The Decades of My Life

by Judith Rowe[*]

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The development of data archives and of local data libraries and the growth of IASSIST and of associated organizations are a function of the growth of the quantitative social and behavioral sciences. This growth in turn was made possible by the concomitant development of computers and of statistics.

I have attempted to place these events in a larger social and political context. In order to do this I have taken advantage of the number of magazine and newspaper articles and the number of web pages which are currently reviewing the twentieth century.

I have thoroughly enjoyed looking back over this history, and I only regret that I have had to omit so many names and so many events. I make no apologies for the fact that my emphasis is American; my memories are largely American. Nor do I claim that the names and events I've included are the most significant. Others might present a very different history.

I begin in the 1930's because that's when I was born, the decade in which I started elementary school where I fought for the right of girls to wear slacks to school...the beginning of my career as an advocate.

The 1930's
The 1930's brought passenger airlines, LIFE magazine, Monopoly, Mickey Mouse and Snow White, the "Golden Age" of radio, drive-in movies and such classic films as "Gone With The Wind," the Empire State Building and the Golden Gate Bridge.

The Great Depression brought alphabet soup to Washington, with agencies such as the Social Security Administration, a ready market for data processing equipment. Japan invaded China, Edward VIII abdicated to marry Wallis Warfield Simpson. Hitler rose to power in Germany, and there were other brands of fascism elsewhere.

Scholars, primarily but not exclusively Jewish, fled to the U.S. The electron microscope was developed at the University of Toronto, and the Dionne quintuplets were born. The Literary Digest poll of 1936 predicted Landon over Roosevelt and, at the close of the decade the New York World's Fair, the first regularly scheduled TV, and war in Europe.

Unit record equipment based on Jacquard weaving cards had been developed more than 30 years before by Herman Hollerith to analyze the 1890 Census in the United States and was still in use. This equipment included numeric keypunches, sorters and later accounting machines, and the famous 101 widely used to tabulate polling results.

In 1936 the Englishman Turing defined "the Turing machine."

Vannevar Bush developed an analog computer, and the first truly electronic computer was built in Iowa in the late 30's; the ABC, as it was called, even used binary arithmetic.

The Lynds, Lloyd Warner and others were doing community studies in Middletown and Yankee City.

Morris Hanson began the development of large-scale sampling, but the Gallup Polls were begun by George Gallup using "quota samples."

Attitude measurement matured under the Allports, Lickert and Bogardus. Hadley Cantril did surveys throughout the world, and his multi-punched cards were recently located, converted to tapes and are now available at ICPSR.

Public Opinion Quarterly was started in 1937, and from 1940-51 POQ carried a special section on poll results.

New economic censuses and national surveys of unemployment and crop production were instituted, and the Brookings Institution was a going concern.

The 1940's

The 1940's saw the U.S. allied with Europe on both the Western and Asian fronts, Russia joining the western alliance, and women at work in factories and in offices and in such military units as the WACS and the WRENS. Many continued to work when the war ended in 1945 after atomic bombs had been dropped on two Japanese cities.

All over the world soldiers became students, the oldest cadre of students the world has ever known. The provision of veterans' benefits required enormous record-keeping efforts. Countries in Europe and Asia had seen their records of government destroyed, and the post-war period provided an opportunity to begin anew. Israel is established as a Jewish state, Mao proclaims the establishment of the People's Republic of China, and Newfoundland becomes Canada's tenth province.

The World Bank and the International Monetary Fund are founded, and a year later in 1945 the UN with its many agencies including UNESCO. W. Edwards Deming commutes to Japan to organize their census and to teach the principles of quality control.

Antibiotics, the Big Bands and the jitterbug, abstract expressionism, and Orson Welles' "Citizen Kane." Television features the World Series, the Amateur Hour and the longest running program in history "Meet the Press," and the unbreakable vinyl LP replaces the shellac record.

MARK I, programmed by paper tape, was followed in 1943 by ENIAC, developed by Eckert and Mauchley at the University of Pennsylvania. This was followed in turn by EDVAC, EDSAC, ILIAC, JOHNIAC, MADM and others, moving from digital to binary, using memory to store both programs and data and adding serial processing units. The transistor was invented in 1947, and magnetic core memory in 1949.

In 1946 the Roper Center was created at Williams College as a home for Gallup, Crossley and Roper Polls, some from as early as 1936. The Center was run for decades by Philip and Elizabeth Hastings.

Angus Campbell began work on attitude surveys and opinion polling, and the forerunners of The American National Election Surveys were completed in 1944 and 1948.

The American Association for Public Opinion Research (AAPOR) was formed in 1947, and in 1948, immediately after the election in which the pollsters chose Dewey over Truman, a committee chaired by Fred Stephan and S.S.Wilks was appointed to find out why.

Samuel Stouffer completed the monumental American Soldier study, data for which are now available from Roper, and in 1948 the Elmira Study. When Stouffer died, Harvard sent the cards for the American Soldier to Roper. It was not until the late 70's that the Department of Defense provided funding to read the cards to tape, develop codebooks, and send a copy to National Archives.

Guttman commenced his work on scaling theory, and Deutsch, Russett and Merritt on quantitative models of nationalism and integration. Stouffer, Lazersfeld and Anderson developed multivariate analytic techniques based on the work of Pearson, Yule and Fisher.

The Rand Corporation, the Urban Institute and NORC were all established in the 1940's, and at the end of the decade the Social Science Research Council supported a conference on political behavior. At the close of the decade the Social Science Research Council (SSRC) supported a Conference on Political Behavior chaired by Pendelton Herring.

I got married in the 1950's while a graduate student at Yale. I then spent several years learning about marketing research while my husband served in the U.S. Navy, and before the decade was over I was the mother of two sons.

The 1950's

The 1950's saw women back in the home, mid-calf skirts replacing mid-knee skirts, the beginning of the baby boom, men in gray flannel suits, large new housing developments on former potato fields, Russell Wright dishes, Danish modern furniture, and in the United States a million and a half TV's playing "I Love Lucy" and the Ed Sullivan Show.

Later in the decade Xerox manufactures a plain paper copier, the seeds of the civil rights and women's movements are planted, the Korean War continues into the Eisenhower years, and McCarthy runs riot through Hollywood, the universities and on TV. The polarization of East and West results in the "cold war."

Germany and Japan industrialize, and the centralizing of governments requires more data for every purpose. Egypt, India and Ireland become independent republics, Stalin dies, the Warsaw Pact is signed, the USSR launches Sputnik, and the Hungarian Revolution is suppressed by

Soviet troops in the same year in which I had my first child. Fidel Castro becomes ruler of Cuba, and Mexican women get the right to vote.

In 1951 UNIVAC 1, the first alphanumeric computer is produced, and Walter Cronkite uses UNIVAC 2 to predict the 1952 election. Unable to believe the computer report of such a complete Eisenhower sweep, he fails to report it.

In 1953 IBM announced their first real computer, the 701. This was folowed in turn by numerous descendents including the 704, designed by Gene Amdahl, and in 1958 the 709, whose competitors included the CDC 1604. Computers were also being built in England, in Germany and in Japan.

IBM sold 450 0f their first mass-produced computer, the 650, in 1954. This was very popular on college campuses for a number of years.

In the mid-fifties Bell Labs announced the first fully transistorized computer, MIT began work on direct keyboard input, today's normal mode of operation and SAGE (Semi-Automatic Ground Environment) linked hundreds of radar stations in the US and Canada in the first large-scale computer network.

The COBOL compiler was developed by Grace Hopper in 1952, and FORTRAN by Paul Nutt in 1957. These were followed in turn by ALGOL, LISP and APL.

Tape drives were developed, and tapes written at 200 bpi could store the contents of 70,000 cards.

York Lucci and Stein Rokkan wrote their seminal paper on the role of the traditional library in providing access to data.

The Human Resources Area Files developed at Yale to collect data from anthropologists, and the International Data Library opened its doors at Berkeley to collect Third World survey data.

The Institute of Social Research flourished at Michigan and the Bureau of Applied Social Research at Columbia. Survey research and sampling were here to stay...or so we thought.

Almond and Verba completed the Civic Culture; Dahl the New Haven Study and numerous Health Surveys; and the Wisconsin Longitudinal Study and the American National Election Survey began their long histories.

Campbell described "The Archival Resources of SRC" in POQ and later in the decade POQ ran a special issue on archives in which Converse described "A Network of Data Archives for the Social Sciences," and Philip Hastings described the growing holdings of the Roper Center: 3,200 surveys from 70 countries.

My child-bearing years ended in the sixties with the birth of my daughter and by the end of the decade I was employed part-time at Princeton's Office of Survey Research and Statistical Studies. I soon attended my first ICPR meeting and was designated Princeton's OR.

The 1960's

The 1960's were the years of the Beatles and the flower children, of birth control pills, zip codes and of John F. Kennedy and Camelot, of the continued expansion of the Vietnam War, of space, of the Chinese Cultural Revolution, of Martin Luther King, Lyndon Johnson's "Great Society" and the building of the Berlin Wall and of Pearson and Trudeau as Canadian Prime Ministers. In 1963 women are allowed to vote in Iran, Kennedy is shot in Dallas, TX, Canada adopts the Maple Leaf as its flag, and Indira Gandi becomes India's Prime Minister.

By the close of the decade there are 200 million TV's world-wide with 78 million in the U.S. The first successful human heart transplant is performed and American Airlines launched their SABER system for airline reservations.

Second-generation computers such as the IBM 7090 and the CDC 3600 opened the decade. In 1963 the PDP-8 was a runaway success, and IBM sold its CADET (Can't add doesn't even try) later designated the 1620.

The price-tag on computers was in the multi-millions with the giant STRETCH and its competitor the CRAY costing in the vicinity of $8 million although Data General's Nova with 32 kilobytes of memory had become available for $8,000.

By the middle of the decade the IBM 360 was produced, and the disk had replaced the drum. Time-sharing had arrived, and 800 bpi tapes were just beginning to replace 556 bpi.

John Kemeny wrote BASIC, and UNIX emerged from MIT's Project MAC and was further developed at Bell Labs.

This was the era of batch processing, of punched cards, and

of matrix printing on green-bar paper, but also the time in which ASCII was developed making it possible for machines from different manufacturers to exchange data.

All of the major statistical packages as well as many long gone saw the light of day. David Armour wrote DATA-TEXT at Harvard in assembly language for the 7094. Norman Nie produced SPSS at Stanford, and Roald Buhler wrote P-STAT for the psychometricians and experimental psychologists at ETS and Princeton. BIOMED was developed at UCLA. Ken Janda wrote NUCROS at Northwestern and Ed Myers wrote a time-sharing package, IMPRESS, at Dartmouth. SUPPAK was produced at Illinois, and the now ubiquitous SAS was developed by the agricultural statisticians in North Carolina. Nonetheless most social scientists were still using the card sorter and the Friden or Monroe calculators. Simple locally written software packages seldom went beyond cross-tabulations and chi-square.

ICPR was established by Warren Miller in 1962 as a consortium of eight institutions; the Zentralarchive was established in Cologne by Erwin Scheuch; and archives were established at Essex, Amsterdam and Bergen some years later.

Jerry Clubb arrived at ICPR in 1965 to begin the conversion to machine-readable form of quantitative historical data including census, election and roll-call data going back to 1790.

In that same year the Louis Harris Data Center the first state supported data archive was established.

Under the auspices of UNESCO, the International Social Science Council and the National Science Foundation (NSF) three conferences on data archives were held between 1963 and 1965. They addressed archiving aggregate national statistics, comparing nations, and the organization of data banks and archives.

The Council of Social Science Data Archives was funded by NSF in 1967, and archive directors and some senior staff from Michigan, UCLA, Columbia, Berkeley, Yale, Wisconsin and the Roper Center, joined their European counterparts in meetings at UCLA in 1967, at a workshop at UNC in 1968, and later that year in Pittsburgh (my first professional trip and my first flight on a jet plane) and finally in Wisconsin in 1968.

Local data services were in place at Princeton, Northwestern, at the Universities of British Columbia and North Carolina as well as at Wisconsin and Yale. At Princeton the library was already paying the ICPR membership.

It was the beginning of the Current Population Surveys, the Hospital Discharge Surveys, the Panel Study of Income Dynamics, the National Fertility Surveys (later to become the Surveys of Family Growth), National Longitudinal Studies of Labor Force Participation (then widely known as the "Parnes data"), national election surveys in Canada and western Europe, the World Handbook of Political and Social Indicators, and the heyday of cross-national research.

A 1/1000 and a 1/10,000 Public Use Sample from the U.S. 1960 decennial census was released to a few selected researchers on punched cards and later on tape. It contained both household and person records but no code to link one to the other.

IBM supported six regional conferences in the humanities which culminated in 1967 in a publication edited by Edward Bowles and Joe Raben began Computers in the Humanities (CHUM).

In the 1970's I became actively involved in the burgeoning data movement, traveled to Europe at least once each year for a meeting related to social science data and information, developed a census data service and Social Science User Services and the Princeton-Rutgers Census Data Project were ensconced at the computer center.

The 1970's

The 1970’s saw the first of the "baby boomers" reach maturity. Vietnam protestors attacking University computer centers and finally the end of the Vietnam War; Nixon, Watergate and the Pentagon Papers were followed by new Freedom of Information and Privacy legislation, by the first non-Italian Pope since 1522 and by the death of Elvis Presley. "Our Bodies Ourselves" was a best-seller. Environmental concern groups became more active, and crack cocaine made its first documented appearance. South Africa is expelled from the United Nations. In an era of prosperity, conservative governments were elected everywhere, including Margaret Thatcher in the United Kingdom, and right-wing religious groups were active in many countries.

Early in the decade Intel builds the microprocessor, the 8-inch floppy diskette was invented, and by 1978 the 5 1/4 inch floppy was on the market.

The Wang word processing machine was shortly followed by the release of the Atari, the Tandem, the APPLE I, and in 1977 the Radio Shack Tandey, the Commodore PET and the APPLE II, the last three of which were instant market successes. In the first month of sales 10,000 Tandeys were sold.

With the founding of Microsoft and Apple, Steve Jobs and Bill Gates were the heroes of the microcomputer industry.

dBASE, VISICALC and WORD STAR were the best selling software products.

On the other end of the spectrum the US Department of Defense established four nodes on the ARPANET, and by the end of the decade there was widespread use of online and timesharing systems. The 370 which supported many of these systems had 10 million operating instructions as compared to the 650's 5,000.

Online bibliographic services like Dialog, BRS and ORBIT came into their own.

The U.S. Census released off-the-shelf data products, both aggregate and sample data, and there was a growing involvement of traditional libraries in providing data services.

The American Library Association constituted a subcommittee to recommend rules for cataloging machine-readable data files, and AACR2 added Chapter 9 with those recommendations. By 1972 several academic libraries began to catalog census data in a form other than print.

ICPR added an 'S' to become a general purpose social science data archive. It started the decade distributing more than 28 million card images and ended it distributing over 438 million card images. By the end of the next decade that number had reached 4 billion.

Programs on data services were presented at ALA, SLA, APLIC, ASIS and WAPOR conferences, and ACM/ SIGSOC was an active force in the development of statistical computing.

NBER organized a conference in New York on data issues, and ICPSR cooperated with the Bentley Library on a conference on archival management of machine-readable records.

IASSIST was organized at a meeting in Toronto sponsored by the World Congress of Sociology and hosted by Mike Aiken. Carolyn Geda was the first president.

A rash of other new organizations included IFDO, APDU, QUANTUM, GODORT, the Social Science History Association, the European Political Science Consortium, the Canada Data Clearinghouse and the Association for Computing in the Humanities.

IASSIST met in London, Edinburgh, Cocoa Beach, Toronto, Itaska, Uppsala and Ottawa.

The first International Conference for Databases in the Humanities and Social Sciences (ICDBHSS) was held at Dartmouth in conjunction with ACH.

The Danish Data Archive (Dansk) was established in 1973, and the European archives sponsored meetings on the Study Description.

Introductory training for new data librarians became a mainstay of IASSIST conferences, a data library workshop was offered at Wisconsin, and a course on machine-readable data was offered by Sue Dodd at the UNC Library School. The first regular data library workshop was held at ICPSR, a program maintained to this day, and the U.S. Census began offering seminars for librarians.

Public use microdata samples from censuses were released on tape by the U.S., Canada and Papua New Guinea.

A growing number of federal agencies including the National Center for Health Statistics, the Bureau of Labor Statistics, the National Center for Education Statistics, and STATSCAN among others began releasing a wider range of non-census public data products.

1978 was a landmark year. NSF funded the National Conference on Cataloging and Information Services for Machine-Readable Data Files at Airlie House in Virginia. The recommendations of that conference led to the development of a MARC format for these materials. Patrick Bova of National Opinion Research Center provided catalog facsimile and a bibliographic citation on the verso of the title page of the codebook for the General Social Survey which had been initiated in 1972. This provided a model for ICPSR and others. In that same year the Office of Statistical Policy and Standards of OMB, now OIRA, established a federal task force to develop descriptive standards for computer files.

By the 1980's I was working full-time plus and served as president of IASSIST, APDU, and COPAFS as well as a

member of the ICPSR Council.

The 1980's

The 1980's saw Reagan replace Carter, increased inflation, mounting public debt, government deregulation, AIDS, the murder of John Lennon, the Contra scandal and a decline in the value of the dollar. An aura of the 1920's gave us "yuppies" instead of "flappers" and the return of both condoms and shoulder pads. In the USSR we saw Gorbachev, glasnos and perastroika. The Iran-Iraq war begins and Saddam Hussein becomes the President of Iraq. OPEC agrees to cut oil prices, cellular phones are introduced, and the Space Shuttle Challenger explodes in the air. Britain gives Canada the right to amend its constitution. Governments are overthrown in Asia and eastern Europe, and the Berlin Wall comes tumbling down.

Supercomputers and NSFNET changed the face of large-scale computing and MACS, PC's and clones of small-scale computing.

BITNET and then INTERNET provided electronic mail, listservers and remote logins to academic users throughout the world.

A new storage technology, the tape cartridge, appears on the market. It holds the equivalent of 8 million cards or four times that of a 6250 tape. Five megabyte hard drives became available for microcomputers.

IBM finally releases a microcomputer, and colleges and universities begin to take this technology seriously.

The CD/ROM provides online services with serious competition. Cuadra begins issuing a Directory of Databases at the beginning of the decade. By the end of the decade 400 databases have become 4465, and the new Directory of Portable Databases contains 409 CD/ROM products.

Osborne markets the first portable computer, a 24 pound wonder for $1,795 and Apollo markets the first UNIX workstation. At the middle of the decade Apple launches the Macintosh, the first mouse-driven computer with a graphic user interface and a 3 1/2" floppy, and IBM markets its PC-AT based on the 80286 Intel chip. The going price for each of these is about $4,000.

In 1983 TIME names the computer the "Man of the Year," and by the end of the decade UNIX workstations with high-resolution graphics are the mainstay of scientific and engineering computing and are already replacing large mainframes as servers for social science data.
Word processing, database management systems and spreadsheet programs are the most widely-used microcomputer products. Listserv software is developed, and for programmers C++ emerges as the dominant object-oriented language.

Relational, multi-platform database systems like ORACLE, INGRES and INFORMIX are developed.

Traditional statistical packages add data management capabilities and release new versions for UNIX-based machines and microcomputers.

Data services in traditional libraries begin to come into their own. The American Library Association publishes Sue Dodd's "Cataloging Machine Readable Data Files: An Interpretive Manual." A revised Chapter 9 renames MRDF computer files, the US Joint Committee on Printing explores providing computer materials as part of the depository library program, and the Research Library Group and the Association of Research Libraries begin to address these issues.

The University of Michigan Library sends catalog records for all of ICPSR's holdings to RLIN and regular updates follow. A special issue of Library Trends addresses data issues as do articles in every library publication.

Population Index becomes the first bibliographic journal to cite computer files, SOCIAL FORCES the first major social science journal to provide guidelines for citing MRDF in their author guidelines, and the Encyclopedia of Population carries an article on MRDF.

Australia, Sweden and Hungary establish data archives, and the first Data Librarians serve on the ICPSR Council.

IASSIST meets in Washington, Grenoble, Coronado Beach, Philadelphia, Ottawa, Amsterdam, Santa Monica, Vancouver, goes back to DC, and then to Jerusalem. Robbin, Gavrel and Rowe are succeeded by Brown as president.

More and larger census samples are released by the US, Canada, Norway, Australia and Israel. Sweden provides an online product using their basic record files.

New titles including SIPP and SIPP-like studies and the Luxemburg Income Studies appear. Additional countries participate in the International Social Survey Program, and the USSR participates in cooperative survey efforts.

ICPSR celebrates its 25th anniversary, and the Blalock report recommends the major restructuring within ISR which has finally taken place.

In this current decade a newly rechristened data service at Princeton has a second brush with death, but thanks to an outcry of both internal and external support finally moves from CIT to Firestone Library's Social Science Reference Center where business booms, especially in providing financial and other economic data. I prepare for retirement and for more time with my family which now includes five grandsons.

The 1990's

Nelson Mandela is freed after 27 years in prison; the Hubble Space Telescope is launched; Bush and Gorbachev agree to cut nuclear arms and chemical weapons; and Yeltsin is elected president of Russia. Iraq invades Kuwait, and the Gulf War begins. The world population exceeds 5.2 billion. Hundreds of thousands of Rwandans die in a brutal civil war, and war continues through the decade among the republics of Yugoslavia. Kim Campbell becomes Canada's first female Prime Minister, and both Mother Theresa and Princess Diana die in 1997. New leaders take over in Indonesia and Nigeria. Dental and corneal implants, and titanium knees become commonplace.

By 1991 three out of four U.S. homes own VCR's, the fastest selling domestic appliance in history. By 1994 the U.S. government privatizes Internet management, and in 1995 Sony demonstrates the flat TV, Denmark announces plans to put much of the nation online by the end of the decade, and major newspapers throughout the world become web-accessible.

The beautiful NEXT developed by Steve Jobs has neither software nor customers. By the end of the decade Apple makes a comeback with a "decorator" machine.

Electronic communication becomes almost commonplace throughout the world. More and more text and numeric data become available online as file servers, and networks and remote logons become widely available.

Gopher, developed at the University of Minnesota in 1991, is replaced by the World Wide Web, developed in Switzerland. In 1992 there are 20 web servers, in 1993, 200, in 1996, 100,000 and in 1998 3.8 million. Everyone has a web page and some concern has developed about archiving things of value and about sorting the wheat from the chaff.

Netscape replaces Mosaic, and search tools of numerous varieties become available until in 1999 1,000 discrete engines have been identified. As an increasing number of data points become available for times series analysis, economists become major users of microdata as well as of financial data.

The periodicals component of the acquisitions budgets at most University Libraries has increased from roughly 50% to over 75% leaving less money for monographs. Sales of books to these libraries by University Presses has dropped by half, and the Presses are publishing more books but fewer scholarly ones.

IASSIST meets in Poughkeepsie, Alberta, Madison, Edinburgh, San Francisco, Quebec, Minneapolis, Odense and New Haven and this week celebrates its 25th anniversary in Toronto.

Stephenson, Humphrey and Burnhill serve as IASSIST presidents.

What does the next decade hold? We can only guess.

We would anticipate more resistance to decennial censuses but more public use microdata from those censuses which are completed.

An increase in local service data libraries in service environments with primary data becoming a routine part of library collections and data analysis a routine part of education at all levels.

Standard cataloging and citation will become routine.

Image cataloging and image databases will make collections of pictures, slides, artifacts, etc. increasingly available to students and scholars.

Data files will become even larger and even more complex.

Large memory UNIX workstations with high resolution graphic monitors will replace PC's and MACS, and network connections will become faster, more reliable, and probably more expensive.

And IASSIST will grow and prosper, and we will all live happily ever after ... friends and colleagues to the end.

* Presented at the 25th Anniversary IASSIST Conference, May 17, 1999, at Ryerson Polytechnic University, Toronto, Ontario.