAM, for printing full and individual language catalogs from tape storage;

GEDDES LANGUAGE CENTER LIBRARY CONTROL LIST PROGRAM, for printing a control list of the contents of a full catalog file tape;

GEDDES LANGUAGE CENTER CATALOG UPDATE PROGRAM, for updating from one tape to another and printing a control list from the newer tape.

These programs were written by Scott Magoon and Shelby Miller. A **MANUAL OF CATALOG PROCEDURES** is also available. Contact Director, Geddes Language Center, College of Liberal Arts, Boston University, Boston, MA 02215.

Appendix A

JAMES GEDDES JR. LANGUAGE CENTER	
07/12/77	BOSTON UNIVERSITY PAGE 87
CATALOG OF SOURCE MATERIALS	
FRENCH LITERATURE	

ROBICHEZ, JACQUES	
QUELQUES REMARQUES SUR L'EXPERIENCE POETIQUE	FR 6.067.
(LECTURE AT HARVARD, 10/70)	
ROBICHEZ PRESENTS AN EXCELLENT LECTURE IN AN ATTEMPT TO ELUCIDATE THE SIGNIFICANCE OF THE 'INTIME' POETIC EXPERIENCE. AS HE READS SEVERAL POEMS OF THE GREAT AUTHORS, HE APPROACHES SEVERAL DEFINITIONS OF POETRY AND THE POETIC EXPERIENCE FROM THREE POINTS OF VIEW: THE CONCEPTION OF VARIOUS SCHOOLS OF POETRY, THE POETIC EXPERIENCE AS A "LECTURE DU MONDE", AND A "LECTURE DU POEME". (R BROWNE 74)	
ROGER, JACQUES (EDITOR)	
LE MECONTENTEMENT EN FRANCE A LA FIN DU REGNE DE LOUIS XIV	FR 6.050.001
VALUABLE COMPILATION OF CONTEMPORARY 18TH C. CRITICISM OF THE MONARCH DRAWN FROM THE WRITINGS OF STATESMEN, THINKERS, CLERGY, NOBILITY, AND FROM PAMPHLETS WRITTEN AT THE TIME. EMPHASIS ON: RELIGIOUS PERSECUTION, FAMINES (WINTER 1790), AND FRANCE AS WAR MACHINE. (J KING 71)	
ROMAINS, JULES	
KNOCK (COMPLETE, READ BY THE AUTHCR)	FR 6.070.001
(EXTRACT - JOUVET COMPANY)	FR 6.109.002
RONSARD, PIERRE DE (1524-1565)	
(SEE ALSO HISTORY OF ARTS AND LETTERS)	
A HELENE	FR 6.123.001
A SA MAITRESSE, ODE	FR 6.005.001
	FR 6.060.001
AMOURS DE MARIE. PREMIERE PARTIE, SONNET; DEUXIEME PARTIE, SONNET IV	FR 6.005.001
COMME ON VOIT SUR LA BRANCHE...	FR 6.107.001
DERNIERS VERS	FR 6.005.001
ELEGIE XXIV (FRAGMENTS)	FR 6.005.001
SECRET DE GASTIN	FR 6.060.001
HYMNE DE LA MORT (FRAGMENTS)	FR 6.005.001
IL FAUT LAISSER MAISONS...	FR 6.123.001
JE PLANTE EN TA FAVEUR...	FR 6.123.001
JE VOUS ENVOIE...	FR 6.123.001
ODE A CASSANDRE	FR 6.083.001
	FR 6.123.001
	FR 6.107.001
(RECITED BY A FRENCH CHILD)	FR 6.079.003
	FR 6.114.001
QUAND VOUS SEREZ BIEN VIEILLE...	FR 6.107.001
SONNETS POUR HELENE - LIVRE II, SONNET LXIII	FR 6.005.001

Appendix B The TICC System

The catalog/access method used at the Geddes Language Center is based on a modification of the Tape Index Correlation Code (TICC) system, a level / chronological logging system developed by the University of Wisconsin Language Laboratories. The basic reference number is a term such as

FR 6.084.002.

The number refers to a unique, single tape. Elements of the term indicate different information, and anyone familiar with the basic elements of a TICC number will be able to discern quite specific information about the tape it represents.

FR	language indicator	the two letters at the beginning of each TICC number indicate the language of the tape (in this case—French);
(FR) 6	level indicator	the number immediately following the language indicator refers to the level of the material (here—literature);
.084	acquisition number	the middle cluster of digits defines the general name of the tape as a function of the date acquired (in the example, .084 refers to the 84th acquisition of French literature materials, specifically Violla: CHOIX DE POESIES);
.002	number in series	the last cluster of digits indicates the particular tape in the series as used in the laboratory (here—the second tape in the set);
“.”		the “.” is used merely to make the unique number easier to read.

Therefore FR 6.084.002 is the unique number for the second tape in a set of French literature tapes which was the 84th acquisition in that category.

FR	6	.084	.002
language indicator - FRENCH	level indicator - Literature	acquisition - Violla: CHOIX DE POESIES	number of tape in series - tape 2 of 3

The full range of possibilities for the level and language indicators used by the Geddes Language Center are shown below.

* The Geddes Language Center Holdings Catalog initially listed only level 6 and 7 materials (upper-level).

Appendix C

page		page	
1	Preface	165	South Asian Literatures
4	Classics - Babylonian		- Hindi
	- Egyptian		- Sanskrit
	- Greek		- Tamil
	- Latin	171	Spanish - Literature
	- Language Study		- Music
10	English - Literature		- Language Study
	- Music	200	Language Study Holdings
	- Language Study	201	- Arabic
24	French - Literature	202	- Chinese
	- Music	203	- Classics
	- Language Study	204	- English
82	French Library of Boston	207	- French
	- Literature	213	- German
	- Music	215	- Greek, Modern
109	German - Literature	216	- Hebrew
	- Music	217	- Hindi/Urdu
	- Language Study	218	- Irish
	Greek, Classical	219	- Italian
	(see Classics)	220	- Japanese
130	Greek, Modern	221	- Persian
	- Literature	222	- Portuguese
	- Music	223	- Russian
	- Language Study	225	- Sanskrit
137	Hebrew - Literature	226	- Spanish
	- Music	229	- Swahili
	- Language Study	230	- Tamil
140	Italian - Literature	231	University Sound Archives
	- Music		- Modern Languages
	- Language Study		- Multiversity
	Latin (see Classics)		- University History
152	Russian - Literature		- WBUR
	- Music	235	Geddes Language Center
	- Language Study		Monograph Series