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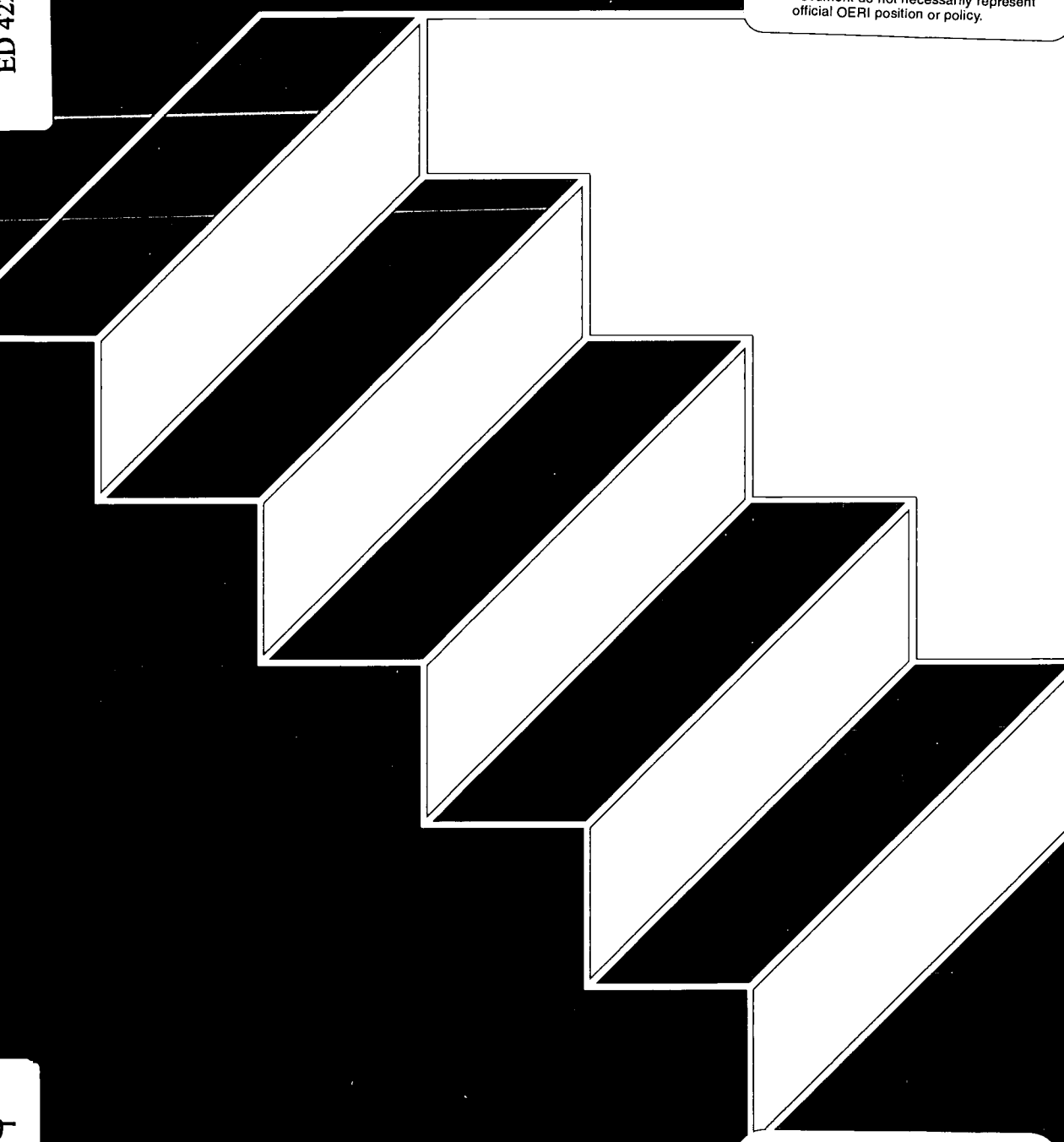
ABSTRACT

This study by the Association of Research Libraries (ARL) draws from a variety of data sources, but it is based on two unpublished data sets. These data sets, compiled from ARL's 1990 and 1994 salary surveys, contain basic demographic data, including age, for librarians employed in ARL's 103 university member libraries. The study examines the shape and movement of the age profile of ARL librarians and attempts to identify the factors associated with each. The body of the report is divided into four chapters: (1) "The Age Profile of Librarianship"; (2) "Shape and Movement of the Age Curve"; (3) "Projections for the U.S. ARL Population"; and (4) "Age within the ARL Population." Forty-four figures and tables present statistics. Appendices include data sources, projections and methodology, salary survey form and instructions, and list of ARL member libraries. (AEF)

The Age Demographics of Academic Librarians: A Profession Apart



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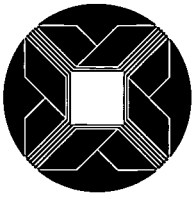

The Age Demographics of Academic Librarians: A Profession Apart

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Dr. Michael Irwin, of Duquesne University prepared the population projections, and the accompanying description of the methodology in Appendix 2.

Early drafts of this work benefited enormously from the thoughtful review of a number of people, including Bryce Allen, Robert Almony, Jaia Barrett, Patricia Brennan, William Crowe, Gordon Fretwell, Jane Kleiner, Mary Jo Lynch, Robert Molyneux, Margaret Myers, Ronald Naylor, Kendon Stubbs, and Danny Wallace. (Responsibility for errors in this work is entirely my own.)

This work is for Jean.

Stanley J. Wilder
Assistant Dean for Technical
and Financial Services
Louisiana State University Libraries

December 1995

Contents

List of Figures and Tables

Figures

Tables

Executive Summary

As a group, librarians, including those who work in Association of Research Libraries (ARL) member libraries, are older than members of most comparable professions, and the group is getting older. This study describes the age demographics of ARL librarians, and explores possible explanations for anomalies in this population, and their potential consequences.

The age profile of ARL librarians is anomalous in three ways:

- The percentage of the population of ARL librarians aged 34 and under is 1/3 that of individuals of the same age employed in comparable professions.
- The percentage of the population of ARL librarians aged 45 and over is almost 75 percent higher than the percentage of those of the same age employed in comparable professions.
- The age profile of ARL librarians changed noticeably between 1990 and 1994. The percentage of the population aged 45 and over increased from 48 to 58 percent.

The unusual shape and movement of the ARL librarian age profile appears to be related to the large group of librarians aged 40 and over who were either hired to service the 1960s period of baby boom growth in higher education or are baby boomers themselves. This group so dominates the population that it carries the apex of the ARL age curve with it as it ages. Other factors affecting the age profile are the older age of newly degreed librarians and the low rate of hire in ARL libraries.

Some of the findings of this study are as follows:

- Projections suggest that 16 percent of the 1995 ARL population will retire by 2000. Another 16 percent will retire between 2000 and 2005, 24 percent between 2005 and 2010, and 27 percent between 2010 and 2020.
- The number of catalogers in ARL libraries declined 13 percent from 1990 to 1994, while the number of reference librarians rose by 7 percent.
- ARL libraries recruit more experienced librarians ages 35 to 49 than they lose.
- In 1994, ARL libraries had more librarians who began their careers in 1967 than began in any year from 1990 forward.
- Fifty four percent of all ARL librarians who have 20 or more years of professional experience have worked at only one library in the course of their careers.
- Canadian ARL librarians are older than their U.S. counterparts.

Introduction

In demographic terms, librarianship in North America is a profession apart. Relative to comparable professions, it contains one third the number of individuals aged 35 and under and almost 75 percent more individuals aged 45 and over. Librarians, particularly academic librarians, are older than professionals in all but a handful of comparable occupations.

The relatively advanced age of librarians is not a new phenomenon. Library Manpower established that U.S. librarians were older than their counterparts in most comparable professions in 1970.[1] Populations do not age the same way that individuals do; they may grow younger, remain the same, or age. In fact, the average age of U.S. librarians did not change between 1970 and 1990. But between 1990 and 1994, librarians in the United States aged rapidly. In 1990, 48 percent of librarians were aged 45 and over, compared with 58 percent in 1994. The aging work force is a well-established phenomenon in North America, but it is unlikely to account for such dramatic change in so short a time.

This study draws from a variety of data sources (Appendix 1), but it is based on two unpublished data sets collected by the Association of Research Libraries (ARL).[2] These data sets, compiled from ARL's 1990 and 1994 salary surveys, contain basic demographic data, including age, for librarians employed in ARL's 108 university member libraries. This study examines the shape and movement of the age profile of ARL librarians and attempts to identify the factors associated with each. The 1990 and 1994 ARL data are used to project changes in the population through 2020. Finally, the study addresses the age distribution of subgroups of the ARL population, to compare, for example, the age profile of reference librarians to that of catalogers, the age profiles of racial groups and age profiles by region.

It is important to know about the age profile of librarians because it has consequences for the following issues:

Replacing Retiring Librarians

The retirement projections in Chapter 3 of this study suggest that large portions of the ARL population will retire over the next 25 years. Who or what will succeed them? Matarazzo declares flatly that library and information science programs do not have the capacity to replace the librarians who will leave the profession, calling this "the single most critical fact before the profession at this time."[3] But one may also ask whether increased

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[1] United States Bureau of Labor Statistics, *Library Manpower: A Study of Demand and Supply* (Washington, DC: 1975).

[2] A description of the primary data sources used in this study is found in Appendix 1.

[3] James M. Matarazzo, "Recruitment: The Way Ahead" in *Recruiting, Education and Training Cataloging Librarians: Solving the Problems*, eds. Sheila S. Intner and Janet Swan Hill (New York: Greenwood Press, 1989), 26.

automation, outsourcing, or budgetary constraints will prevent libraries from replacing retiring librarians on a one-to-one basis.

Anomalous age distributions within ARL librarianship

The early departure of large portions of unusually old subgroups, such as subject specialists or catalogers, will have important consequences for future work force planning. From another perspective, aging subgroups may already be the result of changed staffing priorities: groups whose ranks are not refreshed age rapidly.

Training

Losing a high percentage of ARL's population to retirement will result in a loss of experience. Given the low rate of hire in ARL libraries and the limited mobility of ARL librarians, vigorous upgrading of the skills of existing librarians will be essential to creating and maintaining the appropriate mix of skills for the new information environment.

Ability of librarianship to compete for young people

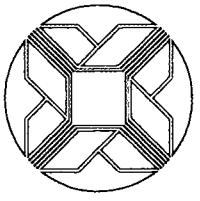
The age profiles of both librarians generally and of ARL librarians in particular suggest that librarianship does not attract as many young people as other professions do. Their relatively small numbers may indicate that young people do not perceive a high enough return on investment in a library career.

■ Chapter 1:

The Age Profile of Librarianship

Librarians in the Context of Aging Populations

Age Profile of Librarianship



Librarians in the Context of Aging Populations

The age demographics of librarians are inextricably linked with the general demographic trend toward population aging, a result of the baby boom. The baby boom affected hiring in higher education, including academic libraries, in two ways. First, the entry of the baby boomers into universities in the 1960s created an unprecedented need for increased staffing. Second, from then on, the unusually large number of baby boomers in the population was associated with a correspondingly large number of baby boomers in librarianship.

The demographic profile of librarianship in the United States and Canada naturally reflects national demographic trends. These trends establish a set of expectations, and we assume, in the absence of data to the contrary, that the characteristics of individuals who happen to be librarians are similar to those who are not. When data indicate that librarians are different, we must ask why, and what implications these differences may have for the future.

This study examines the age demographics of librarians, particularly ARL librarians, in the larger context of North America's pronounced and long-term trend towards population aging. Population aging refers to "the process whereby a population is made up increasingly of older age groups, especially those 65 years and above."[4] The distinction between individual aging and population aging is implicit in this definition, but it needs to be stated directly: all individuals age, but populations may age, remain the same, or grow younger. For example, all third-graders age as individuals, but the age of third graders as a group generally remains stable.

In North America, population aging is a post World War II phenomenon, driven almost entirely by the baby boom. The baby boom refers to the period of increased birth rate from 1946 through 1964 (Figure 1). It initially had the effect of lowering the median age of the U.S. population by 7 percent between the 1950 and 1970 censuses, from 30.2 to 28.[5] Once the baby boom ended, the population's median age began to rise. Because of the unusually large size of the baby boom relative to other age groups, the age of the U.S. population will continue to rise until the baby boomers start dying in large numbers, predicted to be around 2020. Canadian age demographics are similar.[6]

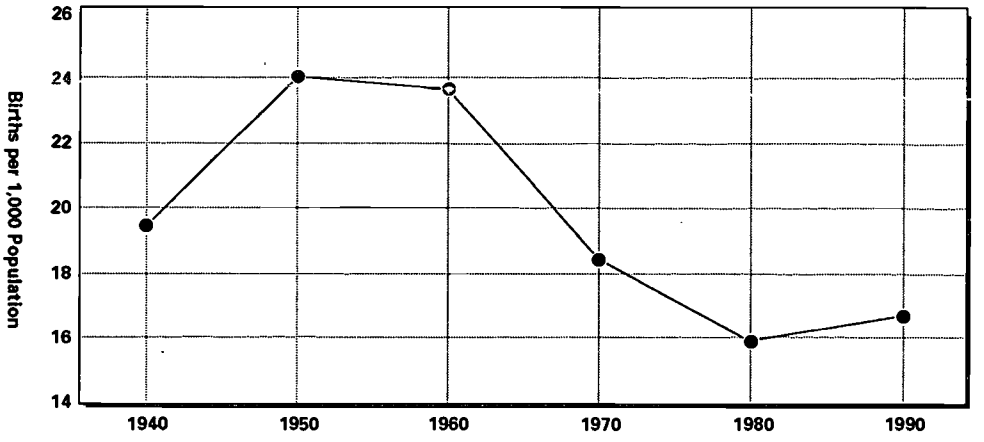
The baby boom had two major, if predictable, effects on higher education in the United States. First, grown to college age beginning in the mid-1960s, the baby boom generation helped to create a period of explosive growth in higher education. From 1960 to 1980, enrollment grew from 3.6 million

[4] Susan McDaniel, *Canada's Aging Population* (Toronto: Butterworths, 1986), 2.

[5] Donald J. Bogue, *The Population of the United States: Historical Trends and Future Projections* (New York: Free Press, 1985), 43.

[6] Susan McDaniel, *Canada's Aging Population* (Toronto: Butterworths, 1986), 2.

Figure 1: United States Birth Rate, 1940 to 1990



	1940	1950	1960	1970	1980	1990
Birth Rate	19.4	24.1	23.7	18.4	15.9	16.7

Source: Statistical Abstract of the United States: 1994

students to 11.4 million, and the number of academic institutions, increased more than 50 percent.[7] Bowen and Sosa connect the baby boom to the growth of higher education:

> In the 1960s, the baby boom combined with rising enrollment rates to create one of the greatest expansions [in higher education] ever seen. Shortages of faculty were widely proclaimed, faculty salaries increased markedly, and there was talk of a "golden age" for academics.[8]

As a result, an unusually large number of teaching faculty and librarians took jobs in higher education in the 1960s and early 1970s, not as baby boomers themselves, but to service the baby boom. Many of these individuals have retired in recent years or are now approaching retirement.

The second baby boom effect stems from the absolute number of baby boomers in the population. Because there are more of them, baby boomers naturally account for a disproportionate number of the individuals in many fields. In the 1994 ARL data, for example, baby boomers account for 51 percent of the ARL population. The oldest of these individuals will reach age 50 in 1996.

One final demographic factor affecting academic librarianship in the United States is the end of mandatory retirement for college and university

[7] U.S. Department of Health, Education, and Welfare, *Digest of Education Statistics, 1994* (Washington, DC: Education Division, National Center for Education, 1994).

[8] William G. Bowen and Julie Ann Sosa, *Prospects for Faculty in the Arts and Sciences: A Study of Factors Affecting Demand and Supply, 1987 to 2012* (Princeton, NJ: Princeton University Press, 1989), 3.

faculty. In 1986, Congress eliminated mandatory retirement age laws, but at the request of leaders in higher education, mandatory retirement continued for tenured faculty for seven more years. This exemption ended in January 1994.[9] This change could affect the age distribution of academic librarianship, at least to the degree that academic librarians have faculty status and are tenured. The effect of this law is discussed in Chapter 2.

[9] Ann H. Franke, "Marking the End of Mandatory Retirement," *Academe* (May-June 1993), 88.

Age Profile of Librarianship

The ARL and United States government age data for librarians indicate that librarians are older than comparable professionals and that librarians as a group aged noticeably between 1990 and 1994.

Comparing the age profile of professions requires the use of either the Current Population Survey (CPS) or census data. The term "comparable professions" in this study refers to the U.S. government's groupings of occupations in the Standard Occupational Classification Manual. [10] Librarianship is among the "professional specialty" group of occupations, which includes physicians, professors, teachers, writers and more than 100 other professions. Most of the "professional specialty" group require advanced academic degrees.

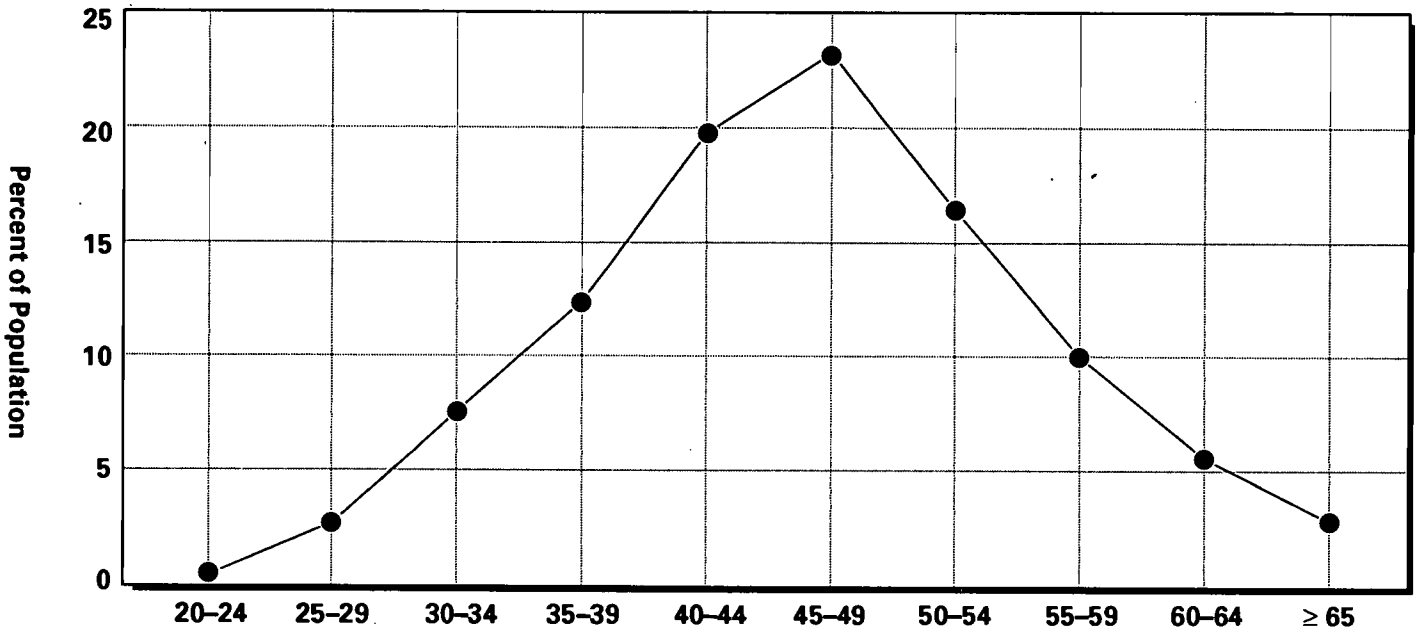
The age distribution for all ARL librarians in 1994 is presented in Figure 2. The distribution's apex consists of librarians in the 45–49 age group; the median age is 46. When the ARL data are regrouped for comparison with CPS data of the same year, ARL librarians appear to be older than librarians as a whole by a large margin (Figure 3). For example, 58 percent of the ARL population is age 45 and over, compared with 53 percent of the CPS librarians. There are good reasons, however, for using caution in drawing conclusions from this comparison:

- ARL librarians account for a small portion of the total number of librarians in the United States.
- ARL librarians are employed in a relatively homogeneous subset of higher education.
- No such commonality exists for the full range of librarianship.
- The differences in methodology and definition between the surveys may affect comparability.
- The ARL data include Canadian librarians, who are not represented in the U.S. government data.

Nevertheless, there are important similarities between the two distributions: both curves peak in the 45–54 age group, and there is approximately a 7 percent drop to the 35–44 age group on one end and a 20 percent drop in the 55–64 age group on the other. In brief, the CPS and ARL data sets on librarians agree on the general shape of the age profile of librarianship and on the profile's position on the age continuum. This fact will be important when we compare the age of librarianship to that of comparable professions.

[10] U.S. Department of Commerce, Office of Federal Statistical Policy and Standards, *Standard Occupational Classification Manual* 1980 (Washington, DC: U.S. Government Printing Office, 1981).

Figure 2: Age of ARL Librarians, 1994

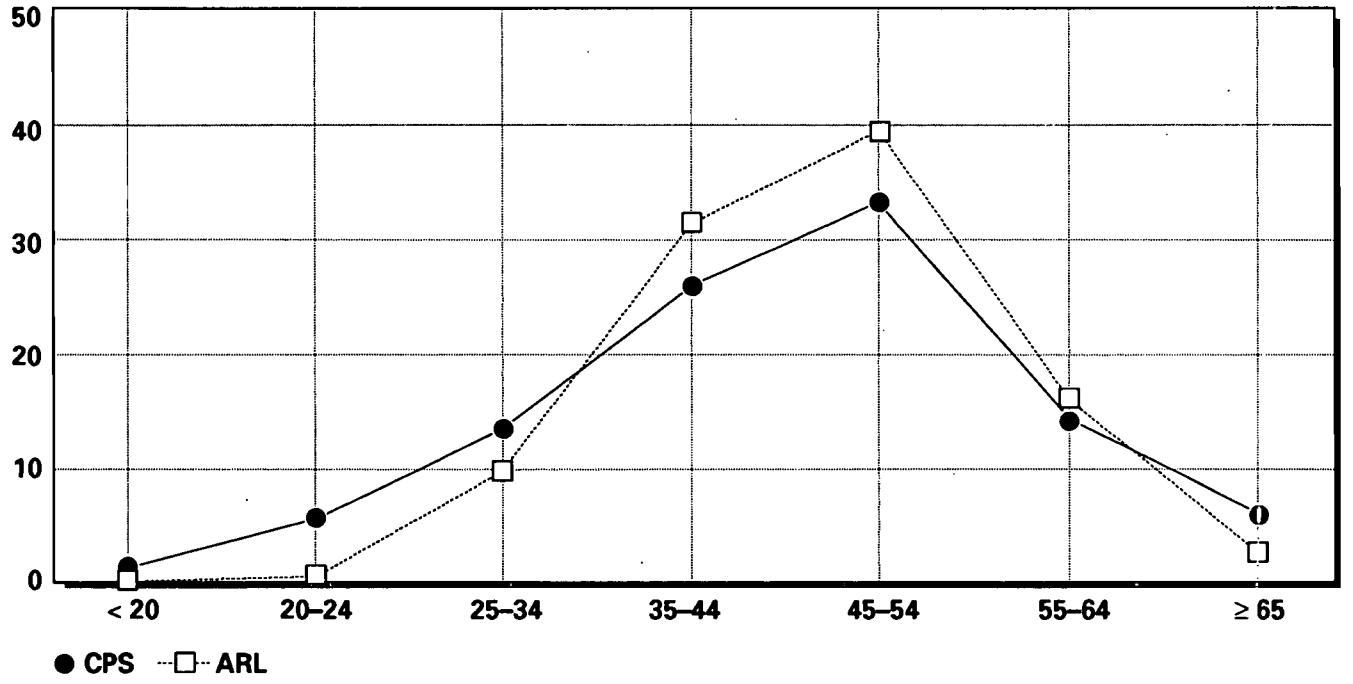


	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
ARL	0.3	21	2.7	198	7.2	517	12.2	880	19.6	1413	23	1663	16.7	1202	10	719	5.7	412	2.7	193

Source: ARL Annual Salary Survey, 1994

17A

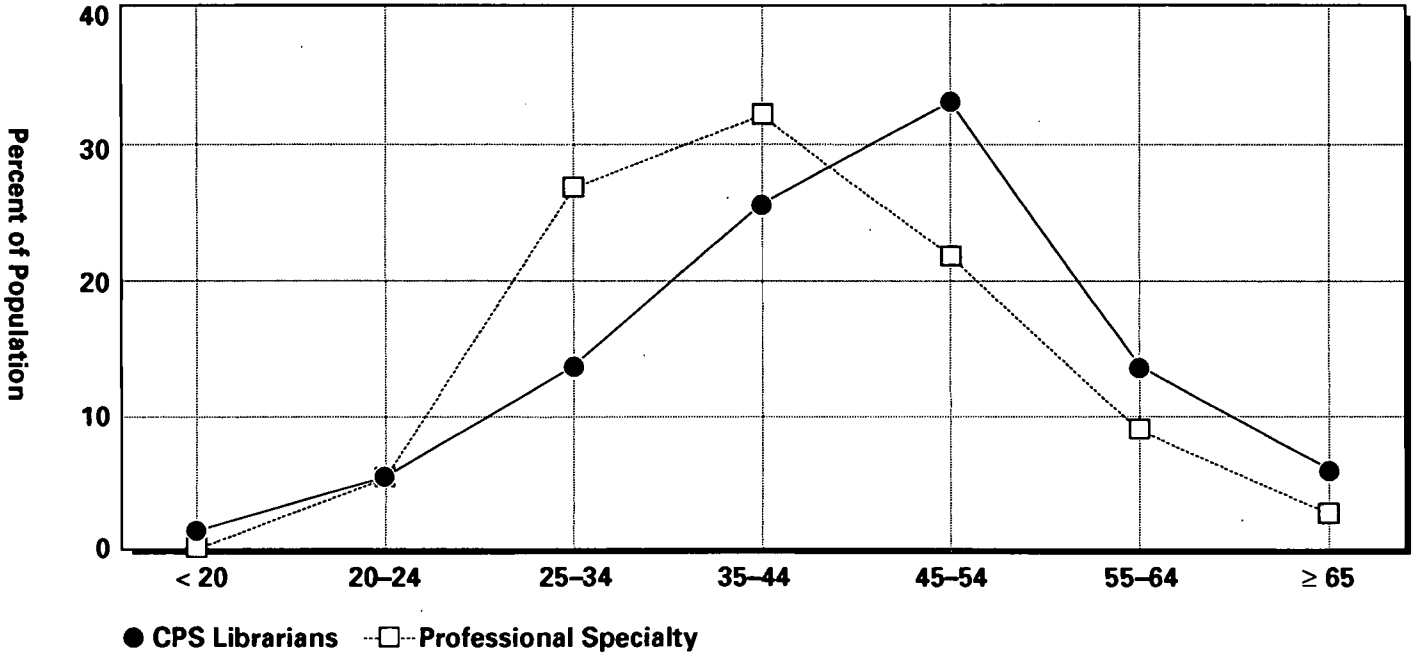
Figure 3: Age of CPS and ARL Librarians, 1994



	< 20		20–24		25–34		35–44		45–54		55–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
CPS	1.00	2,000	5.60	11,000	13.70	27,000	26.00	51,000	33.00	65,000	13.80	27,000	6.00	12,000
ARL	0	0	0.30	21	9.9	715	31.8	2,293	39.7	2,865	15.7	1,131	2.70	193

Sources: Current Population Survey, 1994; ARL Annual Salary Survey, 1994

Figure 4: Age of CPS Librarians and "Professional Specialty" Occupations, 1994



	< 20		20–24		25–34		35–44		45–54		55–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
CPS Librarians	1.00	2,000	5.60	11,000	13.70	27,000	26.00	51,000	33.00	65,000	13.80	27,000	6.00	12,000
Professional Specialty	0.00	157,000	5.60	998,000	26.70	4,686,000	32.00	5,640,000	22.00	3,982,000	9.00	1,602,000	2.60	470,000

Source: Current Population Survey, 1994

19A

If the age profile of librarianship merely reflected population aging, we would be left with the unremarkable conclusion that the profession is aging along with the population as a whole. But while librarianship is affected by population aging, it is also much older than the general work force,[11] and, more important, it is old relative to comparable professions.

Figure 4 presents the ages of CPS librarians and the larger professional specialty group. Figure 5 plots librarianship against a sampling of specific professions. In both figures, the age distribution for librarians is older than that for comparable professionals.

The age profile of librarians differs from that of comparable professionals in two ways: the under-representation of librarians aged 35 and under, and the unusually large number of librarians in the 45 and over cohorts. The most striking aspect of Figure 4 is the disparity in numbers of individuals aged 25 to 34, who constitute 14 percent of the librarian population, but 27 percent of the professional specialty group. While less dramatic, the difference in percentage of the populations aged 45 and over is also noticeable: 53 percent of librarians are in this category as opposed to 33 percent of those in the professional specialty categories. Finally, it is important that the curves do not peak in the same age cohort, and that the librarian apex is in an older age cohort. Figure 4 indicates that demographically, librarianship is a profession apart.

There is nothing new about librarians being older than their counterparts in comparable professions. *Library Manpower*, the landmark study of librarianship by the U.S. Bureau of Labor Statistics, established that as of 1970, only physicians and dentists among the professional groups were older than librarians.[12] The report did not dwell on the issue, and it did not provide an age distribution. Nonetheless, though government data for the intervening 20 years are not included in the present study, it is interesting to note that the proportion of librarians aged 45 and over in 1970 was within a percentage point of the 1990 figure: 45 percent, as opposed to 45.8 percent. As a group, librarians did not age in the years between 1970 and 1990.

If librarianship proved to be consistently older than comparable professions over two decades, its age demographics would not be compelling. However, substantial evidence indicates that librarianship aged quickly between 1990 and 1994. Figure 6 illustrates the age distribution for librarianship according to the CPS surveys from 1990 and 1994. Figure 7 presents the ARL data for the same years. The librarian population ages noticeably in both figures, and the nature and direction of the shift are nearly congruent. It is important that these data sets reinforce one another, because

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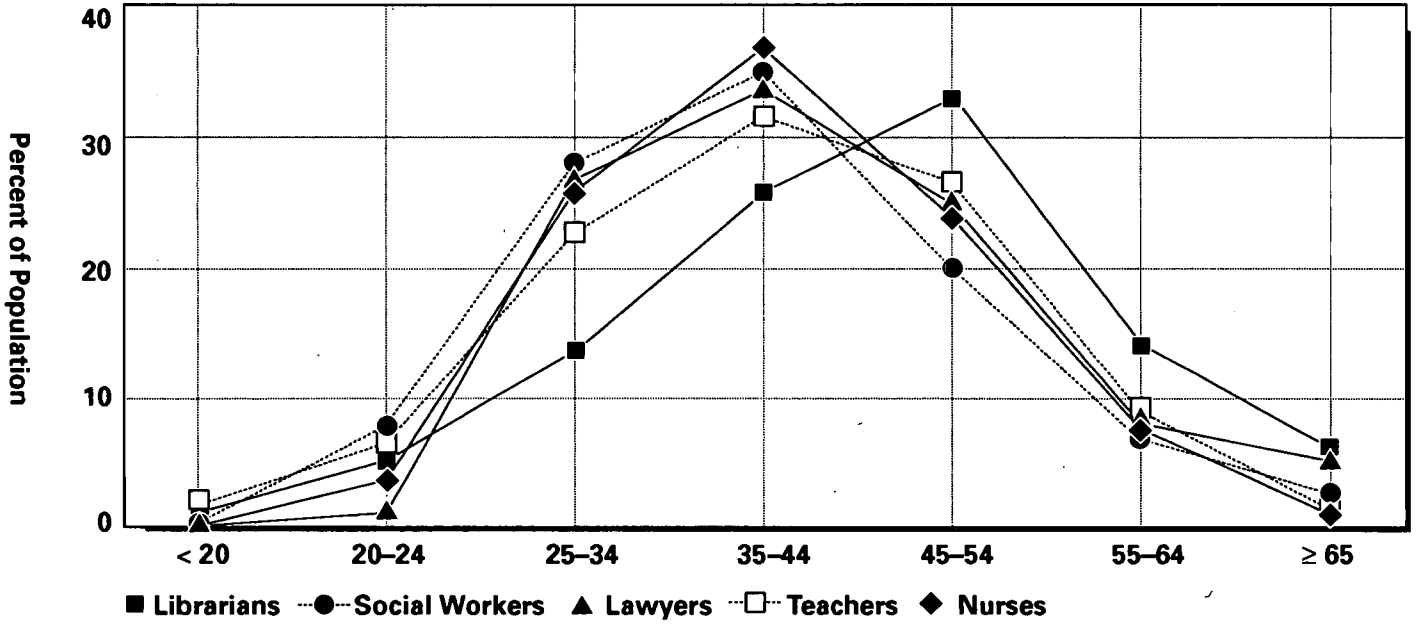
[11] The work force is a poor measure for analyzing the age demographics of a profession, such as librarianship, which requires an advanced degree. The work force includes everyone who is employed, which includes many people under the age of 24.

[12] United States Bureau of Labor Statistics, *Library Manpower: A Study of Demand and Supply* (Washington, DC: 1975).

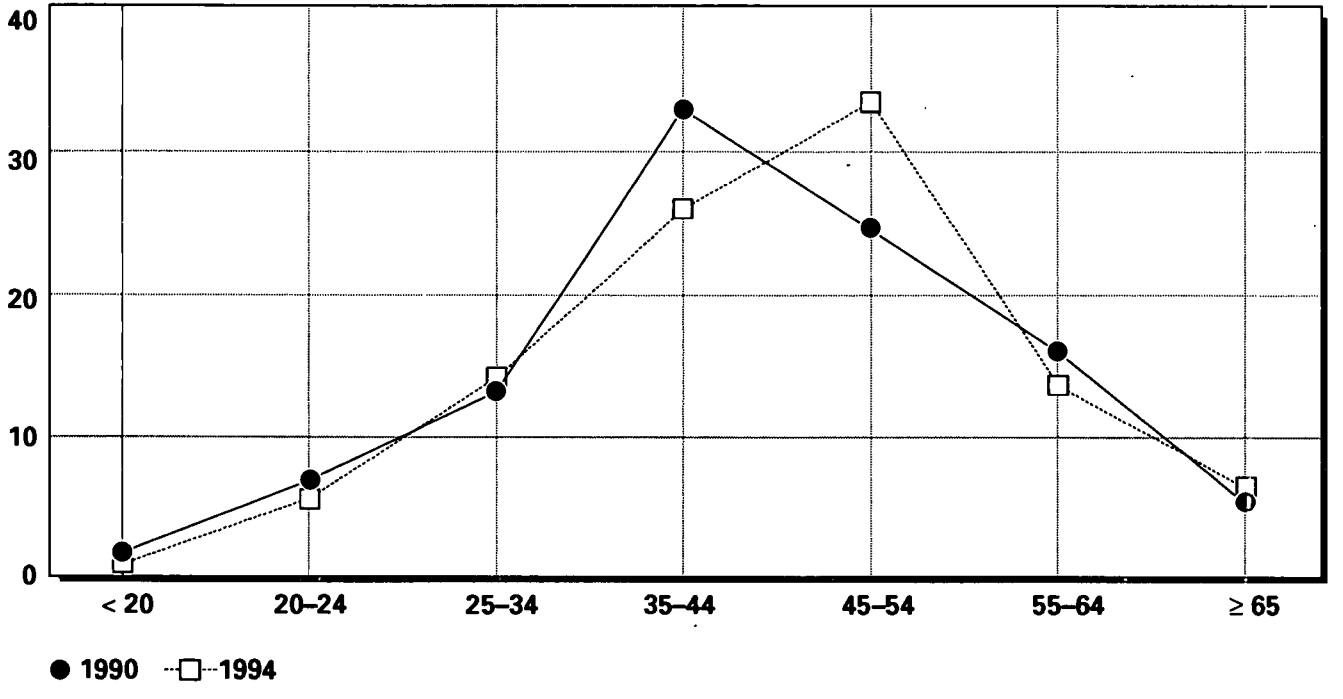
Figure 5: Age of CPS Librarians and Selected Other Professionals, 1994



	< 20		20–24		25–34		35–44		45–54		55–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Librarians	1.00	2,000	5.60	11,000	13.70	27,000	26.00	51,000	33.00	65,000	13.80	27,000	6.00	12,000
Social Workers	0.30	2,000	7.67	51,000	28.27	188,000	34.44	229,000	20.00	133,000	7.07	47,000	2.26	15,000
Lawyers	0.00	0	0.93	8,000	27.29	235,000	33.80	291,000	24.62	212,000	8.25	71,000	5.11	44,000
Teachers	1.32	57,000	6.88	298,000	22.92	992,000	31.62	1,369,000	26.80	1,160,000	8.99	389,000	1.48	64,000
Nurses	0.00	0	3.43	67,000	26.41	516,000	36.95	722,000	23.49	459,000	8.44	165,000	1.28	25,000

Source: Current Population Survey, 1994

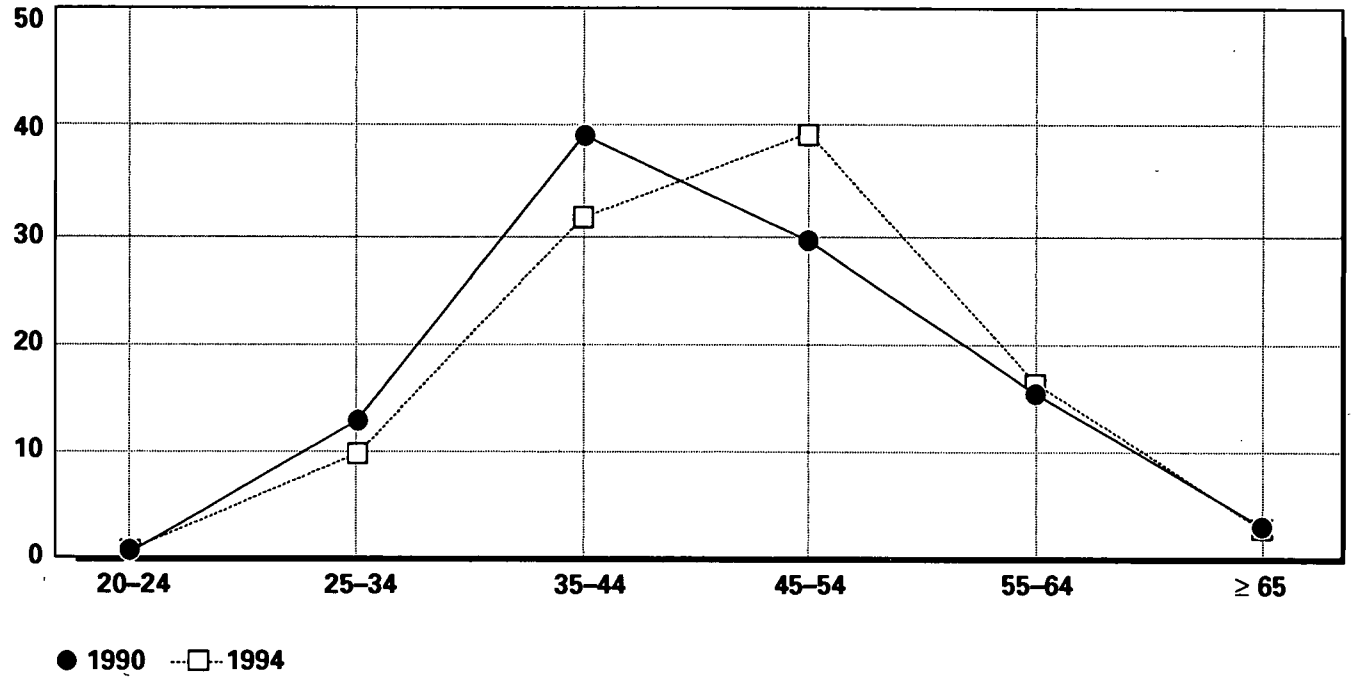
Figure 6: Age of CPS Librarians, 1990 and 1994



	< 20		20–24		25–34		35–44		45–54		55–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N
1990	1.56	3,000	6.77	13,000	13.02	25,000	32.81	63,000	24.48	47,000	16.15	31,000	5.21	10,000
1994	1.00	2,000	5.60	11,000	13.70	27,000	26.00	51,000	33.00	65,000	13.80	27,000	6.00	12,000

Source: Current Population Survey, 1990 and 1994

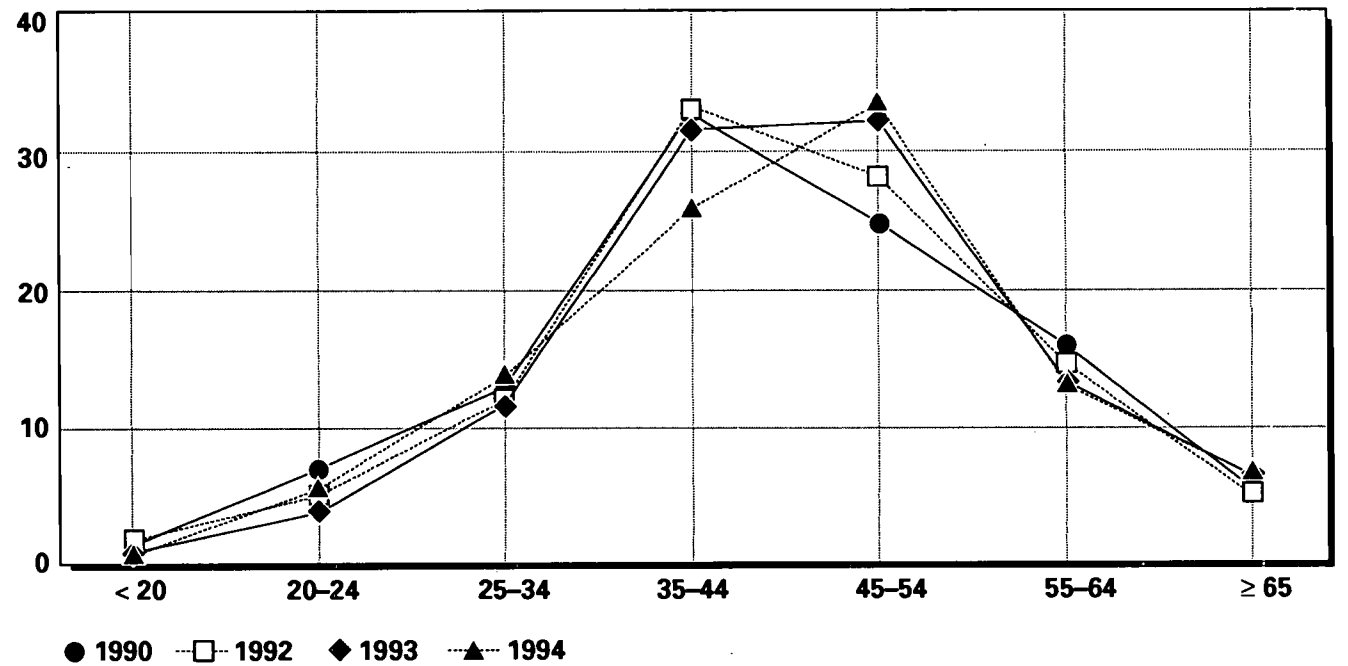
Figure 7: Age of ARL Librarians, 1990 and 1994



	20–24		25–34		35–44		45–54		55–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
1990	0.17	11	12.80	911	39.00	1,824	29.80	2,105	15.40	1,095	2.80	197
1994	0.29	21	9.91	715	31.77	2,293	39.69	2,865	15.67	1,131	2.67	193

Source: ARL Annual Salary Survey, 1990 and 1994

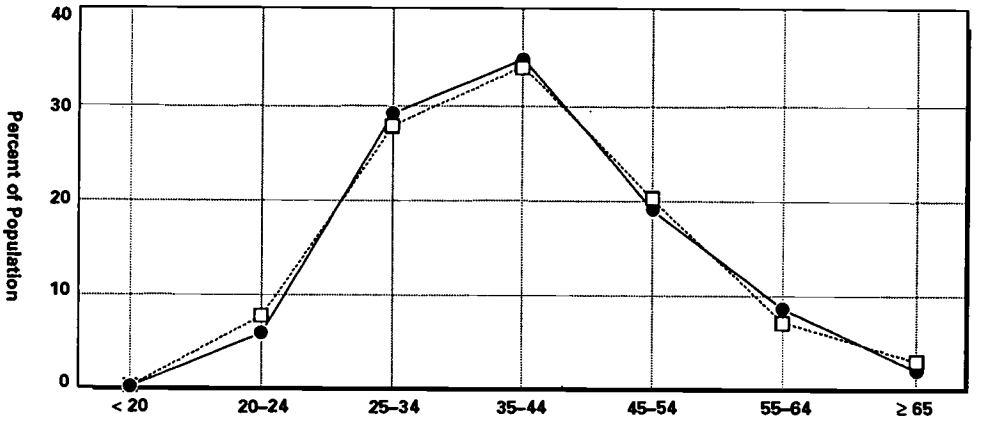
Figure 8: Age of CPS Librarians, 1990 to 1994



	< 20		20–24		25–34		35–44		45–54		55–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N
1990	1.56	3,000	6.77	13,000	13.02	25,000	32.81	63,000	24.48	47,000	16.15	31,000	5.21	10,000
1992	1.65	3,000	4.95	9,000	12.64	31,000	32.97	68,000	28.02	62,000	14.84	23,000	4.95	4,000
1993	1.03	2,000	3.59	7,000	12.31	24,000	31.28	61,000	31.79	61,000	13.85	27,000	6.15	12,000
1994	1.00	2,000	5.60	11,000	13.70	27,000	26.00	51,000	33.00	65,000	13.80	27,000	6.00	12,000

Source: Current Population Survey, 1990 to 1994

Figure 9: Age of CPS Social Workers, 1990 and 1994



	< 20		20–24		25–34		35–44		45–54		55–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N
1990	0.001	1000	6.05	34,000	29.18	164,000	34.88	196,000	19.22	108,000	8.72	49,000	1.96	11,000
1994	0.003	2,000	7.69	51,000	28.36	188,000	34.54	229,000	20.06	133,000	7.09	47,000	2.26	15,000

Source: Current Population Survey, 1990 to 1994

the magnitude of the change is great and the time period is short. In the absence of one or the other data set, one might conclude that the apparent shift in age is a statistical aberration of no consequence.

CPS data for the intervening years further strengthen the assertion that librarianship aged between 1990 and 1994. Figure 8 shows that the age of librarians has increased steadily through these years, not in a single jump that might engender suspicion about the validity of the data. This figure also reinforces our sense of where the movement in the population occurred: The "aging" of librarianship appears to be a function of the steady increase in the portion of the population in the 45–54 age group combined with a nearly corresponding decline in the 35–44 age group.

It is instructive to compare the CPS distributions for librarianship and social work, a comparable profession (Figure 9). The social work curves are typical of what one would expect to find for a 4-year period, even in a period of economic change.

Librarians, who are already older than comparable professionals, aged rapidly between 1990 and 1994. This sudden aging adds an important new dimension to the problem posed by librarianship's already "old" age profile. Where we might otherwise have focused only on the shape and position of the age distribution, we must now also account for its movement. The difference between the two issues is significant, because an unusual curve might nonetheless be stable over time. To draw another school analogy, if

we were to compare the age of high school seniors to the age of high schoolers generally, the seniors would be older in a very consistent, predictable way. But if the senior distribution were to age suddenly, we would have to ask what factor or combination of factors changed it, and what these changes might portend.

■ Chapter 2:

Shape and Movement of the Age Curve

New Entry, Mobility, and the Shape of the ARL Curve

Age at Entry and Mobility

Movement of the Curve

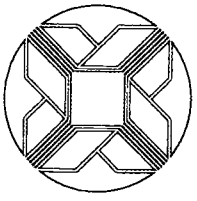
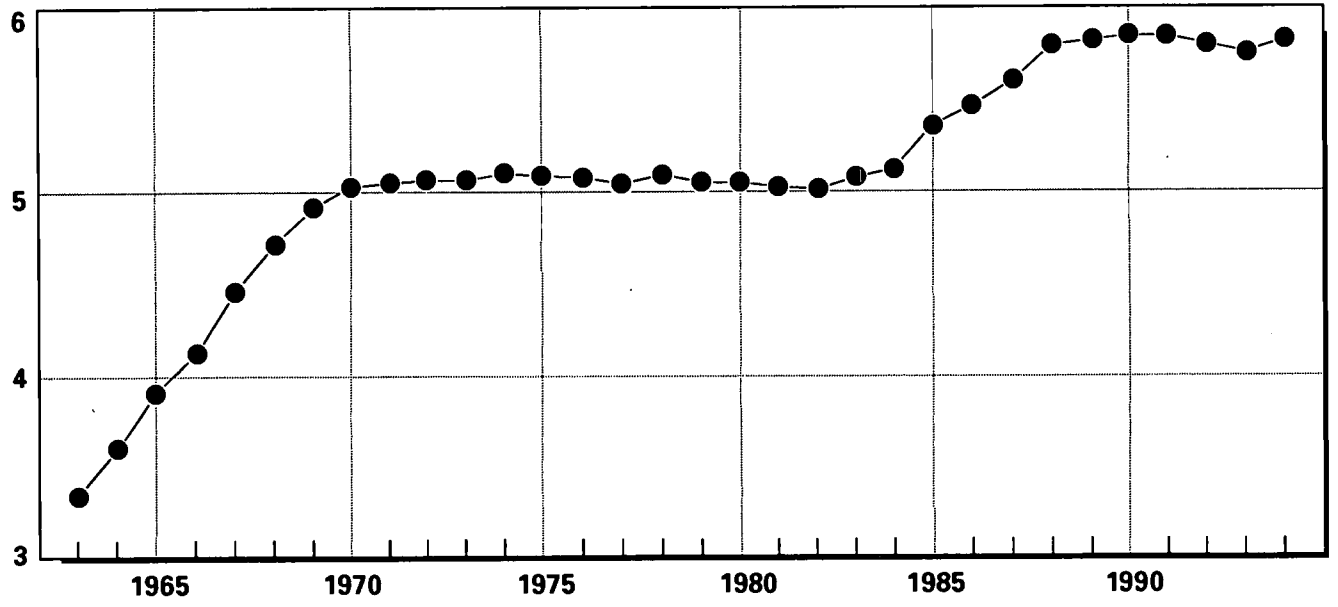


Figure 10: Increase in Number of Librarians at Selected ARL Libraries



	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
FTE Librarians	3335	3624	3882	4150	4444	4724	4894	5018	5028	5057	5066	5139	5115	5078	5035	5130

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
FTE Librarians	5053	5053	5018	5008	5084	5157	5349	5483	5596	5776	5781	5804	5812	5777	5754	5810

Source: Research Library Statistics, 1907–08 Through 1987–88; ARL Statistics, 1988–1994

New Entry, Mobility, and the Shape of the ARL Curve

The shape of the ARL age distribution is anomalous because of its under-representation of young people and over-representation of individuals aged 45 to 49. Possible explanations for these anomalies include the unprecedented increase in the number of librarian positions in the 1960s, the subsequent, equally dramatic, reduction in the rate of hire for ARL libraries, the limited mobility of many ARL librarians and the transfer of experienced librarians into ARL libraries.

Chapter 1 noted that the shape of the ARL age distribution is anomalous in two ways: Individuals ages 35 and under are under-represented, and there is an unusually large population of individuals in the 45–49 age cohort. These anomalies must be associated with some combination of three factors: age at entry into the profession, transfers in and out of the population, and exits resulting from death or retirement.

Variations in entry to the population (birth or new hires) have the greatest potential to produce irregularities. Just as the present shape of the North American age distribution is a product of birth rate trends over the years, the current ARL age distribution reflects the nature of entry into ARL libraries since the 1960s. We know from our discussion of the baby boom that an unusually large number of individuals in a given age cohort will have an inordinate effect on the population as long as those individuals are alive. Before we can determine if this phenomenon is at work within the ARL librarian population, we need to know more about how librarians enter the population, when they enter, and at what age.

Longitudinal Growth

The ARL statistics allow for analysis over time of the number of librarians employed, expressed in "full-time equivalents," or FTE. FTE is a means of standardizing the count of staffing by converting the number of workers in a group into the number of hours they work. For example, two librarians each working half-time equals one FTE librarian.

Research Library Statistics: 1907-08 Through 1987-88 makes it possible to derive a simple count of the number of FTE librarians working in ARL libraries for each year since 1963.[13] To obtain useful information from these data, one must exclude libraries that became members of ARL after 1963 and those that failed to report this variable for any year. Figure 10 represents the total number of librarians employed by the 58 ARL libraries that survive these tests. Figure 10 illustrates the extreme variation in the growth rate of

[13] Kendon L. Stubbs and Robert E. Molyneux, *Research Library Statistics: 1907-08 Through 1987-88* (Washington, DC: Association of Research Libraries, 1990).

staffing in these selected ARL libraries. The number of librarians employed grew by 50 percent between 1963 and 1970, whereas from 1971 to 1983, it grew by only 1 percent. From 1984 to 1988, the number of librarians grew by 12 percent and then leveled off to near stability (0.5 percent growth rate) between 1989 and 1994.

While the data in cumulated research library statistics do not allow us to establish a beginning date for the 1960s hiring boom, a remarkable number of librarian positions were added from 1963 to 1970—an additional 1,675 positions in the 58-library subset alone.

If the number of librarians does not decrease in Figure 10, how do these data show a hiring boom? The key lies in the rate of growth, rather than the number of librarians hired. Hiring for both replacement and growth resulted in a much larger number of librarians entering ARL libraries in the 1960s boom period than in the period immediately following. From 1973 through 1984, the rate of hire allowed only for replacement, of course at a higher level than had been the case in 1960. The impact of those 1960s hires on the present population can be illustrated with one example: The 1994 ARL population still had more librarians who began their professional careers in 1967 than began in any year since 1990 (Table 1). This is unusual if one considers that many of those who began their careers in 1967 would have left the population before 1994. [14]

Table 1: Year of entry into librarianship for ARL librarians, 1994

Year	1967	1990	1991	1992	1993	1994
Number of Librarians	202	200	188	201	197	74

New Hires in 1994

The *ARL Annual Salary Survey* supplementary data for 1990 and 1994 provide a "years of experience in reporting library" variable, which can be used to determine the number of new hires for those years. ARL also includes a variable in its annual salary survey, "years of professional experience," that can be used to determine the number of new professionals (recent MLS graduates) employed.

For the purposes of this study, a "new hire" is an individual with a value of zero or one in the "years of experience in reporting library" variable. A "new professional" is someone with a value of zero or one in the "years of professional experience" variable. The value of one is included in defining new hires and new professionals for the following reasons:

The survey instructions for these variables direct respondents to round off partial years experience to the nearest whole number. By this definition,

[14] See Table A2.1, Appendix 2, for evidence of ARL librarians exiting the population in the age cohorts.

any individuals hired between July 2 and December 31, 1994, for example, would not qualify for inclusion in the 1994 survey and would "enter" the ARL population the following year with a value of one.

The number of individuals in the 1990 and 1994 surveys with a zero value for these variables is less than 40 percent of the number with the value of one. Thus, the zero-only definition seems to under-represent the number of new hires and new professionals.

The number of zero-only records is too small to be used reliably in the retirement projection portion of this study, so this definition of new hires and new professionals is consistent with that used throughout.

The zero plus one definition has its weaknesses, however. For example, it counts as a new entrant an individual with up to 18 months of experience, and individuals with a zero value in either variable have the potential to be counted as new entrants in two consecutive surveys. Nevertheless, on the balance, the zero plus one definition produces a better approximation of new hires and new professionals.

In the 1994 data, new hires account for 10.8 percent of the ARL population. Of those new hires, 38 percent are new professionals and 63 percent are librarians with five or fewer years of experience (Table 2). Thus, a clear majority of new hires in ARL libraries have little professional experience.

Table 2: Years of professional experience among new hires, 1994

Years Experience	0–5	2–5	6–10	11–15	16–20	>20	*Total*
Total Percent	38%	25%	17%	9%	7%	4%	100%
New Hires	300	204	133	74	57	36	804

The ARL data do not allow us to describe mobility among ARL librarians in the broader sense of the frequency with which individuals move among appointments. By combining the "years of professional experience" and "years in reporting library" variables, however, we can identify the number of ARL librarians who have worked at only one library, and so produce one important measure of mobility.

As with any profession, many new professionals enter ARL libraries only to leave within a few years. They may transfer to another library, leave the profession altogether, or leave their ARL position for any number of other reasons. This phenomenon is reflected in the ARL data in the population of librarians who have 5 years of professional experience, only 24 percent of whom have worked at only one library in those 5 years (Tables 3 and 4).

Table 3: Percent of ARL librarians who have worked at only one library, 1994

Years of Experience	5	10	15	20	25	30
Librarians who have worked at one library only	111	87	72	84	68	28
Librarians in this Experience Category	454	262	218	162	141	48
Percent of this Experience Category who have worked at one library only	24%	33%	33%	52%	48%	58%

Table 4: Librarians who have worked at only one library, aggregated

Years of Experience	0–4	5–9	10–14	15–19	>20
Librarians who have worked at one library only	653	505	334	328	803
Librarians in this Experience Category	2,149	1,801	1,081	827	1,491
Percent of this Experience Category who have worked at one library only	30%	28%	31%	40%	54%

Based on the 1994 data, 54 percent of all ARL librarians with 20 or more years of professional experience have worked at only one library. This point is important because it reduces the impact of transfers into and out of the ARL population. We know that individuals move in and out of the ARL population, but they are impossible to track as individuals directly from the ARL data. Knowing that a substantial percentage of ARL librarians never leave their first library reduces the level of uncertainty associated with this variable. Limited mobility also increases confidence in making retirement projections. There is no evidence that the tendency of librarians to remain in the library of their first professional position is likely to change soon. On the contrary, to the degree that older people move less often than younger people, transfers of older individuals into ARL, combined with older recent graduates from library school, suggest less mobility.

Transfers

Librarians may enter the ARL population as transfers as well as new professionals. In this study, a transfer refers to a librarian who enters the ARL population with prior professional experience or who leaves it before reaching retirement age. This definition excludes ARL librarians who quit and take positions in other ARL libraries. Such job changes do not affect the

demographics of the ARL population, and they are impossible to track because data on individuals are not kept.

The ARL population is anomalous in that it attracts more experienced librarians than it loses to other libraries in several middle-range age categories (Table 5). If ARL's population were typical, one would find relatively few departures from the population in the middle years, but even fewer entrants, resulting in slightly negative retention. As Table 5 demonstrates, however, retention is positive in ARL libraries from ages 35 to 49.

Table 5: Retention rates for experienced ARL librarians in selected age groups

Age Cohort in 1995	35–39	40–44	45–49	50–54
% Increase by 2000	23%	22%	12%	-14%

These findings are based on the projection analysis described in detail in Appendix 2. The number of individuals in a given age cohort in 1990 is compared with that of the next age cohort in 1994. The retention analysis speaks only to the net effect of entry and exit from the population of experienced librarians.

Given that the net influx of experienced librarians must come from other libraries, it is hard to imagine how the positive retention rate of experienced librarians in ARL libraries could characterize librarianship generally. ARL libraries may be preferred destinations for librarians, as their parent institutions often are for teaching faculty. The size and prestige of ARL libraries may have some effect on retaining existing librarians and attracting experienced librarians from other types of libraries. But there is a basic demographic explanation as well: ARL libraries hire disproportionately from the 40–49 age group because it is unusually large. The pool of available librarians has a disproportionate number of baby boomers in it, and so they will account for an inordinate share of new hires.

The positive retention of middle-aged librarians in ARL libraries constitutes an important source of new entrants into the population, one worthy of further study. The available data, however, cannot answer such basic questions as how many transfer entries and exits there are, their age and level of experience, and why ARL libraries attract more librarians than they lose. Nevertheless, the retention analysis adds an important dimension to the explanation for the shape of the ARL age distribution from age 40 on.

Figure 11: Age of New Professionals and New Hires in ARL Libraries, 1994

	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
New Professionals	6.37	16	24.70	62	23.51	59	14.74	37	15.14	38	10.36	26	3.59	9	1.59	4
New Hires	2.69	16	14.79	88	22.18	132	19.83	118	18.66	111	14.62	87	4.87	29	2.35	14

Source: ARL Annual Salary Survey, 1994

Age at Entry and Mobility

The age at which librarians enter the ARL population is as important as the sources of those entrants. Both new professionals and new hires bring unexpectedly high numbers of librarians aged 40 and over into the ARL population. Students in MLS programs, in particular, are older than students in comparable professional programs.

In demographic terms, occupational entry is the equivalent of birth rate in national populations, except that individuals may enter most occupations at nearly any age after gaining maturity. In most professions, entry into the population adds young people, to such a degree that one can attribute an unusually large number of individuals in a narrow age range to a boom in hiring during the years of their hire. Conversely, unusually small numbers of individuals in an age range can point to a decline in hiring in a corresponding range of years. For this reason, it is not enough to know how many librarians entered from the 1960s forward; we also need to have some indication of their age at entry.

Age at Entry of New Hires

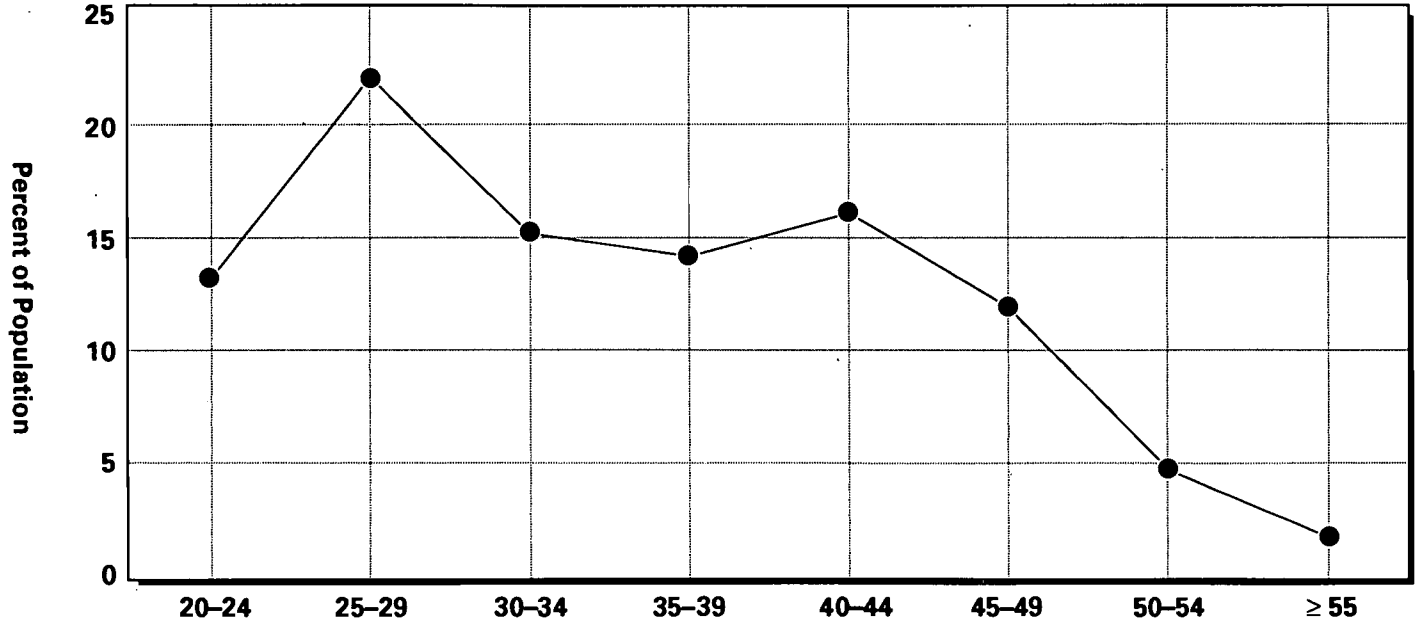
The age distribution for new hires and new professionals in ARL libraries appears in Figure 11. Both ends of these distributions are worth noting. First, there is little doubt that the flow of new professionals, and to a lesser degree new hires, increases the percentage of younger people in the population. While the age distribution of new hires is older, some of these individuals will be transfers within the ARL population, and thus will have no effect on the general ARL age distribution. Second, while the majority of new professionals entering ARL libraries are young, 31 percent are age 40 and over. As we will see, this is a key characteristic of the new professionals entering librarianship since the 1980s.

Age of MLS Students Relative to Students Preparing for Other Professions

The Association for Library and Information Science Education (ALISE) data on the age of students enrolled in ALA-accredited MLS programs document what most librarians already know in an anecdotal sense: For many, librarianship is a second career, entered in mid-life. Figure 12 presents data for the Fall 1994 semester. Approximately 50 percent of MLS students were age 35 and over, and 36 percent were age 40 and over.

When the ALISE data are compared with data on law and social work students, it is clear that age at entry is one important difference between the demographics of librarians and that of comparable professionals (Figures

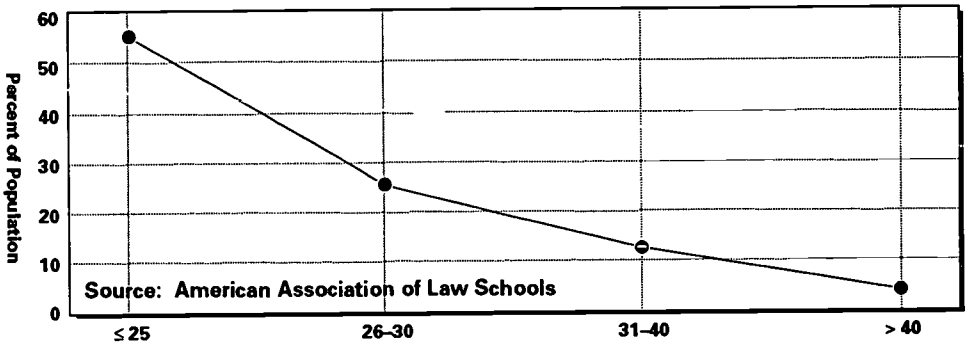
Figure 12: Age of MLS Students, 1994



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		≥ 55	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
MLS Students	13.15	1315	22.05	2205	15.17	1517	14.08	1408	16.52	1652	12.15	1215	4.83	483	2.05	205

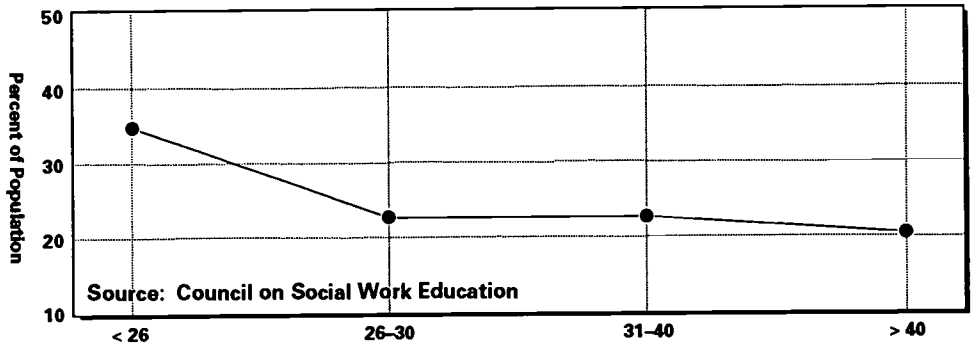
Source: ALISE Annual Statistics

Figure 13: Age of Law Students, 1993



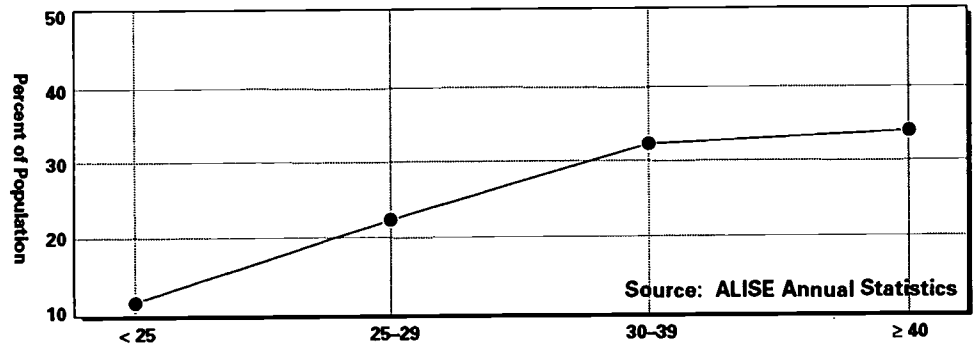
	≤ 25		26–30		31–40		> 40	
	%	*N*	%	*N*	%	*N*	%	*N*
Law Students	55.3	1875	26.5	897	12.6	284	4.1	139

Figure 14: Age of Social Work Students, 1993



	< 26		26–30		31–40		> 40	
	%	*N*	%	*N*	%	*N*	%	*N*
Social Work Students	34.5	7,145	22.6	4,681	22.6	4,681	20.4	4,225

Figure 15: Age of MLS Students, 1993



	< 25		25–29		30–39		≥ 40	
	%	*N*	%	*N*	%	*N*	%	*N*
MLS Students	11.7	1188	21.80	2219	32.3	3283	33.9	3445

13, 14, 15). The data on law students in particular, and to a lesser degree social work students, illustrate the pattern one expects to find in professions: Most students enter their professional schools in their early to mid-20s. For whatever reason, MLS students start their professional educations much later in their lives.

Because MLS students are younger than the population of ARL librarians, their entry into ARL libraries makes the latter population younger, but not nearly to the degree that one might expect. The connection between the ALISE and ARL data are clear when one compares the 1994 distribution for ARL new professionals to that of library school students of the same year (Figure 16). Given that at least nine months separate library school students from new professionals, the apparent differences in the younger age cohorts become negligible. The similarities in the curve, particularly in the portion of the populations aged 35 and over, indicates that the ARL age distribution bears the imprint of the older MLS graduates leaving library schools. The older age of library school students is certain to be a factor contributing to the older age of ARL librarians.

The Shape of the Curve

These observations on the shape of the ARL age distribution are by no means conclusive, but they suggest a context for understanding the distribution. The 1960s hiring boom continues to leave its mark on the ARL population. The tendency of new hires to be clumped in a narrow range of younger ages indicates that the 1960s hires resulted in an unusually large group of librarians who are now 47 and over. Molyneux has suggested that the 1960s staffing boom was a result of increased funding for academic libraries, and particularly the increase in new volumes. [15]

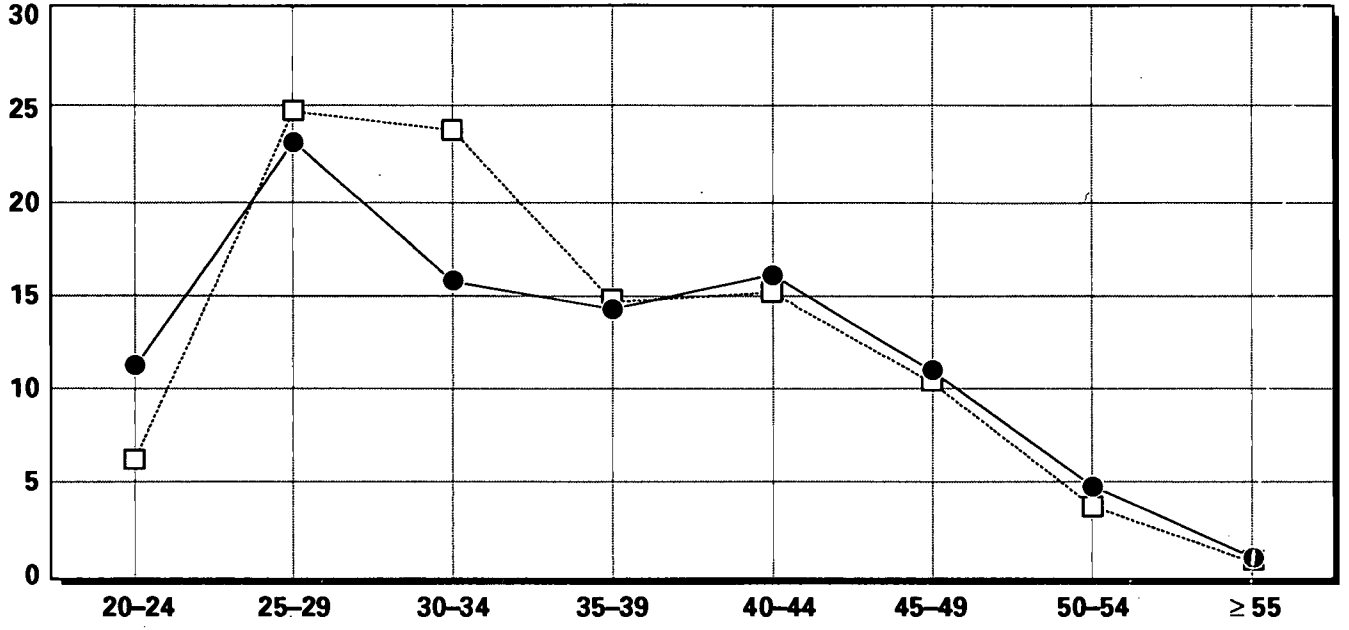
The 12-year period of almost zero growth that began in 1971 lent further definition to the 1960s hires. This period corresponds to the period of declining volumes added in ARL libraries, as documented by Molyneux, and to the later stabilization in enrollments at large institutions. [16] The small, short growth period for ARL librarians between 1984 and 1988 has not affected the age distribution.

It is important to note that most of the 1960s hires were not baby boomers; they were recruited to service the college-aged baby boom. But the baby boomers who became librarians, most of whom were aged 40 to 48 in 1994, also have an enormous influence on the age curve, though they did not enter librarianship in one brief burst of hiring. Instead, they have been hired in disproportionate numbers each year since 1970. The disproportionate

[15] Robert E. Molyneux, "Staffing Patterns and Library Growth at ARL Libraries, 1962/63 to 1983/84" *Journal of Academic Librarianship* 12 (November 1986), 292-97.

[16] Robert E. Molyneux, "Growth at ARL Member Libraries, 1962/63-1983/84," *Journal of Academic Librarianship* 12 (September 1986), 211-216.

Figure 16: Age of MLS Students and ARL New Professionals, 1994



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		≥ 55	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
MLS	13.15	1315	22.05	2205	15.17	1517	14.08	1408	16.52	1652	12.15	1215	4.83	483	2.05	205
ARL	6.37	16	24.70	62	23.51	59	14.74	37	15.14	38	10.36	26	3.59	9	1.59	4

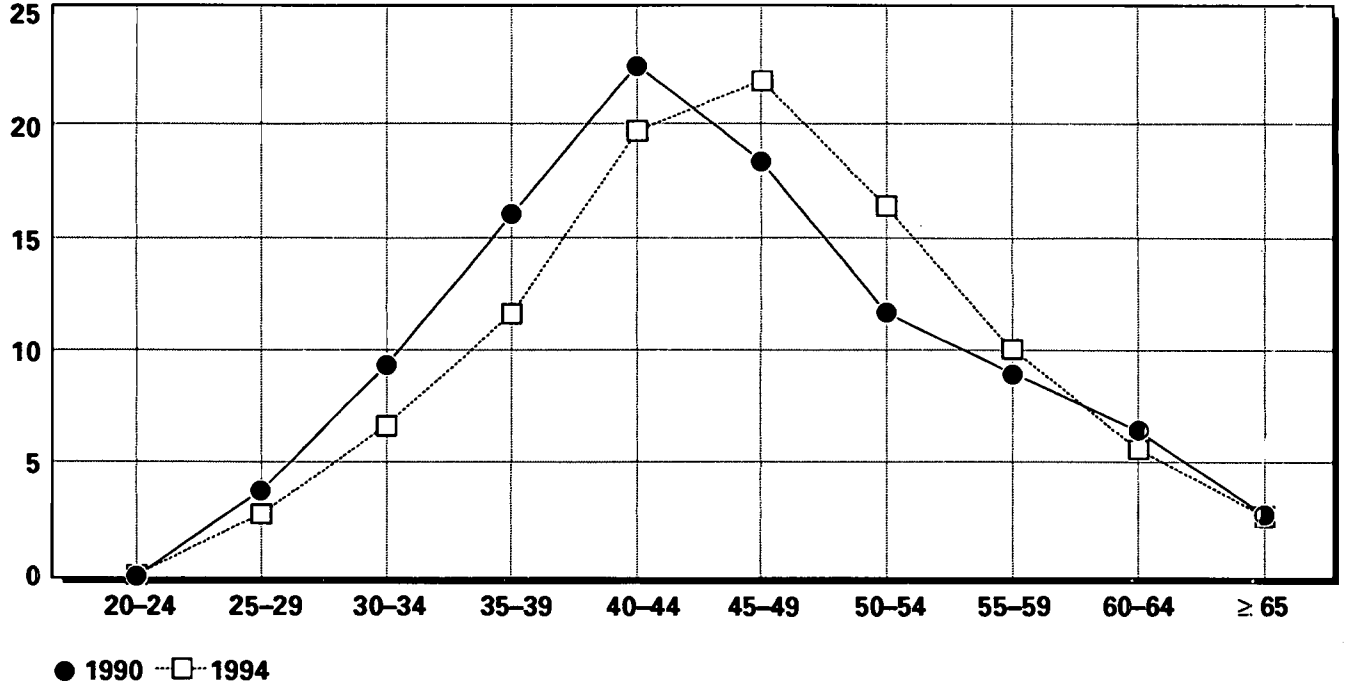
Sources: ALISE and ARL Annual Salary Survey, 1994

hiring of baby boomers is a phenomenon common to many professional groups.

The arrival of baby boomers in higher education first caused libraries to hire many more staff, but the baby boomers themselves then came to dominate the pool of available staff. This is because the age of those employed to service the baby boom and the baby boomers themselves form a contiguous range, from 40 to 54, with an overlap in the late 40s. The overlap may well account for the median age of ARL librarians, 46, and the convergence of the two groups explains the unusually large number of ARL librarians in the 45 to 54 age cohort.

The under-representation of younger people in the ARL distribution is explained in part by the low rates of hire in recent years, which have the effect of reducing the flow of younger people into the population. The relative lack of mobility of experienced ARL librarians also reduces the number of vacancies available for young people. The lower number of younger people is also associated with the unusually high age of library and information studies students relative to those in other professional programs. Recent library school graduates, like recent graduates from other professional programs, are younger than the professional populations they enter, but middle-aged graduates make up a much higher proportion of new library professionals than they do in comparable professions.

Figure 17: Age of ARL Librarians, 1990 and 1994



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
1990	0	10	3.6	258	9.2	653	16.6	1171	22.4	1528	17.9	1263	11.9	841	8.7	618	6.7	477	2.8	197
1994	0.3	21	2.7	198	7.2	517	12.2	880	19.6	1413	23	1663	16.6	1202	10	719	5.7	412	2.7	193

Source: ARL Annual Salary Survey, 1990 and 1994

Movement of the Curve

The movement of the ARL age curve between 1990 and 1994 is the result of several factors, including the dramatic aging of MLS students between 1981 and 1993 and a drop in the rate of hire. The most important factor, however, is the movement of the unusually large population of baby boom and 1960s hires into the 45–49 age cohort.

The movement of the ARL age curve from 1990 to 1994 is extraordinary for so short a period of time (Figure 17). Before seeking an explanation of the shift, however, it is important to be specific about these changes. Two phenomena stand out. First, the percentage of the population represented by librarians aged 25 to 44 has declined from 52 percent to 42 percent. Second, the apex of the curve shifts from the 40–44 age cohort in 1990 to the 45–49 cohort in 1994.

There are a limited number of potential explanations for these changes:

- There has been an increase in the age of new professionals.
- The rate of hire, including the rate of hire of new professionals, has decreased.
- There has been a change in exit behavior.
- The 1960s hires and the baby boomers are moving through mid-life and into the older age cohorts.

Increase in the age of new professionals

Table 6 presents ALISE data on the number of MLS students in each age cohort between 1983 and 1994. These data reveal an interesting phenomenon: the age of library and information studies students increased sharply during the 1980s (Figure 18). The percentage of students aged 35 and over has risen from 25 percent in 1981 to 50 percent in 1994. The shift in age is remarkable given the short period in question and even more remarkable because the increase in student ages did not also occur in at least one comparable profession, social work (Figure 19).

While the rise in the age of MLS students obviously played some part in the aging of librarianship generally, there is no reason to suspect that this phenomenon played a role in the 1990 to 1994 ARL shift. The rate of change in student ages between 1990 and 1994 is small.

Table 6: Number of MLS students in ALA-accredited programs

Age Grouping	*1983*	*1985*	*1987*	*1989*	*1991*	*1993*	*1994*
20–24	699	832	805	782	1,083	1,188	1,315
25–29	1,259	1,666	1,850	1,574	2,094	2,219	2,205
30–34	953	1,302	1,543	1,493	1,703	1,633	1,517
35–39	572	923	1,346	1,502	1,706	1,650	1,408
40–44	340	568	928	1,259	1,688	1,683	1,652
45–49	181	304	464	616	1,028	1,137	1,215
50–54	114	125	244	294	405	447	483
≥55	52	89	123	147	171	178	205

Changes in the Rate of Hire

Analyzing the 1990 and 1994 ARL data for explanations of the shift in the age distribution has the inherent weakness of relying on only two data sets, but these data sets present useful information.

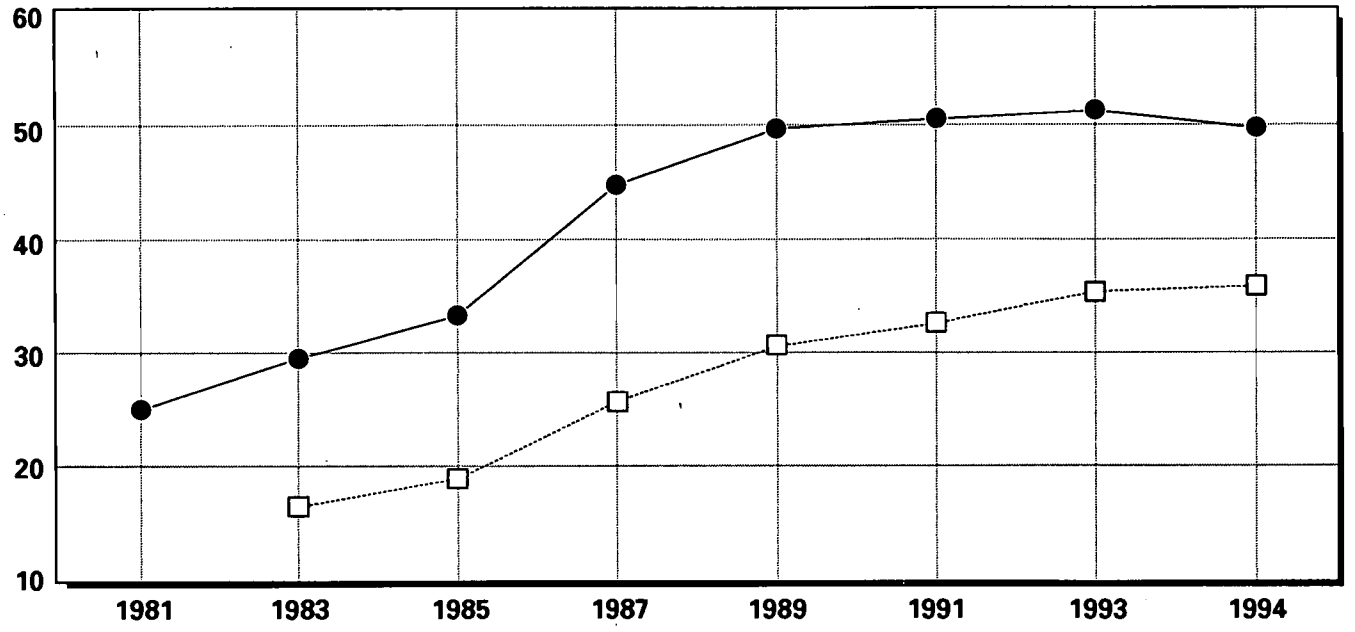
Obviously, the closer a population comes to having no new entrants over time, the closer it will come to aging at the rate that individuals age. The 1994 ARL data indicate that the number of new hires, as a percentage of the population, declined by almost one-third from 1990 (Table 7). No apparent cyclical factors could introduce this magnitude of variation in ARL's rate of hire. On the contrary, the early 1990s have been a period of general retrenchment in academic libraries and while the magnitude of the drop is surprising, the drop itself is not.

Table 7: New hires and new professionals, 1990 and 1994

	New Hires	*N*	*% of New Hires from N*
1990	1,062	7,018	15.1%
1994	804	7,411	10.8%
	New Professionals	*N*	*% of New Hires from N*
1990	428	8,404	5%
1994	336	8,226	4%

According to ARL statistics, from 1990 to 1994 the number of FTE professionals in ARL university libraries did not change. Thus the drop in hiring is probably not the result of staffing changes, outsourcing, automation, or any other reduction in the number of librarians. The only alternative explanation for the drop in hiring is that the market for librarians tightened

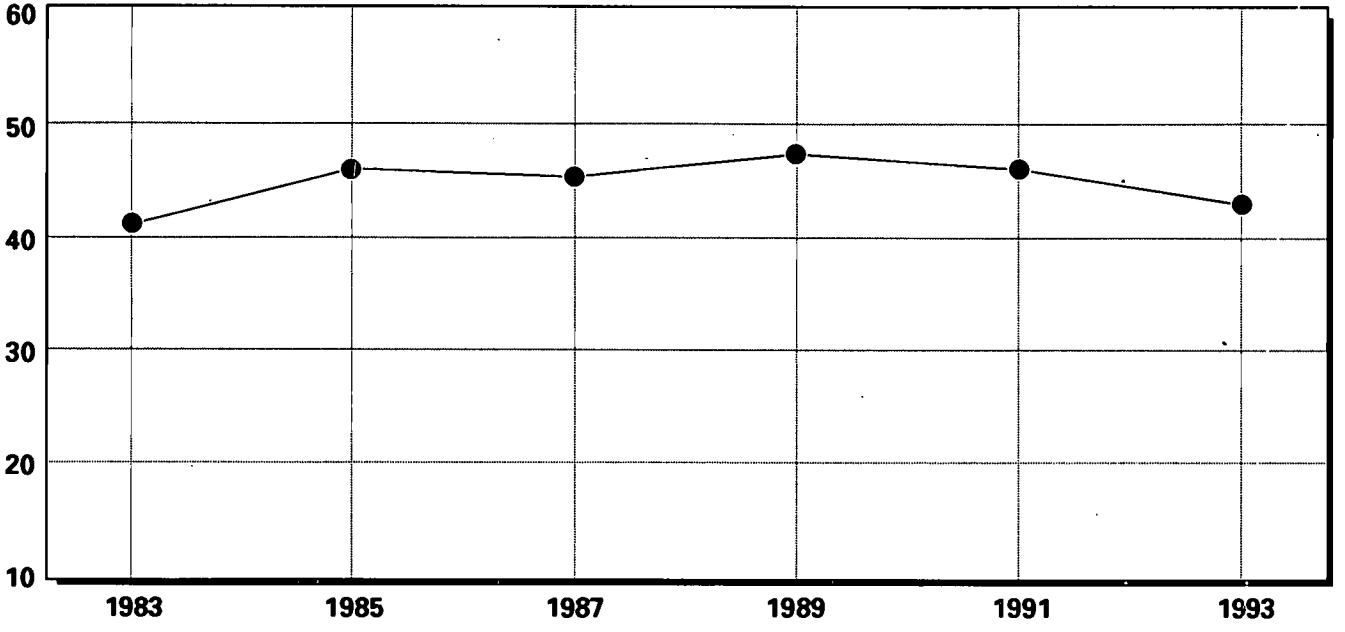
Figure 18: Older MLS Students, 1981 to 1994



	1981		1983		1985		1987		1989		1991		1993		1994	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
35 and over	24.9	1107	29.72	1207	33.12	1920	44.23	2982	48.78	3671	50.35	4827	51.36	4917	49.83	4758
40 and over	—	—	16.86	687	18.72	1086	25.94	1759	30.56	2316	32.83	3292	35.53	3445	35.81	3555

Source: ALISE, 1981 to 1994

Figure 19: Older Social Work Students, 1983 to 1994



	1983		1985		1987		1989		1991		1993	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
Social Work Students	41.2	5877	46.1	6479	45.3	6904	47.3	7462	46.2	8848	43	8905

Source: AACSW, 1983 to 1993

considerably, so librarians who might have left for other positions remained in place, thus reducing the number of vacancies available for filling.

Recent MLS graduates are the largest source of younger people for the ARL population. A reduction in the opportunities for new professionals to enter the system could cause the population to age. As Table 7 demonstrates, the portion of the population represented by new professionals dropped from 5 percent to 4 percent. This ratio bears monitoring in the future.

Changes in Exit Behavior

It is unlikely that changed exit behavior had a noticeable impact on the aging of the ARL population between 1990 and 1994. Changes in mortality and retirement rates are much too gradual to account for the age shift.

One potential source of change in the exit behavior of ARL librarians is the U.S. law ending mandatory retirement for tenured faculty at age 70. As discussed in Chapter 1, this law was enacted in 1986, but Congress honored higher education's request for a grace period to make necessary adjustments. In theory, the end of mandatory retirement could easily explain an important shift in retirement behavior among academic librarians. There are a number of factors, however, that argue against such a shift in practice.

Many institutions did not have mandatory retirement policies when the legislation passed, and many of those that did eliminated the policies shortly thereafter.[17] By the time the federal legislation took effect in 1994, relatively few institutions still maintained a mandatory retirement policy. As a result, if the law were to have had an effect on retirement rates of academic librarians, it should have been spread out from 1986 to 1994.

Not all ARL librarians have faculty status in their institutions, and many of those who do are not tenured. These factors make it even more unlikely that the law would affect the ARL population.

There is a substantial literature devoted to gauging the affect of the end of mandatory retirement on higher education, and the consensus conclusion is that elimination of this policy has had little or no effect on retirement behavior.[18] The age of faculty retirement has in fact declined, primarily because of early retirement incentives. Faculty (all of the available studies concern teaching faculty) consistently ranked pension concerns, health and burnout ahead of mandatory retirement as factors in their retirement decisions.[19]

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[17] G. Gregory Lozier, *Faculty Retirement Projections Beyond 1994: Effects of Policy on Individual Choice* (Boulder, CO: Western Interstate Commission for Higher Education, 1991), 13.

[18] Karen C. Holden and W. Lee Hansen, eds. *The End of Mandatory Retirement: Effects on Higher Education* (San Francisco: Jossey-Bass, 1989).

[19] G. Gregory Lozier, *Faculty Retirement Projections Beyond 1994: Effects of Policy on Individual Choice* (Boulder, CO: Western Interstate Commission for Higher Education, 1991), 86-87.

The Movement of the Curve

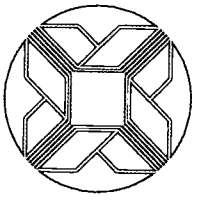
The best explanation for the movement of the curve also explains its unusual shape: the outsized population of 1960s hires and baby boomers. Between 1990 and 1994, the large number of librarians aged 40–44 moved into the 45–49 age cohorts, and the population's apex moved with them. This group's influence is amplified by the reduction in new hires, from 15 percent of the population in 1990 to 10.8 percent in 1994. The decline in the number of new professionals, from 5 percent in 1990 to 4 percent in 1994, may also have played a role in the movement of the curve.

Many comparable professions experienced the demographic pressures exerted by growth in higher education in the 1960s and the baby boom, yet they did not age between 1990 and 1994. What sets the ARL population apart? One possible answer is that ARL libraries have not hired large numbers of librarians since the early 1970s and those who have been recruited were relatively old. These two factors increased the already pervasive influence of the 1960s hires/baby boomer group in the ARL population. As the projections in Chapter 3 indicate, this group should continue to dominate ARL's age distribution well into the next century.

■ Chapter 3

Projections for the U.S. ARL Population

Projections and Potential Consequences



Projections and Potential Consequences

The 1990 and 1994 ARL data and U.S. demographic data provide the basis for projections on the age profile of ARL librarianship through 2020. The apex of the ARL distributions moves along with the baby boom/1960s group of librarians through 2010, when baby boomers begin to retire in large numbers. The aging of librarianship in these projections has implications for retirement and salaries.

One of the primary objectives of this study was to produce age projections for the U.S. ARL population through 2020.[20] Although the ARL data do not support the construction of formal retirement projections, they do allow for the creation of retention tables and projections. A retention table reports the net of individual entries and exits in a population over a period of time. The retention tables and projections yield a great deal of useful information and allow for a reasonable approximation of the rates at which ARL librarians will retire over the next 25 years. The retention tables and a narrative description of the methodology used can be found in Appendix 2.

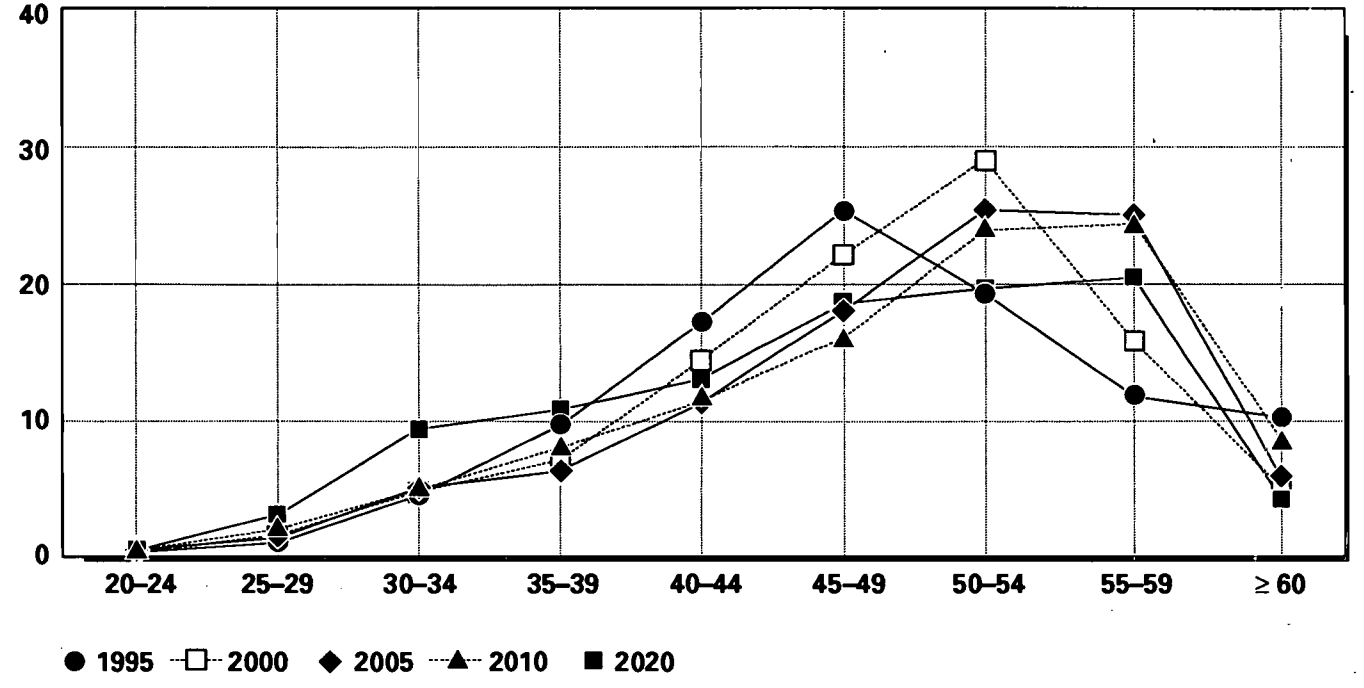
Projected Age Structure

Figure 20 presents the projected age distributions for the ARL population. The distribution projections illustrate how the aging of the ARL population will continue through 2010, when librarians aged 50 and over should comprise 58 percent of the ARL population. The 1960s hires/baby boom group continue to dominate the population through 2010, when large numbers of the baby boom group will begin exiting the population. By 2020, nearly all the baby boomers will have left the population, thus sharply reversing the aging trend.

The retention tables in Appendix 2 allow for a reasonable approximation of retirement. "Retirements" in this study refer to any reduction in the number of librarians in the 60 and older age cohorts from the previous period and lower age cohort. For example, one subtracts the number of librarians in the 60–64 age cohort in 2000 from the 55–59 age cohort in 1995. The difference is the number of librarians aged 55 to 59 who can be expected to retire between 1995 and 2000. To this number one adds similar computations for the 60 to 64 cohort and the 65 and over cohort. The weakness of this calculation is that it reflects only net changes in the population and attributes them all to retirement. In fact, some librarians will enter the population in these age ranges while others will leave for reasons other than retirement. The first case leads to understatement of retirements, the second to overstatement. The projected retirement rates assume that exits not due to

[20] The Projections in this section make use of the U.S. demographic data and assumptions and therefore reflect only the U.S. ARL population.

Figure 20: Projected ARL Age Distributions



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59		≥ 60	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
1995	0.21	16	0.92	70	4.28	326	9.84	748	17.56	1335	25.43	1932	19.30	1467	12.08	918	10.36	788
2000	0.18	14	1.65	126	4.34	330	7.36	559	14.14	1074	22.01	1673	29.06	2208	16.23	1233	5.03	383
2005	0.19	15	1.47	112	4.79	364	6.98	530	11.30	859	18.37	1396	26.04	1979	24.99	1899	5.86	446
2010	0.21	16	1.72	131	4.75	361	7.98	606	11.45	870	16.35	1243	24.10	1831	24.55	1866	8.88	675
2020	0.21	16	2.62	199	9.43	717	10.79	820	13.64	1036	18.73	1423	19.79	1504	20.54	1561	4.25	323

retirement are offset by entries in the older age cohorts.

The retirement projections indicate that retirements will have an enormous impact on ARL libraries over the next 25 years. Between 1995 and 2000, ARL libraries will lose 16 percent of their population to retirement. Of the remaining population, another 16 percent will retire between 2000 and 2005, and 24 percent between 2005 and 2010. Between 2010 and 2020, 27 percent of the ARL population will retire.

The retention tables in Appendix 2 take into account the projected age structure of the U.S. population, which is particularly important in calculating the rate at which individuals will enter the ARL population. For example, the projected age distributions in Figure 20 contain fewer young people than might otherwise be the case, because there will be proportionately fewer of them in the population.

One possible consequence of the shorter supply of young people is that as ARL libraries lose progressively larger shares of their population to retirements, pressure will build to increase salaries. To the degree that replacement demand becomes acute throughout the profession, salaries for librarians could rise relative to other occupations.

■ Chapter 4:

Age Within the ARL Population

Age Distribution by Category

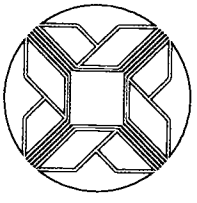
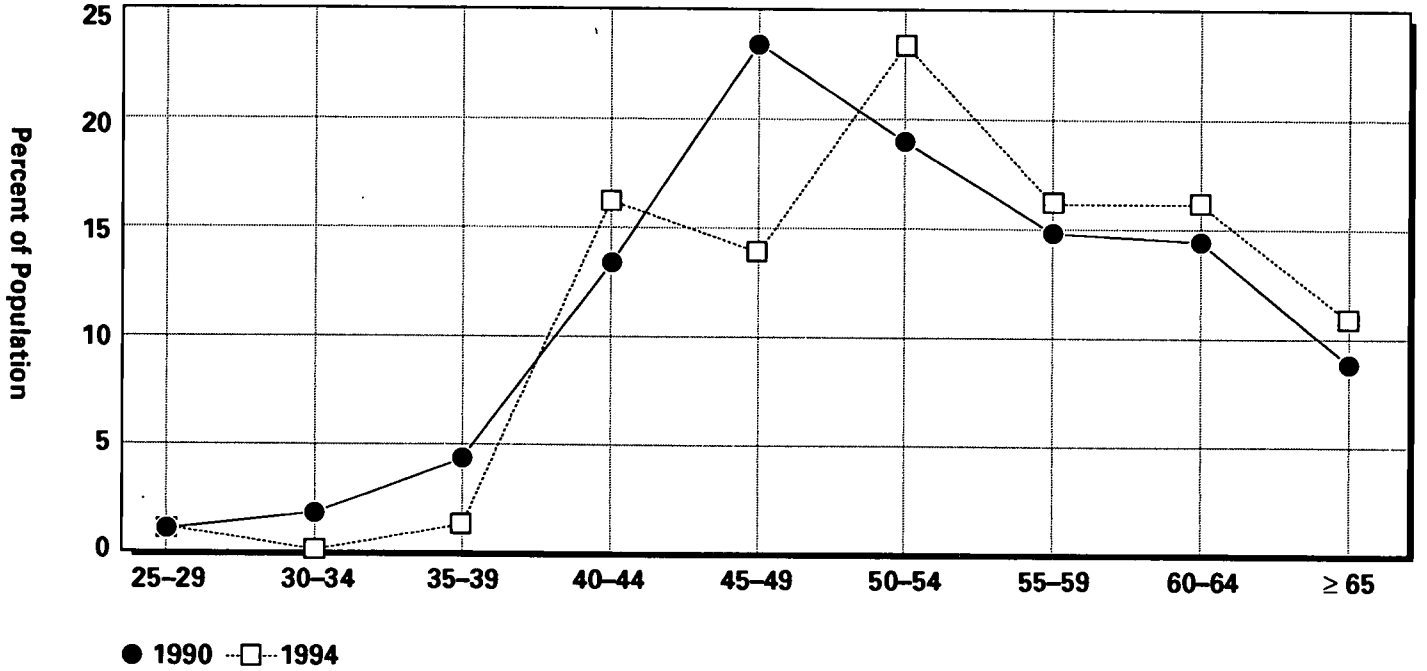


Figure 21: Age of ARL Librarians with Library Bachelor's Degree, 1990 and 1994



	25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
1990	1.4	3	1.9	4	4.3	9	12.9	27	23.3	49	18.6	39	14.8	31	14.3	30	8.6	18
1994	1.4	1	0	0	1.4	1	16.4	12	13.7	10	23.3	17	16.4	12	16.4	12	11	8

Age Distribution by Category

Age is not distributed evenly across the many subgroups in the ARL data. Analysis of the age profiles of ARL subgroups can point to professional specialties that will experience exceptionally high levels of retirement, measures of success in minority recruitment efforts and shifts in personnel resource allocations from, for example, catalogers to reference librarians. Each has implications for work force planning, recruitment, automation and outsourcing.

The ARL data allow us to test for age differences among subgroups in the ARL population. Although it is theoretically possible to produce an age distribution for every value of every variable in the survey, many of these calculations produce uninteresting results. For example, it is not surprising that librarians with 20 or more years of professional experience or library Ph.D.s are older than the population average. Comparisons more often produce distributions that are nearly identical to that of the population as a whole, as is the case with the "other education" variable and sex.

Library bachelor's degree

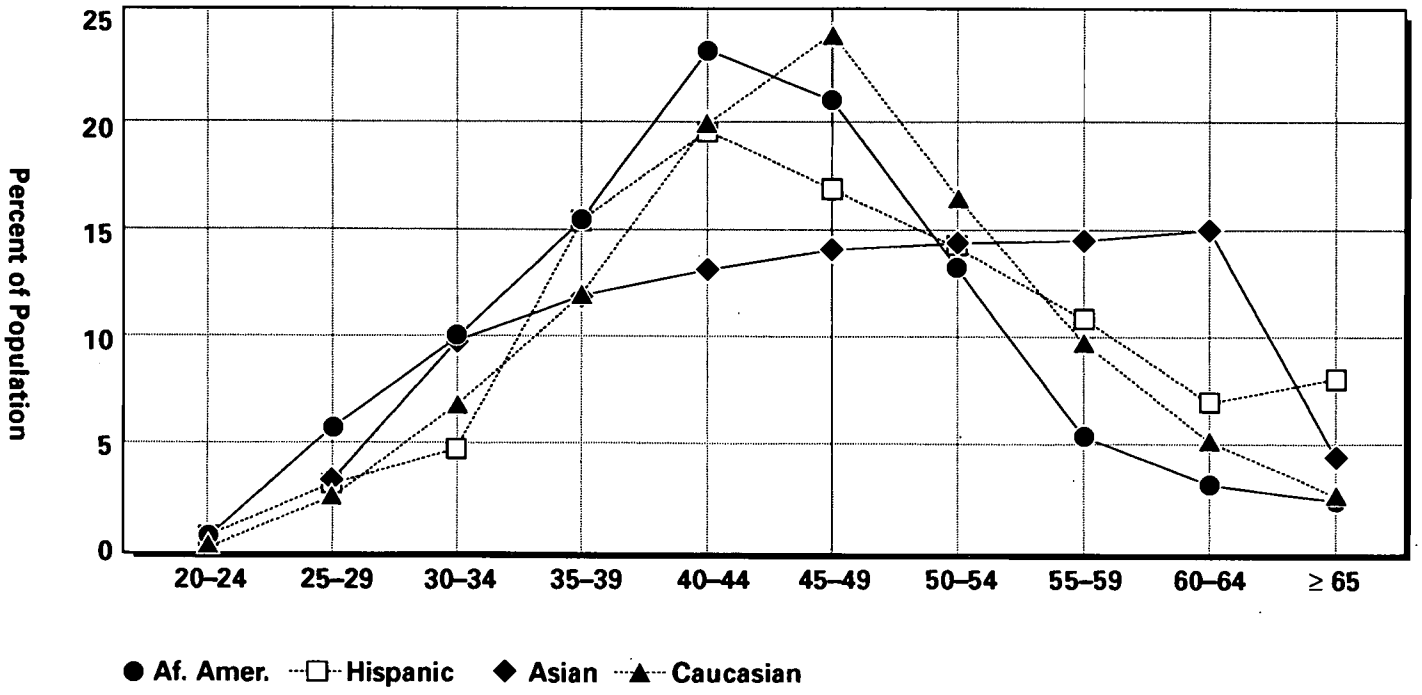
ARL librarians who hold the library bachelor's degree are a group in the process of leaving the population. Both the 1990 and 1994 age distributions for bachelor's degree librarians indicate that a large proportion of this group was on the verge of retirement (Figure 21). Indeed, between 1990 and 1994, the number of librarians with the bachelor's degree fell 70 percent. A large portion of the remaining bachelor's degree librarians will leave the population in the near future.

Minority groups

ARL data relating to racial categories apply only to U.S. libraries, as Canadian law prohibits collecting such information. Figure 22 presents the age profiles for African Americans, Hispanics, Asians and Caucasians. American Indians are omitted because there are not enough librarians in this category to make a useful age distribution.

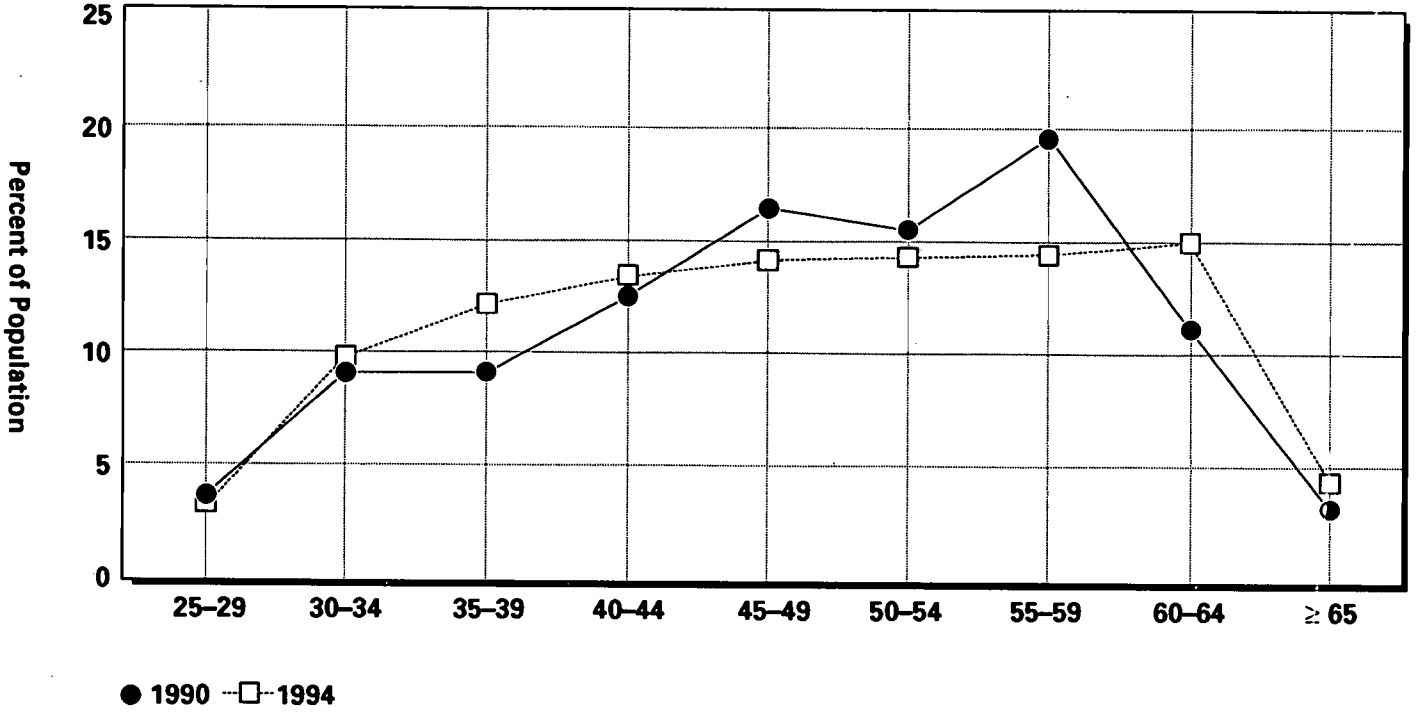
The most striking distribution is that of ARL librarians of Asian ethnicity. The percent of population for this group builds from each succeeding age cohort up to the apex in the age 60–64 group, which includes a remarkable 14.5 percent of the Asian population. A comparison of the 1994 Asian distribution to that of 1990 suggests that retirements have had the effect of reducing the age of the remaining population (Figure 23). The difference between the Asian and library bachelors groups is that the population of Asian librarians continues to be refreshed. The size of the Asian population remained stable between 1990 and 1994, which suggests that the increases

Figure 22: Age of ARL Minority Librarians, 1994



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Asians	—	—	3.3	12	9.7	35	12.2	44	13.1	47	13.9	50	14.2	51	14.4	52	15	54	4.2	15
African Americans	0.8	2	5.8	14	9.9	24	15.6	38	23	56	21	51	13	32	5.3	13	2.9	7	2.5	6
Hispanics	0.8	1	3.1	4	4.7	6	15.5	20	19.4	25	17.1	22	14	18	10.9	14	7	9	7.8	10
Caucasians	0.3	18	2.7	160	7.1	415	12.3	718	19.9	1159	23.8	1387	16.5	963	9.6	559	5.1	300	2.7	156

Figure 23: Age of Asian ARL Librarians, 1990 and 1994



	25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
1990	3.7	13	9.1	32	9.1	32	12.5	44	16.5	58	15.4	54	19.4	68	11.1	39	3.1	11
1994	3.3	12	9.7	35	12.2	44	13.1	47	13.9	50	14.2	51	14.4	52	15	54	4.2	15

in the younger age cohorts evident in Figure 23 are due as much to successful recruitment as to unusually high retirement levels.

The Hispanic curve (Figure 22) also has an unusual shape, particularly at the 65 and over cohort, which accounts for 8 percent of that population. Without significant numbers of new Hispanic librarians, ARL libraries will lose a substantial percentage of the Hispanic population in the very near future.

At the young end of the age distributions (Figure 22), ARL's African American librarians stand out, with higher proportions of their population in the age 20–44 age cohorts than the Caucasian population.

The disparity between African American and Caucasian ARL librarians in the older age cohorts suggests that the African American portion of the ARL population will rise, even without improved recruitment. This suggests that tracking the minority portion of total new hires is a better measure of the success of recruitment efforts than the minority portion of the entire ARL population.

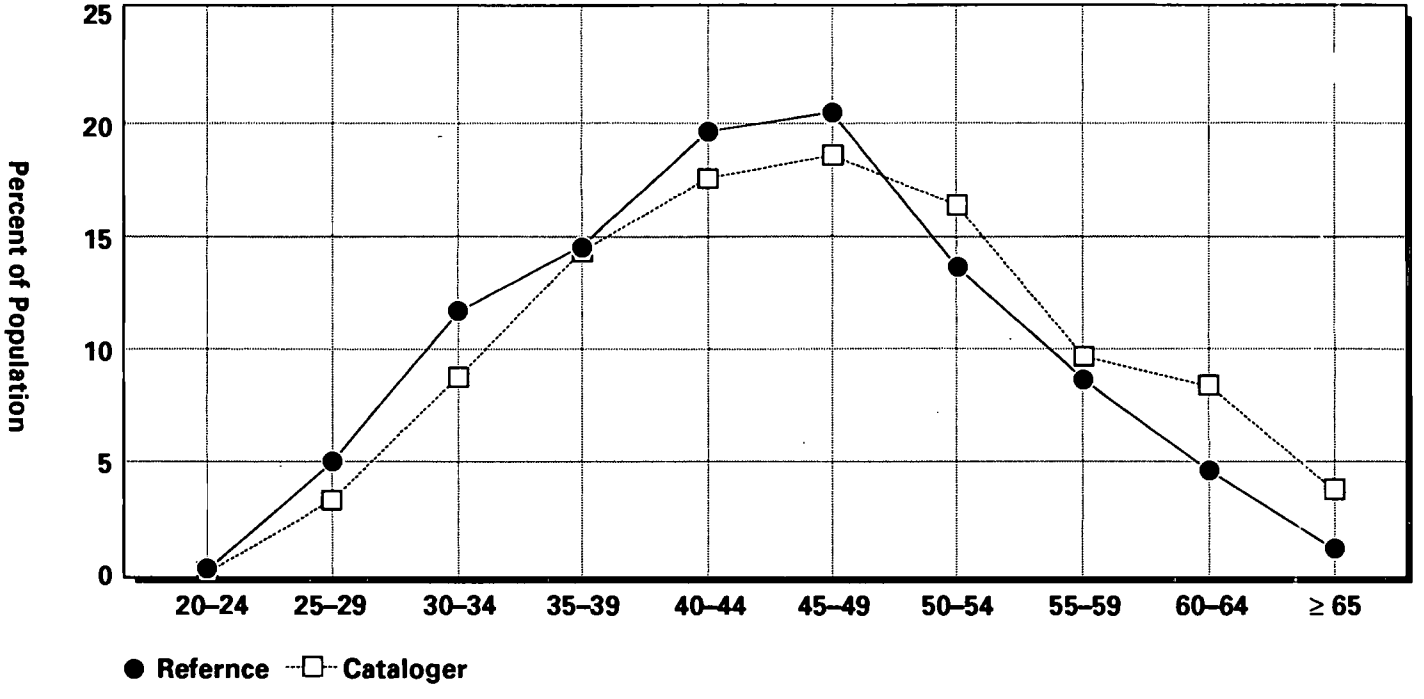
Reference Librarians and Catalogers

One commonly held belief among ARL librarians is that reference librarians are younger than catalogers, and this is indeed the case. In 1994, 35 percent of ARL catalogers and only 27 percent of reference librarians were age 50 and above (Figure 24). Part of the disparity lies in the degree to which the two populations are being refreshed with new hires. While reference librarians constitute 20 percent of the ARL population, they accounted for more than 27 percent of new hires in 1994. Catalogers also received a disproportionate number of new hires, but the margin was much smaller: Catalogers were 12 percent of the population and 15 percent of the new hires in 1994. The combined effect of high retirement and low recruitment produced a 13 percent decline in the number of catalogers between 1990 and 1994, compared with a 7 percent increase in the number of reference librarians. Considering that the number of new hires was low in 1994, it is clear that ARL libraries are not replacing their retiring catalogers on a one-to-one basis.

Directors and Assistant/Associate Directors

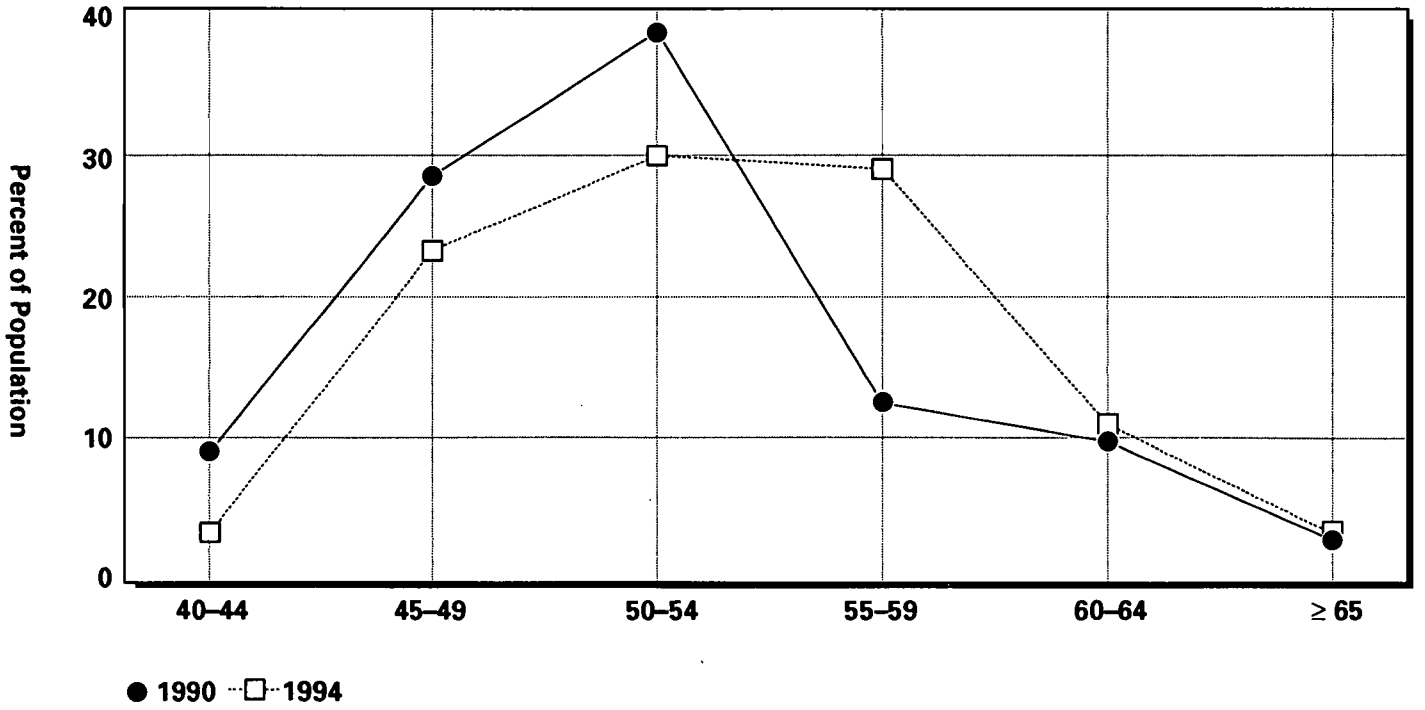
Directors tend to fall into a narrower range of ages than any other job title category (Figure 25). In 1994, more than 82 percent were between the ages of 45 and 59. While the comparable figure from 1990 is almost identical, the age profiles for the 2 years are quite different. The aging trend that affected the ARL population between 1990 and 1994 apparently affected the director group as well, since the percentage of the population aged 55 and over rose from 25 to 43 percent. The percentage of the population in the 60–64 age

Figure 24: Age of ARL Catalogers and Reference Librarians, 1994



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Reference	0.3	4	5.00	71	12.10	182	14.60	221	19.50	295	20.30	307	13.50	204	8.40	127	4.80	72	1.70	26
Cataloger	0.2	2	3.20	28	8.60	79	14.4	133	17.50	161	18.20	168	16.60	153	9.80	90	8.10	75	3.60	33

Figure 25: Age of ARL Directors, 1990 and 1994



	40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N
1990	8.7	9	28.2	29	37.9	39	12.6	13	9.7	10	2.9	3
1994	3.3	3	23.3	21	30	27	28.9	26	11.1	10	3.3	3

59A

group is twice that of the population as a whole, but this is not surprising given the experience generally required of directors. However, directors are not more inclined than other ARL librarians to remain in their positions after age 65.

Male ARL directors are substantially older than their female counterparts (Figure 26): 21 percent of male directors were age 60 or over in 1994, compared with just 3 percent of female directors. Thus retirements in the near future are likely to have the effect of increasing the proportion of female ARL directors.

Assistant and associate directors also aged dramatically between 1990 and 1994 (Figure 27). The percentage of this population ages 45 and over rose from 61 percent in 1990 to 77 percent in 1994.

Other Job Categories

A number of other job title categories have more librarians in the older age cohorts, and these are summarized in Table 8. All but one are managerial, so it is not surprising that their age distributions are unusually old.

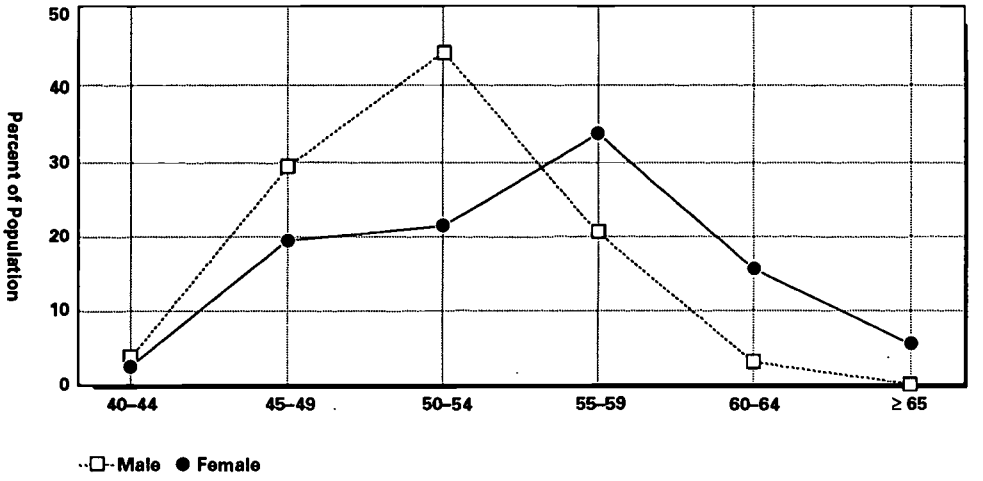
Table 8: Percent of population in selected age and job categories, 1994

	≥45	*N*	≥50	*N*	≥55	*N*
Head, Medical	84.2	37	41.0	18	20.5	9
Head, Rare	78.8	78	47.5	47	25.3	25
Head, Maps	77.3	17	45.5	10	9.1	22
Head, Law	75.4	40	39.6	21	15.1	8
Head, Documents	74.7	56	54.7	41	18.7	14
Head, Branch	67.9	363	43.2	231	23.7	127
Head, Acq.	66.1	84	42.5	54	18.9	24
Subject Specialist	65.5	461	42.5	299	26.0	183
Total ARL	57.7	4,189	34.6	2,526	18.2	1,324

U.S. Regional Differences

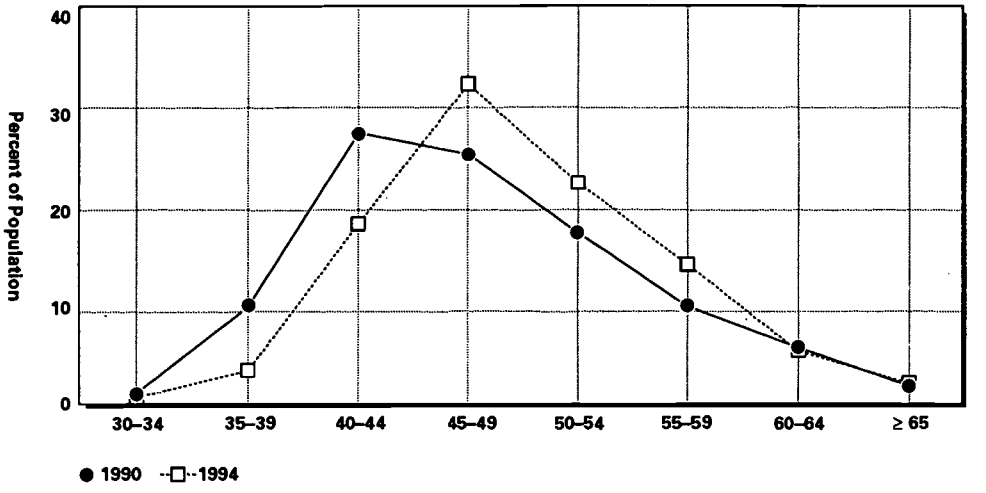
ARL groups its member libraries into nine U.S. geographic regions, and Canada. While the U.S. regions generally vary little in terms of age, several anomalies exist. First, the Mountain and Pacific regions have an unusually small number of librarians under age 40 (Table 9). At the other end of the scale, the East South Central region stands out for its unusually small percentage of librarians age 50 and over. The West North Central region has more librarians in this category than any other U.S. region.

Figure 26: Age of ARL Directors by Sex



	40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
Male	3.57	2	19.64	11	21.43	12	33.93	19	16.07	9	5.36	3
Female	2.94	1	29.41	10	44.12	15	20.59	7	2.94	1	0.00	0

Figure 27: Age of ARL Assistant and Associate Directors, 1990 and 1994



	30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
1990	0.9	4	10.14	43	27.59	117	25.24	107	17.69	75	10.14	43	6.13	26	2.12	9
1994	0.6	3	3.68	17	18.61	86	32.25	149	22.51	104	14.29	66	5.84	27	2.16	10

Table 9: Percent of population under 40 and over 50 by region

Included Region	*<40*	*N*	*≥50*	*N*
New England *CT, MA, ME, NH, RI, VT*	23.8%	209	33.7%	296
Middle Atlantic *NJ, NY, PA*	24.5	261	33.6	359
East North Central *IL, IN, MI, OH, WI*	22.5	270	34.5	415
West North Central *IA,KS, MN, MO, NE, ND, SD*	22.1	105	38.7	186
South Atlantic *DE, DC, FL, GA, MD, NC, SC, VA, WV*	24.3	261	33.1	357
East South Central *AL, KY, MS, TN*	26.5	81	26.2	80
West South Central *AR, LA, OK, TX*	28.2	103	35.8	131
Mountain *AZ, CO, ID, MT, NV, NM, UT, WY*	19.2	72	36.8	138
Pacific *AK, CA, HI, OR, WA*	18.4	153	36.1	300
Canada *All provinces*	15.8	100	41.6	264

ARL Libraries in Canada

Canadian ARL librarians, who make up 9 percent of the ARL population, are significantly older than their counterparts in the United States (Figure 28). Only 16 percent of the Canadian ARL population is under age 40, compared with 23 percent of those in the United States. At the other end of the scale, 42 percent of the Canadian librarian population are age 50 and over, 20 percent higher than in the United States. It is also remarkable that there are only slightly fewer librarians in the 50–54 age group than the 45–49 group.

How to explain the difference? While some demographic factors, such as the baby boom and the growth of higher education, affected both Canada and the United States, there are many obstacles to applying the same analysis to both countries. The array of federal laws that affect hiring, pension and retirement issues, and census data collection all complicate comparisons, as do differing employment patterns in higher education in the two countries, and library and information science student demographics. A special study would be necessary to understand how these factors affect the Canadian age profile.

The ARL data, however, can contribute to explaining the differences between the two countries. Although we do not have longitudinal data on the rate of hire among Canadian ARL libraries, the Canadian rate of hire generally and the rate of hire for new professionals lagged significantly behind that of the United States (Table 10).

Table 10: New hires in the United States and Canada

	Canada			*U.S.*		
	New Hires	*N*	*%*	*New Hires*	*N*	*%*
1990	48	686	7	1,014	6,332	16
1994	24	682	3.5	780	6,729	11.6

The number of new professionals in the Canadian ARL population increased from 1990 to 1994, but their numbers are still extremely low (Table 11).

Table 11: New professionals in the United States and Canada

	Canada			*U.S.*		
	New Profs.	*N*	*%*	*New Profs.*	*N*	*%*
1990	9	839	1.0	419	7,565	5.5
1994	15	815	3.0	321	7,411	4.0

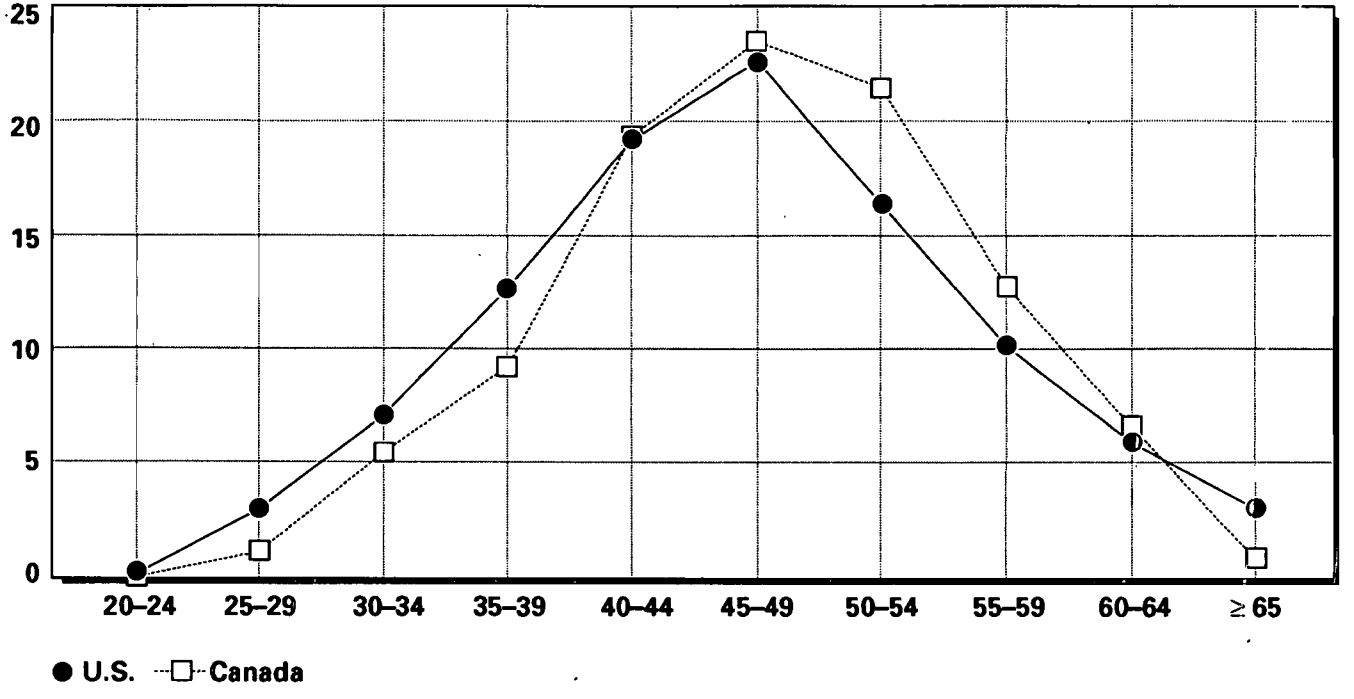
These data suggest that the Canadian ARL population is unusually closed to new entrants. The scarcity of new hires would cause the Canadian population to age even without the outsized population of 1960s hires and baby boomers. The aging process is likely to be felt earlier and more strongly in Canada than in the U.S.

Public and Private Institutions

One of the interesting findings in the literature on aging and retirement among teaching faculty is that faculty in private institutions are older than their counterparts in public institutions.[21] There appears, however, to be very little difference between the age of ARL librarians in public and private institutions (Figure 29). It is always tempting to assume that the demographic characteristics of academic librarians are similar to those of teaching faculty, particularly because many academic librarians have some form of faculty status. The case of the public/private institution age difference is only one example of how the demographic characteristics of librarians can differ, sometimes markedly, from those of teaching faculty.

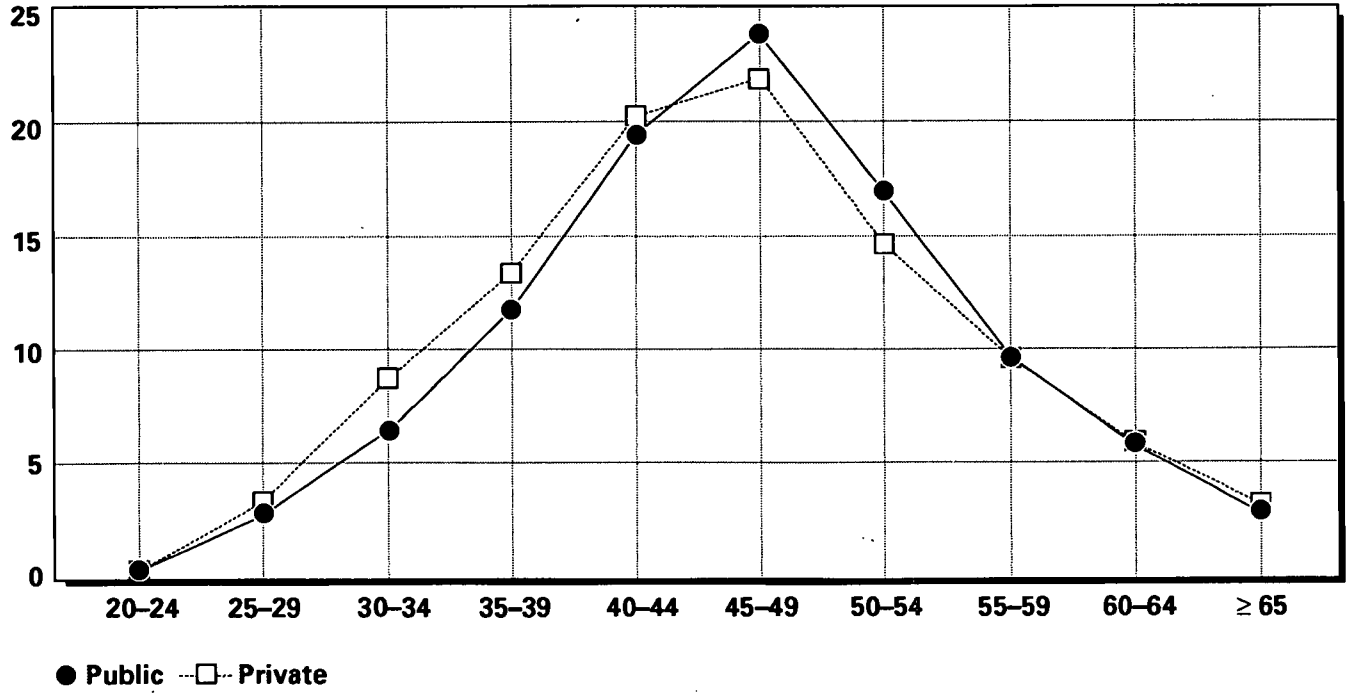
[21] G. Gregory Lozier, *Faculty Retirement Projections Beyond 1994: Effects of Policy on Individual Choice* (Boulder, CO: Western Interstate Commission for Higher Education, 1991),40-41

Figure 28: Age of ARL Librarians in the United States and Canada, 1994



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
U.S.	0.31	21	2.81	190	7.20	482	12.58	823	19.03	1292	22.59	1513	16.47	1065	10.16	639	5.92	370	2.92	118
Canada	0.00	0	1.30	8	5.50	35	9.00	57	19.10	121	23.60	150	21.60	137	12.60	80	6.60	42	0.80	5

Figure 29: Age of ARL Librarians in Public and Private Institutions, 1994



	20–24		25–29		30–34		35–39		40–44		45–49		50–54		55–59		60–64		≥ 65	
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Public	0.3	14	2.8	119	6.7	290	12.1	519	19.3	830	23.6	1013	17.1	737	9.7	418	5.6	241	2.8	119
Private	0.3	7	3.1	71	8.4	192	13.3	304	20.2	462	21.9	500	14.4	328	9.7	221	5.7	129	3	69

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Conclusion

A Profession Apart

In demographic terms, librarianship is a profession apart. Relative to comparable professions in the United States, it contains roughly half the number of individuals ages 30 and under that one would expect, and almost 40 percent more individuals aged 45 or older. Indeed, librarianship has been older than all but a handful of comparable professions since 1970. Librarians in ARL libraries are somewhat older than librarians generally, although their age profiles are similar.

In theory, librarianship could have remained older than comparable professions for the next 25 years in a stable, predictable way. But in 1990, librarianship began to age rapidly. In both the U.S. government and ARL data, individuals in the 35–44 age group began moving into the 45–54 range and carried the apex of both distributions with them. While the aging work force is a well-established phenomenon in the United States and Canada, it cannot account for such dramatic results in so short a time. There is no population in a comparable profession that aged so noticeably between 1990 and 1994.

The sudden aging of librarianship follows a 12-year period in which the age of library and information studies students increased remarkably. The ALISE data indicate that from 1981 to 1993, the percentage of MLS students ages 35 and over rose from 26 percent to 50 percent. More than one in six students was aged 45 or over in 1993. The ARL distribution for librarians new to the profession mirrors the ALISE data, suggesting that the aging of MLS students is part of the explanation for the aging of librarianship. While it is difficult to obtain age data for comparable professional students, data from the American Association of Colleges of Social Work indicate that the population of social work students did not age over the same period.

How to account for the unusual demographics of ARL librarianship? The shape and movement of the ARL age curve appear to be the result of the predominance of a single age group. This group, now aged approximately 40 to 54, consists of librarians hired in the 1960s to service the baby boom expansion and the baby boomers themselves. This group has disproportionate influence on the age of the ARL population for two reasons. First, the rate of growth has dropped significantly since 1971, so the 1960s hires stand in greater relief. Second, baby boomers have been hired in disproportionate numbers for the past 25 years, simply because there are more of them. The makeup of the pool of librarians available for ARL library positions is weighted in favor of individuals aged 40 to 49 in 1995. This is particularly

relevant for the ARL population, which manages to attract more experienced librarians than it loses in the middle-age years.

The movement of the curve, then, is a consequence of the predominance of the 1960s/baby boom group. As this group ages through the ARL library population, the age distribution moves with it. Chapter 3 of this study provides a graphic representation of how the baby boom population of librarians should continue to dominate the curve until 2020, when the last of them leave.

Speculation on Age as an Issue

The aging of librarianship poses a number of serious questions. First, the prospect of large numbers of retirements presents the question of whether North America's library and information science schools can produce enough graduates to fill the openings. Matarazzo's projections indicate that demand will far exceed supply, and he calls this "the single most critical fact before the profession at this time."[22] He believes that a more systematic evaluation of the labor supply in librarianship, similar to the U.S. Bureau of Labor Statistics' *Library Manpower*, may be in order.

Age is also an issue to the degree that it is not evenly distributed throughout subgroups in librarianship. Excessive retirements of certain groups (e.g., Asians and catalogers) have obvious implications for work force planning, particularly recruitment strategies, racial diversity and the need for staff development and continuing education. It is also possible that excessive retirements in some areas will hasten the introduction of automation and outsourcing, so that vacancies caused by retirement will go unfilled or be filled by another subgroup. The ARL data suggest that such a shift may already be under way, witness for example the reductions in the number of catalogers.

Speculation on the Health of the Profession—The Choice of Professions

The age profile of librarianship has important implications for the health and continued viability of the profession. Career choice is a complex matter, but money is one compelling explanation of why librarianship might be attractive to those in mid-life and relatively unattractive to young people. The cost of education for a profession is equal to the direct costs, such as tuition and books, plus the earnings an individual forgoes in order to prepare for it. For example, suppose an individual in mid-life is earning an income and considers changing careers to either librarianship or social work. The two-year social work degree will be twice as expensive as the one-year

[22] James M. Matarazzo, "Recruitment: The Way Ahead" in *Recruiting, Education and Training Cataloging Librarians: Solving the Problems*, eds. Sheila S. Intner and Janet Swan Hill (New York: Greenwood Press, 1989), 26.

MLS degree. If the individual has typical mid-life financial obligations, the additional year's training time may well be too expensive, regardless of any differential in compensation potential that might result. The MLS degree is relatively more attractive to older individuals because of its shorter training period.

While the same direct cost/forgone earnings calculation applies to young people, it can produce different results. People in mid-life may choose to invest in education for a profession or not, while the young must make some kind of investment. For a young person facing the same librarianship-social work decision, the forgone earnings due to the additional year's education for social work are small when compared with increased earning potential over a 30-year period. Time in preparation is less expensive for young people, so they can invest in a career with better compensation potential.

The ALISE data highlight the relatively low number of younger people entering librarianship. The perceived low return on investment in a library career is sure to be part of the explanation for this phenomenon. Van House has documented the connection between the number of library school graduates and starting salaries, an indication that financial considerations are an important factor in the choice of librarianship as a profession.[23]

Chapter 3 of this study described how the growing scarcity of young people in the general population may create pressure to increase entry level salaries in librarianship. But libraries might also adjust by moving work once performed by librarians to support staff, or off-site in the form of outsourcing. The demographic aspects of the salary issue may produce a decrease in the number of librarians and an increase in the salaries of those remaining.

Survival of the Fit

Professions define themselves through their entry requirements and their ability to defend their claim to specialized bodies of useful knowledge. While the professions and their territories sometimes appear to be immutable, competition is ongoing and professions that do not compete successfully disappear, or appear in a new guise. Against this backdrop of professional survival of the fit, librarianship is located at the center of the most volatile sector of the world's economy—the information sector. In Abbott's words, "The information professions are, by *definition*, involved in continuously negotiated and contested professional divisions of labor" (italics in original).[24] Librarianship must find ways of sustaining its place in this environment and evolving along with it.

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[23] Nancy A. Van House, "Projections of Supply" in *Library Human Resources: A Study of Supply and Demand* (Chicago: American Library Association, 1983), 88-109.

[24] Andrew Abbott, *The System of Professions: An Essay on the Division of Expert Labor* (Chicago: University of Chicago Press, 1988), 223.

Librarianship has a record of successful adaptation, most notably in its adoption of new technologies. The next adaptation will require that librarianship translate its print-centered expertise in the evaluation, selection, organization, and preservation of information to the new digital environment. Competition for this new role will be intense, however, and the advantage will go to groups that can combine traditional "librarian" skills with technical and managerial ones. If librarianship is successful in claiming this role, the new skill mix may well be recognized in the form of expanded opportunity and higher salaries, making librarianship a career of first choice for more young people.

Census data

The decennial census is the most thorough survey of the general population and subgroups such as librarians. The census includes an extremely detailed questionnaire, which is distributed to 15 percent of the population—almost 2 million people. Data from this detailed survey are recorded in the Public Use Microdata Samples (PUMS), which are available in a 1 percent and a 5 percent sampling in CD ROM and computer tape format. Data from the 1 percent PUMS sample were used in this study.

Respondents are given little guidance in filling out the form, and miscoding inevitably occurs. For example, the 1990 census data list 43 16-year-old librarians. Such obvious errors, however, account for a very small portion of the sample. The decennial nature of the census also limits its usefulness because of lack of currentness and its inability to reflect all but the broadest and most persistent trends.

For all their weaknesses, the U.S. government data are a rich and largely untapped resource for studying the demographics of librarians. They can be used to arrive at some qualified conclusions, track trends, make comparisons with other professions and, most important, to check on data from other imperfect sources. The 1990 CPS age data for librarians, for example, is almost indistinguishable from the census data for the same year (Figure A1.1). For example, the fit between the CPS and ARL data is reasonable, and the two data sets reinforce each other in terms of the dramatic shift in the age of librarians between 1990 and 1994. Researchers can use only what is available, and make note of factors that make their conclusions less than certain.

ARL Annual Salary Survey

The principal sources for this work are two unpublished data sets generated by the ARL for its 1990 and 1994 salary surveys. As part of its annual salary survey of professional staff at member institutions, ARL included supplemental questions in its 1990 and 1994 surveys to gather rudimentary demographic data on all professional staff, including year of birth. The response rate for individual variables varies considerably.

The data sets include only ARL's 108 university library members in the United States and Canada. Member libraries' 75 law libraries and 65 medical libraries are included in the data.

The data from these surveys are particularly strong. First, unlike other sources of age data, the ARL survey is not a sampling but a full census at a relatively homogeneous set of academic libraries. In terms of methodology, the survey is strong because it is completed by a single individual, usually but not always the chief personnel officer in the library.

The following is a summary description of the 1990 and 1994 data used in this study:

Table A1.1: Response rate for the age demographic study from the ARL Annual Salary Survey

	1990	*1994*
Institutional response rate	93%	93%
Number of institutions responding to supplementary questions	100/107	100/108
Total number of cases	8,404	8,226
Total number of cases reporting age	7,072	7,218
Total number of cases reporting age, U.S. Projections	6,427	6,387

ARL provides the following instructions on who should be considered a professional:

> This survey is concerned with professional positions only. Since the criteria for determining professional status vary among libraries, there is no attempt to define the term "professional." Each library should report the salaries of those staff members it considers professionals, irrespective of faculty status or membership in a collective bargaining unit, including when appropriate, staff who are not librarians in the strict sense of the term, such as computer experts, systems analysts, budget officers, etc.

Approximately 90 percent of ARL professionals do hold a library bachelor's or master's degree, so the predominance of librarians makes the term "professional" nearly synonymous with "librarian." In this study, the term "librarian" is used instead of "professional."

ARL Statistics

ARL produces an annual statistical compilation "that describes collections, staffing, expenditures and interlibrary loan activities" of its member libraries." Data for the ARL statistics are collected in a similar fashion to the ARL salary survey. The ARL statistics data used in this study come from the following sources:

1963–1991	Stubbs and Molyneux's *Research Library Statistics*
1992–1994	ARL's Internet World Wide Web site (http://arl.cni.org/stats/)
	ARL's Internet Gopher (arl.cni.org)
1990 and 1994	ARL Annual Salary Survey

Association for Library and Information Science Education (ALISE) data

ALISE produces an annual publication that includes demographic information, including age, on professors and students in library and information studies. The ALISE data, compiled by a staff member at each school, are an excellent source information.

Appendix 2: Projections and Methodology

Projection Methodology

The projections use (1) a method of projecting new entrants into ARL librarian positions, and (2) a method of projecting retention of ARL librarians as they age and gain experience. Basic data for both methods were the ARL 1990 and 1994 surveys. In both cases ARL survey data did not give full information on all positions. To adjust for missing cases, the proportion of each age and experience cohort in each survey year was multiplied by the actual number of ARL positions as follows:

$$\frac{\text{ARL}^{\text{Age N}}_{\text{Experience Group N}}}{\text{Total Positions reporting age, experience}} \times \text{Total ARL Positions, for Survey}$$

$$\frac{\text{ARL}^{\text{Age N}}_{\text{Experience Group N}}}{\text{Total Positions reporting age, experience}} \times \text{Total ARL Positions, for Survey Y}$$

Subsequent calculations are based on adjusted data.

Projection of Annual New Professionals

First, to project the movement new professionals with no previous library experience into ARL librarian positions, the ratio of ARL librarians with 1 year or less experience (new professionals) in each 5-year age group in 1994 to the total number of persons in that age group in the U.S. population was calculated. These ratios represent the degree to which ARL libraries draw from each age group in the general population and assume that these age-specific entrants rates will not change significantly during the next 25 years. These age-specific ratios are then applied to Bureau of the Census projections (1995) to project the number of new professionals, by age, that will enter in each projection period (1995–2000, 2000–2005, 2005–2010, 2010–2020). This approach assumes that as the age structure of the U.S. population changes there will be corresponding changes in the numbers and ages of ARL entrants. For example, with the aging of the baby boomers, the absolute number of people 40 to 44 will increase. If ARL draws new professionals from this cohort at a constant rate, the increase in the numbers of people in this age group will correspondingly increase the numbers of new professionals into ARL positions. Similarly, decreases in the younger age cohorts will decrease the number of younger entrants into these positions. In this projection method, changes in the U.S. age structure drive changes in this segment of the ARL population. The equation for this part of the projection series is given below:

$$\text{ARL}^{\text{Age N}} = \left(\frac{\text{ARL}^{\substack{\text{Age N 1994} \\ \text{No Experience}}}}{\text{Population}^{\substack{\text{Age N 1994} \\ \text{Nation}}}} \right) \text{X} \ \text{Population}^{\substack{\text{Age N, Time2} \\ \text{Nation}}}$$

Where Age N is a five year age cohort.

Projected Retention of Experienced Librarians

The second method used in these projections was the calculation of the number of ARL librarians retained over time. Age- and experience-specific annual retention rates were calculated from 1990 and 1994 ARL survey data. These retention rates are calculated as the ratio of ARL librarians in an age and experience group in 1994 to the number of ARL librarians in an age group 4 years younger, with 4 years less experience, in 1990. These ratios capture differences between these two time periods due to attrition of librarians. They also capture the number of experienced librarians entering the ARL system for the first time.

Retention rates represent a net of the two processes—experienced first time ARL entrants and attrition of ARL librarians. Where these ratios are positive, the number of experienced entrants offsets the loss due to attrition. Where they are negative, attrition offsets new professionals. To project this segment of the ARL population, these annual retention rates are applied to the number of ARL librarians in each age/experience group (including new, inexperienced entrants) at the beginning of the projection period as follows:

$$\text{ARL RETENTION}^{\substack{\text{Age N at Time 2} \\ \text{Experience Group N at Time 2}}} =$$

$$\left(\frac{\text{ARL}^{\substack{\text{Age N 1994} \\ \text{Experience Group N}}} \ / \ \text{ARL}^{\substack{\text{Age N 1990} \\ \text{Experience Group N}}}}{4} \right) \text{X}$$

$$\left(\text{ARL}^{\substack{\text{Age N Time 1} \\ \text{Experience Group N Time 1}}} \right) \text{X} \ \text{Number of Years, Time 1 to 2}$$

The total number of ARL librarians for each projection period equals the number of new inexperienced entrants minus the number of these inexperienced entrants lost during the time period added to the number of ARL experienced librarians at the beginning of the time period, plus or minus the number of these experienced librarians retained over the projection period.

$$\text{Number of ARL Librarians}^{\text{Time 2}} =$$

$$\text{New Professionals}^{\substack{\text{Age N} \\ \text{Experience Group 0-4}}} - \text{ARL NewProfessionalsLeavingTime1-2}^{\substack{\text{Age N} \\ \text{Experience}}}$$

$$+$$

$$\text{LibrariansTime1}^{\substack{\text{Age N} \\ \text{Experience Group N}}} \pm \text{ARL ExperiencedLibrariansRetainedT}$$

Table A2.1: Retention rates by experience cohort

Experience	*0–4*	*5–9*	*10–14*	*15–19*	*20–24*	*25–29*	*30+*
Age							
20–24	-7.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
25–29	-1.29%	-1.70%	18.69%	0.00%	0.00%	0.00%	0.00%
30–34	-1.52%	2.69%	-4.61%	33.25%	0.00%	0.00%	0.00%
35–39	-2.27%	1.61%	3.07%	1.44%	-10.44%	0.00%	0.00%
40–44	3.41%	4.83%	4.72%	3.18%	4.12%	-15.29%	0.00%
45–49	-3.62%	2.73%	5.15%	4.91%	2.82%	0.65%	-15.29%
50–54	8.82%	-5.40%	13.58%	1.09%	0.97%	-1.59%	-6.36%
55–59	-0.36%	-5.58%	-2.12%	2.18%	-2.95%	-4.13%	-7.78%
60–64	4.12%	-9.47%	-8.36%	-10.44%	-15.75%	-12.57%	-13.71%
65+	-25.00%	-13.35%	-21.36%	-16.14%	-18.53%	-17.06%	-17.64%

Table A2.2: Summary projection tables

Entry of New Professionals

AGE	*1995*	*2000*	*2005*	*2010*	*2020*
20–24	16	14	16	17	18
25–29	62	58	56	62	69
30–34	59	52	50	48	56
35–39	37	38	34	32	35
40–44	37	43	43	38	36
45–49	26	31	34	35	29
50–54	9	12	13	15	14
55–59	4	5	6	7	8
60+	0	0	0	0	0
TOTAL	250	253	253	254	265

ADJUSTED TO 7600

Entry of New Professionals

AGE	*1995*	*2000*	*2005*	*2010*	*2020*
20–24	16	14	15	16	16
25–29	62	55	50	59	61
30–34	59	50	45	45	49
35–39	37	36	31	30	31
40–44	37	41	39	36	32
45–49	26	29	31	33	26
50–54	9	11	12	14	12
55–59	4	5	6	7	7
60+	0	0	0	0	0
TOTAL	250	239	229	241	233

Retention of Experienced Librarians

AGE	1995	2000	2005	2010	2020
20–24	0	0	0	0	0
25–29	8	-0	0	0	0
30–34	267	9	-0	0	0
35–39	711	290	11	-0	0
40–44	1298	874	356	12	-0
45–49	1906	1583	1086	438	14
50–54	1458	2131	1841	1133	427
55–59	914	1252	1898	1641	901
60+	788	404	462	634	213
TOTAL	7349	6542	5653	3857	1556

Retention of New Professionals

AGE	1995	2000	2005	2010	2020
20–24	0	0	0	0	0
25–29	0	75	68	76	157
30–34	0	286	352	333	760
35–39	0	261	541	608	898
40–44	0	217	549	869	1143
45–49	0	152	421	840	1575
50–54	0	187	330	787	1270
55–59	0	44	192	323	867
60+	0	0	30	79	155
TOTAL	0	1222	2483	3916	6824

Totals

AGE	1995	2000	2005	2010	2020
20–24	16	14	16	17	18
25–29	70	133	123	138	226
30–34	326	348	402	381	816
35–39	748	590	585	641	933
40–44	1335	1133	948	919	1179
45–49	1932	1765	1541	1313	1619
50–54	1467	2330	2185	1934	1711
55–59	918	1301	2096	1971	1776
60+	788	404	492	713	368
TOTAL	7599	8017	8389	8027	8645

ADJUSTED TO 7600

Retention of Experienced Librarians

AGE	1995	2000	2005	2010	2020
20–24	0	0	0	0	0
25–29	8	-0	0	0	0
30–34	267	9	-0	0	0
35–39	711	275	10	-0	0
40–44	1298	828	322	12	-0
45–49	1906	1500	984	414	13
50–54	1458	2020	1668	1072	376
55–59	914	1187	1719	1553	792
60+	788	383	418	600	187
TOTAL	7350	6202	5121	3652	1368

Retention of New Professionals

AGE	1995	2000	2005	2010	2020
20–24	0	0	0	0	0
25–29	0	71	61	72	138
30–34	0	271	319	316	668
35–39	0	248	490	576	789
40–44	0	205	497	823	1005
45–49	0	144	382	796	1385
50–54	0	178	299	745	1117
55–59	0	42	174	306	762
60+	0	0	27	75	136
TOTAL	0	1159	2249	3708	5999

Totals

AGE	1995	2000	2005	2010	2020
20–24	16	14	15	16	16
25–29	70	126	112	131	199
30–34	326	330	364	361	717
35–39	748	559	530	606	820
40–44	1335	1074	859	870	1036
45–49	1932	1673	1396	1243	1423
50–54	1467	2208	1979	1831	1504
55–59	918	1233	1899	1866	1561
60+	788	383	446	675	323
TOTAL	7600	7600	7600	7600	7600

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Appendix 3

ARL SALARY SURVEY 1994
University Library Questionnaire

General Instructions for Completing the Questionnaire

1. This survey is concerned with professional positions only. Since the criteria for determining professional status vary among libraries, there is no attempt to define the term "professional." Each library should report the salaries of those staff members it considers professionals, irrespective of faculty status or membership in a collective bargaining unit, including, when appropriate, staff who are not librarians in the strict sense of the term, such as computer experts, systems analysts, budget officers, etc.

2. Individual salaries for the general, law, and medical library may be reported on the enclosed disk, using LOTUS 1-2-3 or Microsoft Excel (for Macintosh users). See "Instructions for Data Inputters" for each software package. Please DO NOT alter the worksheets on the disks in any way; do not change any page or line numbers. We **cannot** accept data in WordPerfect format because of uploading and conversion problems. If you are not able to produce data that can be saved in either Lotus or Excel, please submit your data using the printed forms. [If you have a word processing file with your data in properly labeled columns, you may submit a print-out of that file in lieu of the pre-printed forms.]

3. Salaries should be reported for both full-time and part-time professional positions. Salaries for part-time positions should **NOT** be converted to their full-time equivalents; report the actual part-time salary paid, and indicate the percent appointment for that employee in the appropriate column.

4. To calculate the percent appointment, if less than 1.00, which stands for 100%, divide the months the employee works by the number of months considered to be the norm for full-time employment at your institution (or the number of hours per week an employee works by the number of hours per week considered to be the norm for full-time appointment at your institution). For example, if a full-time appointment at your institution is 12 months, a 9-month part-time appointment would be .75, i.e. 75%. If a full-time appointment at your institution is 40 hours per week, an appointment at 30 hours per week is also .75. To calculate the percent appointment for an employee that works 30 hours a week and only for 9 months, when the norm for full time employment is 40 hours a week and a 12 month appointment, multiply the percent appointment per week times the percent appointment per year, i.e. .75 x .75 = .56.

5. Percent appointment should be rounded to two decimal places; do NOT use whole numbers (e.g., enter .65, not 65 or 65%). All other numbers (e.g. salaries, years of experience) should be rounded to the **nearest whole number**.

6. The salaries for all professional positions should be included, regardless of whether the salaries come from regular library budget funds **or from special funds such as research grants**. Please include all professionals involved in the provision of library services, including **contract-supported positions**.

7. The salary figures should be straight gross salary figures. **Do not include fringe benefits**.

8. Salary figures should be reported in digits only; do NOT use "$" or "," (e.g., 25470, not $25,470).

9. Explanatory footnotes to the reported figures may be provided, when necessary, at the end of Part I. Footnotes will be included in the published survey, where appropriate.

10. After all data have been entered, make a backup copy of the complete file (including individual names/id#s) for your institution's master file, if you wish to refer to this file in the future. Note: The data submitted to ARL does NOT include individual names or id#s, so ARL will NOT be able to supply a copy of your institution's complete file next year.

11. The questionnaire should be returned to the ARL Office by August 31, 1994. If you are providing the individual data on the diskette, please return the diskette in the mailer, along with Part I of the survey **and a printout of the data file**. **Be sure to keep a complete copy of your return, including the diskette, for your files**.

Instructions for Completing Part I: Summary Data

1. Part I of this survey deals with updated information for filled and temporarily vacant professional positions for the completed fiscal year 1993–94, as well as the current fiscal year, 1994–95. Please note that you do not need to report the salary figures for the previous year (1993–94) *unless* there has been substantial revision.

2. Please include the Beginning Professional Salary, Median Salary and Average Salary for Law and Medical libraries if included in the survey; if not included, enter "N/A" in the appropriate blank.

3. **Question 1.** The Beginning Professional Salary is the salary that **would** be paid to a **newly-hired professional librarian with MLS but without experience**, not necessarily the lowest professional salary paid. In reporting the beginning salary, please use a figure that is actually used or likely to be used for entry-level librarians hired by your library, even if it is your practice rarely to hire entry-level professionals without experience.

   a) Please consult the published survey for 1993. Was the reported figure for Beginning Professional Salary accurate for the fiscal year **1993–94**, or did a later adjustment in salaries increase it? If you have a revision to report, please supply the updated figure.

   b) Please report the **1994–95** Beginning Professional Salary to the best of your knowledge as it exists on July 1, 1994. Do not delay returning your survey in the expectation that more information will be available later; revisions can be reported next year.

4. **Question 2.** The Median Salary is the salary that has an equal number of salaries above and below it. For libraries with an even number of positions, the median salary is the average of the two salaries that have an equal number of salaries above and below them. The salary of the library director should not be included in the determination of the median.

   Your library's Median Professional Salary for 1993–94 was calculated by ARL from the individual salaries you supplied on last year's questionnaire. If the **1993–94** salaries in your institution were substantially revised after that time (i.e., the median figure published last year by ARL does not adequately reflect the actual 1993–94 median salary in your library) please supply an updated figure.

5. **Question 3.** The Average Salary is calculated from the total of professional salaries in appropriate category, i.e. main library, law, medical.. If the **1993–94** salaries in your

institution were substantially revised since last year's survey, please calculate and report a revised figure. Do not include the salary of the director when calculating the average.

6. The 1994–95 Average and Median Salary figures will be calculated by ARL from the individual data supplied.

7. Be sure to fill in the name of the reporting library and the name of the person who prepares the report.

Instructions for Completing Part II: Individual Data

1. Part II of this survey requests salary information on all filled or temporarily vacant positions for fiscal year 1994–95. Information on sex, minority status, rank, years of experience, and percent of appointment for part-time employees is requested for filled positions. In addition, this year additional data are requested including year of birth, education, more detailed position codes, and years of experience in the reporting library. The survey requests information for individuals; aggregate data for each institution will be generated by computer.

2. Data for the general, law, and medical libraries may be reported on the enclosed microcomputer diskette; see #4 below for specific instructions.

3. Survey Form. If you are not able to submit the data on the diskette, please use the enclosed forms. Photocopy additional sheets if you cannot list all professional positions in the space provided. You may also use a print-out from a word-processing document with all columns correctly ordered and labeled.

   If you are reporting on paper forms only, list information for individuals in separate Law or Medical libraries on sheets devoted only to each of those two branches. Check the appropriate box at the top of the form to indicate when a sheet is only for Law or Medical library staff.

   The left-hand column labeled "Staff Member i.d." has been provided so the form can also serve as a work sheet. After the forms have been completed, the left-hand column should be removed to ensure anonymity of the data. Except for segregating Law and Medical library staff, the order in which staff members are entered on the form is immaterial; enter them in the order most convenient for you.

4. Diskette. The floppy diskette contains data input files for general, law, and medical library data in Lotus 1-2-3 or Microsoft Excel formats. They are labeled as follows:

	Lotus 1-2-3	Excel
General	ARL4xxxx.WKS	ARL4xxxx.X1
Law	LAW4xxxx.WKS	LAW4xxxx.X1
Medical	MED4xxxx.WKS	MED4xxxx.X1

   xxxx = Library identification number; see label on the enclosed diskette. The file names this year have a "4" preceding the four-digit library identification number, to distinguish them from, and prevent overwriting of, files you may have created in prior years.

The files contain empty worksheets with columns labelled as follows:

Name/ID# LibID Page Line Salary Job Sex OEOcat Yrsexp Rank Percent

YrBirth JobAdd LibDeg OtherDeg YrsLib

The first entry in the column labelled "LibID" is already filled in so there will be no question about the institutional identity of the diskettes as they are received. If the diskette has been damaged in any way, or if the number in the LibID column is not the same as the number printed on the return address label (on the diskette mailer), please call the ARL Office for instructions.

Detailed instructions for inputting data in each format are enclosed. **Please do not alter any formats, page or line numbers; please do not submit data using word processing software** (use printed sheets instead).

After all data have been entered, make a backup copy of the complete file (including individual names/id#s) for your institution's master file, if you wish to refer to this file in the future. Note: The data submitted to ARL does NOT include individual names or id#s, so ARL will NOT be able to supply a copy of your institution's complete file next year.

5. **Salary**. Enter the individual salaries ***as they exist*** on July 1, 1994. If the library normally increases salaries at a date later than July 1, and the salary as of that later date is known or can be estimated (within $100 or so) by the time the questionnaire is due to be returned, use the higher salary figure and footnote the effective date and/or whether the reported figures are known or estimated. Please do not hold up the reporting process for later salary adjustments. Salaries should be reported for all filled positions and all positions that are temporarily vacant. If an exact salary figure for a vacant position is established, that figure should be reported. If you do not have an exact salary for a vacancy, estimate the salary level at which the position is most likely to be filled.

   Salary figures should be rounded off to the nearest whole dollar. Use digits only; do NOT use "$" or "," in reporting in figures (e.g., 25470, not $25,470).

DO NOT convert part-time salaries to their full-time equivalents. Report the actual part-time salary paid, and indicate the percent appointment in the Percent category.

6. **Position Code (Job).** The position categories used in this survey are intended to correspond roughly with the activities carried on in libraries, not with any particular pattern of staff organization or nomenclature.

   Please use these categories in the manner you feel best applies to your library. Indicate a position title by means of one of the following codes. An asterisk indicates that there are additional subcodes to be entered for that position; see "Instructions for Additional Categories" below. DO NOT enter the asterisk as part of the code.

	DIRLIB	Director of Libraries (or equivalent title; refers to chief executive)
*	ASCDIR	Associate Director
*	ASTDIR	Assistant Director
	HDMED	Head, Medical Library (Human Medicine only)
	HDLAW	Head, Law Library
*	HDBR	Head, Other Branch Library (including Veterinary Medicine)
*	FSPEC	Functional Specialist

*	SSPEC	Subject Specialist
	HDACQ	Head, Acquisitions Department
*	HDCAT	Head, Catalog Department/Unit
	HDCIRC	Head, Circulation
	HDCOMP	Head, Library and Computer Systems
	HDDOC	Head, Documents Department
	HDMAP	Head, Map Room/Department
	HDRBM	Head, Rare Book/Manuscripts Department
	HDREF	Head, Reference Department
	HDSER	Head, Serials Department
*	HDOTH	Head, Other Department/Service/Agency
*	CAT	Catalogers, both general and specialized
*	REF	Reference librarians, both general and specialized
*	PUBS	Public Services, non-supervisory, except reference librarians
	TECH	Technical Services, non-supervisory, except catalogers
	ADMIN	Administrative and other units, non-supervisory position

If any individual has responsibilities described by more than one of the above categories, choose the category that is most typical of his/her general duties. Codes must be used exactly as they appear in the list above.

Associate or Assistant Director, and Head, Other Branch: Use these codes for all persons at these levels regardless of the area of specialty. If an assistant or associate director is also head of a department, choose the category that most reflects the general duties of the person currently in the position.

Specialists. These are of two kinds: Subject Specialists, who primarily build collections (but may also offer specialized reference and bibliographic services); and Functional Specialists, who are media specialists or who are experts in management fields such as personnel, fiscal matters, systems, preservation, etc. Specialists may not be, strictly speaking, professional librarians (i.e., have the MLS). The "specialist" category would generally not be used for someone with significant supervisory responsibilities, who should instead be listed as a department head or assistant director (see also note under Assistant Department Head, below).

Department Heads. Department Heads not specifically included in the above list should be included under the category "Head, Other Department/Service/Agency." Head, Catalog Department should be used either for the department that handles all cataloging, or for the head of a specialized cataloging unit (e.g. copy cataloging or foreign languages). List the head of library automation and computer systems, applications, programming, etc. as HDCOMP unless that person is also an Associate or Assistant Director, in which case use the appropriate administrative code. If there is an intermediate level of management between an Associate or Assistant Director and the professionals who actually carry out the analysis, programming, etc., use HDCOMP to define that intermediate level. Professionals who carry out analysis, programming, etc. should be listed as functional specialists (FSPEC).

Head, Acquisitions Department. Use HDACQ for all of the following positions: (a) head of a department that is responsible for the selection of material (or management of selection activities carried out on a basis encompassing more than a single organizational unit), but not responsible for the placement of orders, payment of invoices, etc; (b) head of a department responsible for the placement of orders, maintaining on-order files,

payment of invoices, etc., but not responsible for selection decisions; (c) head of a department responsible for both the selection decisions (or coordination of selection activities) and for acquiring the material. Libraries that split these two functions between two departments should report more than one professional with the position HDACQ.

[*Special note concerning Assistant Department Heads.* Assistant Department Heads who are responsible for major units and spend the bulk of their time in supervision and revision of the work of others should also be listed as "Head, Other Department/Service/Agency." See additional subcodes below for Head, Cataloging, and Head, Other Department. However, Assistant Head positions responsible for small units or for supervision only in the absence of the head should be reported as non-supervisory or specialist positions as appropriate.]

7. **Sex.** Indicate either M or F, for male and female, respectively, or V if the position is vacant.

   Please use only the letter indicated; do not spell out the word.

8. **Minority status code (OEOCat).** U.S. university libraries, only, should indicate minority status by means of one of the following code numbers. (Leave blank if a Canadian library or if vacant):

   1 Black
   2 Hispanic
   3 Asian or Pacific Islander
   4 American Indian or Native Alaskan
   5 Caucasian/Other

9. **Total years of professional experience (Yrsexp).** Define "professional experience" as indicated in the general instructions; for most professional staff members this will mean counting the years since the MLS degree was awarded. When counting, do not subtract interim periods when an individual was not engaged in professional library employment if these periods are short in relation to the overall professional career. Count an academic year contract period as a full year. Be sure to include professional experience in previous positions and in other institutions. Numbers should be rounded off to the nearest whole number.

10. **Rank.** Responses concerning rank should be limited to professional librarians and other professionals reported in the survey who occupy the same ranks as librarians. Leave the rank column blank for professionals who do not occupy these ranks or if the column is not applicable. For example, if the Library Business Officer holds a rank typically used for university administrators but not for librarians, do not supply a rank code for that individual or describe his/her rank in answering other questions, even if you have included salary and other data for the Business Officer.

    If multiple ranking structures are used for librarians and these structures are substantially different and not equivalent, enter individual rank information only for that group which represents the largest fraction of "rank-and-file" librarians.

    Do not use roman numeral rank levels. Convert your local ranking system if necessary.

Complete the column labeled "Rank Code" using the following codes:

0 A rank normally occupied solely by the library director and/or assistant and associate directors.

9 Rank unknown; or, there is confusion or controversy regarding how to code this individual's rank.

1 Lowest level in the rank structure.

2 Next highest level in the rank structure.

3–8 Successively higher levels in the rank structure. Highest number in this range should be equivalent to the highest rank in the library's structure (unless the highest rank is occupied solely by the director and/or assistant and associate directors).

When counting the total number of rank levels, include ranks that may be unoccupied at the present time due to circumstances like unusually high turnover, hiring freezes, etc.

11. Percent. Change the 100% appointment to less than that only for part-time people. Enter percent with decimal points. For example, a 65% appointment would be entered as .65.

Please continue to enter data in additional categories as described on the following pages.

Instructions for Additional Categories

(Shown on printed forms as the last five columns)

1. Please complete as much of this section as possible, but do not hold up the reporting process if some of the data requested are not available. These are the same questions that were asked in 1990.

2. **Year of Birth (YrBirth).** For each individual, record the year of birth using only the last two digits of the birth year; e.g., if born in 1937, enter 37 in this column.

3. **Position Code Addenda (JobAdd).** Use this column to provide additional information only for the following position categories (corresponding to those marked with an asterisk in the list on page 4):

   a. **Associate and Assistant Directors** (ASCDIR and ASTDIR). For each category, indicate if the person has a defined area of responsibility using the codes below. Use the code that most closely reflects the general duties of the person in the position.

Administrative Services	ADM	Systems/Automation	SYS
Collection Development	CDV	Technical Services	TS
Public Services	PBS	Other or unspec.	OTH

b. **Head, Other Branch Library** (HDBR). Use the codes below to indicate the subject area of the branch:

Science & Tech.	SCI	Undergraduate Library	UGL
Social/Behavioral Sci.	SBS	Other	OTH
Humanities/Fine Arts	HFA		

c. **Functional Specialists** (FSPEC). Indicate any non-supervisory staff who are primarily responsible for the following activities using the codes below:

Acquisitions	ACQ	Serials	SER
Personnel	PER	Audiovisual/Media	AVM
Preservation	PRS	Interlibrary Loan	ILL
Staff Training	TRN	Archivist	ARC
Systems Anal./Program	SYS		

d. **Subject Specialists, Reference Librarians, Catalogers, and Public Services** (SSPEC, REF, CAT, PUBS). Use these codes to indicate non-supervisory main and/or branch library staff who specialize in <u>one</u> of the following subject areas (either a sub-field, or the entire area). Do not add codes for staff in these positions who have broader, other, or mixed subject responsibilities (e.g. more than one field specialty); but do include subject specialists who also have some (i.e. 50% or less) general or other assignments.

Science & Tech.	SCI	Humanities/Fine Arts	HFA
Social/Behavioral Sci.	SBS	Undergraduate Library	UGL

e. **Head, Cataloging Department/Unit** (HDCAT). Use the codes below to indicate whether the person is thehead of the entire cataloging department for the library, or the head of a specialized unit. If the person is head of the whole department, repeat the same HDCAT code as in the earlier column.

Head, all cataloging	HDCAT	Head, foreign languages	HDF
Head, copy cataloging	HDC	Head, nonbook formats	HDN
Head, serials cat.	HDS	Head, other special cat.	HDO

f. **Head, Other Department/Service/Agency** (HDOTH). For heads of departments not given a separate category in the major list, please add one of the following codes:

Audio Visual/Media	AVM	Business/Personnel Office	BPO
Preservation	PRS	Other	OTH
Interlibrary Loan	ILL	Archivist	ARC

4. **Library degrees earned (LibDeg).** Use the following codes to indicate the highest academic degree earned in the field of librarianship:

0 None
1 Bachelor
2 Master
3 CAGS (6th yr. certificate)
4 Doctorate (Other than Ph.D.)
5 Ph.D.

5. **Other degrees earned (OtherDeg).** Use the following codes to indicate the highest degree earned in fields other than librarianship, including basic undergraduate education:

    0 None
    1 Bachelor
    2 Master
    3 Second Master (i.e. 2 subject fields)
    4 CAGS (6th yr. certificate)
    5 LLB/JD
    6 Doctorate (Other than Ph.D.)
    7 Ph.D.

6. **Years of professional experience at reporting institution (YrsLib).** Use this line to report the number of years of professional experience each librarian has had at your institution. This figure should not exceed the number reported as Total Years of Professional Experience on the main part of the form.

ARL SALARY SURVEY 1994
University Library Questionnaire

Part I: Summary Data

Reporting Institution _____ Date returned to ARL _____

Report prepared by (name) _____

Title _____ Phone number _____

Contact person (if different) _____

Title _____ Phone number _____

		Main	Law	Medical
1.	**Beginning Professional Salary**			
	a. If 1993–94 salary reported last year has been revised, please report correct **1993–94** beginning professional salary:	_____	_____	_____
	b. Beginning professional salary for **1994–95**.	_____	_____	_____
2.	**Median Professional Salary**			
	If salaries reported last year have been substantially revised, please report correct **1993–94 median** professional salary.	_____	_____	_____
3.	**Average Professional Salary**			
	If salaries reported last year have been substantially revised, please report correct **1993–94 average** professional salary.	_____	_____	_____

(**Note:** ARL will calculate the **1994–95 median and average** professional salaries for your library from the data you supply in Part II of this questionnaire.)

4. **Footnotes** (Please compare with footnotes from surveys of previous years.)

   a. Figures includes salaries for main campus only.

   _____ Yes _____ No _____ We have only one campus.

   b. Other libraries not included:

   _____

   _____

   _____

   _____

   c. Indicate the number of levels in your institution's rank structure for professional librarians.

   _____ 1 level (i.e., no differentiated levels)

   _____ 2 levels

   _____ 3 levels

   _____ 4 levels

   _____ 5 levels

   _____ more than 5 levels (please specify the number of levels: _____)

   In determining the number of levels within the professional librarian rank structure, do not count a rank normally occupied only by the library director and/or other top level staff such as associate and assistant directors.

   d. Other comments:

   _____

   _____

   _____

   _____

   _____

   _____

   _____

Please return the Salary Survey questionnaire to the ARL Office by **August 31, 1994**.

ARL SALARY SURVEY 1994, University Library Survey, Part II: Individual Data

Reporting Library _____ Sheet Number _____

_____ Check here if this sheet is for Medical Library only

_____ Check here if this sheet is for Law Library only

Confidential Detach before mailing form to the ARL office Name/ID	Ln	Salary	Job	Sex	OEO cat	Yrs Exp	Rank	Percent	YrBirth	JobAdd	LibDeg	Other Deg	YrsLib
	1												
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
	10												
	11												
	12												
	13												
	14												
	15												
	16												

Appendix 4

The Association of Research Libraries

The Association of Research Libraries (ARL) represents the interests of 119 libraries that serve major North American research institutions. ARL operates as a forum for the exchange of ideas and as an agent for collective action to influence the forces affecting the ability of these libraries to meet the future needs of scholarship. The ARL Statistics and Measurement Program is organized around identifying, collecting, analyzing, and distributing quantifiable information describing the characteristics of research libraries. The program offers publications and special member services, and collaborates with other national and international library statistics programs. The data collected include salaries, library holdings, expenditures, staff, interlibrary lending, and preservation activities. Nonuniversity libraries are not included in this report.

The members of the Association are:

Institution	*Category*	*Full Name of Institution*	*Location*
Alabama	S	University of Alabama	Tuscaloosa, Alabama
Alberta	C	University of Alberta	Edmonton Alberta
Arizona	S	University of Arizona	Tucson, Arizona
Arizona State	S	Arizona State University	Tempe, Arizona
Auburn	S	Auburn University	Auburn, Alabama
Boston	P	Boston University	Boston, Massachusetts
Brigham Young	P	Brigham Young University	Provo, Utah
British Columbia	C	University of British Columbia	Vancouver, British Columbia
Brown	P	Brown University	Providence, Rhode Island
California, Berkeley	S	University of California, Berkeley	Berkeley, California
California, Davis	S	University of California, Davis	Davis, California
California, Irvine	S	University of California, Irvine	Irvine, California
California, Los Angeles	S	University of California, Los Angeles	Los Angeles, California
California, Riverside	S	University of California, Riverside	Riverside, California
California, San Diego	S	University of California, San Diego	La Jolla, California
California, Santa Barbara	S	University of California, Santa Barbara	Santa Barbara, California
Case Western Reserve	P	Case Western Reserve University	Cleveland, Ohio

Chicago	P	University of Chicago	Chicago, Illinois
Cincinnati	S	University of Cincinnati	Cincinnati, Ohio
Colorado	S	University of Colorado	Boulder, Colorado
Colorado State	S	Colorado State University	Fort Collins, Colorado
Columbia	P	Columbia University	New York, New York
Connecticut	S	University of Connecticut	Storrs, Connecticut
Cornell	P	Cornell University	Ithaca, New York
Dartmouth	P	Dartmouth College	Hanover, New Hampshire
Delaware	S	University of Delaware	Newark, Delaware
Duke	P	Duke University	Durham, North Carolina
Emory	P	Emory University	Atlanta, Georgia
Florida	S	University of Florida	Gainesville, Florida
Florida State	S	Florida State University	Tallahassee, Florida
Georgetown	P	Georgetown University	Washington, D.C.
Georgia	S	University of Georgia	Athens, Georgia
Georgia Tech	S	Georgia Institute of Technology	Atlanta, Georgia
Guelph	C	University of Guelph	Guelph, Ontario
Harvard	P	Harvard University	Cambridge, Massachusetts
Hawaii	S	University of Hawaii	Honolulu, Hawaii
Houston	S	University of Houston	Houston, Texas
Howard	P	Howard University	Washington, D.C.
Illinois, Chicago	S	University of Illinois at Chicago	Chicago, Illinois
Illinois, Urbana	S	University of Illinois at Urbana	Urbana, Illinois
Indiana	S	Indiana University	Bloomington, Indiana
Iowa	S	University of Iowa	Iowa City, Iowa
Iowa State	S	Iowa State University	Ames, Iowa
Johns Hopkins	P	Johns Hopkins University	Baltimore, Maryland
Kansas	P	University of Kansas	Lawrence, Kansas
Kent State	S	Kent State University	Kent, Ohio
Kentucky	S	University of Kentucky	Lexington, Kentucky
Laval	C	Laval University	Quebec
Louisiana State	S	Louisiana State University	Baton Rouge, Louisiana
McGill	C	McGill University	Montreal, Quebec
McMaster	C	McMaster University	Hamilton, Ontario
Manitoba	C	University of Manitoba	Winnipeg, Manitoba
Maryland	S	University of Maryland	College Park, Maryland
Massachusetts	S	University of Massachusetts	Amherst, Massachusetts
MIT	P	Massachusetts Institute of Technology	Cambridge, Massachusetts

Miami	P	University of Miami	Coral Gables, Florida
Michigan	S	University of Michigan	Ann Arbor, Michigan
Michigan State	S	Michigan State University	East Lansing, Michigan
Minnesota	S	University of Minnesota	Minneapolis, Minnesota
Missouri	S	University of Missouri	Columbia, Missouri
Nebraska	S	University of Nebraska-Lincoln	Lincoln, Nebraska
New Mexico	S	University of New Mexico	Albuquerque, New Mexico
New York	P	New York University	New York, New York
North Carolina	S	University of North Carolina	Chapel Hill, North Carolina
North Carolina State	S	North Carolina State University	Raleigh, North Carolina
Northwestern	P	Northwestern University	Evanston, Illinois
Notre Dame	P	University of Notre Dame	Notre Dame, Indiana
Ohio State	S	Ohio State University	Columbus, Ohio
Oklahoma	S	University of Oklahoma	Norman, Oklahoma
Oklahoma State	S	Oklahoma State University	Stillwater, Oklahoma
Oregon	S	University of Oregon	Eugene, Oregon
Pennsylvania	P	University of Pennsylvania	Philadelphia, Pennsylvania
Pennsylvania State	S	Pennsylvania State University	University Park, Pennsylvania
Pittsburgh	S	University of Pittsburgh	Pittsburgh, Pennsylvania
Princeton	P	Princeton University	Princeton, New Jersey
Purdue	S	Purdue University	West Lafayette, Indiana
Queen's	C	Queen's University	Kingston, Ontario
Rice	P	Rice University	Houston, Texas
Rochester	P	University of Rochester	Rochester, New York
Rutgers	S	Rutgers University	New Brunswick, New Jersey
Saskatchewan	C	University of Saskatchewan	Saskatoon, Saskatchewan
South Carolina	S	University of South Carolina	Columbia, South Carolina
Southern California	P	University of Southern California	Los Angeles, California
Southern Illinois	S	Southern Illinois University	Carbondale, Illinois
Stanford	P	Stanford University	Stanford, California
SUNY-Albany	S	State University of New York at Albany	Albany, New York
SUNY-Buffalo	S	State University of New York at Buffalo	Buffalo, New York
SUNY-Stony Brook	S	State University of New York at Stony Brook	Stony Brook, New York
Syracuse	P	Syracuse University	Syracuse, New York
Temple	S	Temple University	Philadelphia, Pennsylvania
Tennessee	S	University of Tennessee	Knoxville, Tennessee
Texas	S	University of Texas	Austin, Texas

Texas A&M	S	Texas A&M University	College Station, Texas
Toronto	C	University of Toronto	Toronto, Ontario
Tulane	P	Tulane University	New Orleans, Louisiana
Utah	S	University of Utah	Salt Lake City, Utah
Vanderbilt	P	Vanderbilt University	Nashville, Tennessee
Virginia	S	University of Virginia	Charlottesville, Virginia
VPI & SU	S	Virginia Polytechnic Institute & State University	Blacksburg, Virginia
Washington	S	University of Washington	Seattle, Washington
Washington State	S	Washington State University	Pullman, Washington
Washington U.-St. Louis	P	Washington University	St. Louis, Missouri
Waterloo	C	University of Waterloo	Waterloo, Ontario
Wayne State	S	Wayne State University	Detroit, Michigan
Western Ontario	C	University of Western Ontario	London, Ontario
Wisconsin	S	University of Wisconsin	Madison, Wisconsin
Yale	P	Yale University	New Haven, Connecticut
York	C	York University	North York, Ontario

Nonuniversity libraries are not included in this publication:

Boston Public Library	N	Boston Public Library	Boston, Massachusetts
Canada Inst. for SciTech	X	Canada Inst. for Scientific & Technical Information	Ottawa, Ontario
Center for Research Libs.	N	Center for Research Libraries	Chicago, Illinois
Library of Congress	N	Library of Congress	Washington, D.C.
Linda Hall Library	N	Linda Hall Library	Kansas City, Missouri
Natl. Agricultural Lib.	N	National Agricultural Library	Beltsville, Maryland
Natl. Library of Canada	X	National Library of Canada	Ottawa, Ontario
Natl. Library of Medicine	N	National Library of Medicine	Bethesda, Maryland
New York Public Library	N	New York Public Library	New York, New York
New York State Library	N	New York State Library	Albany, New York
Smithsonian Institution	N	Smithsonian Institution	Washington, D.C.

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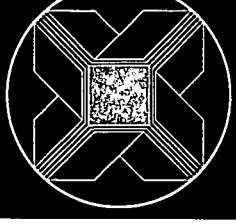

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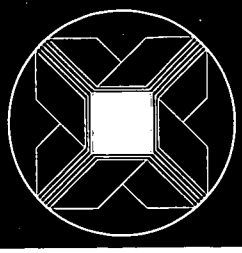

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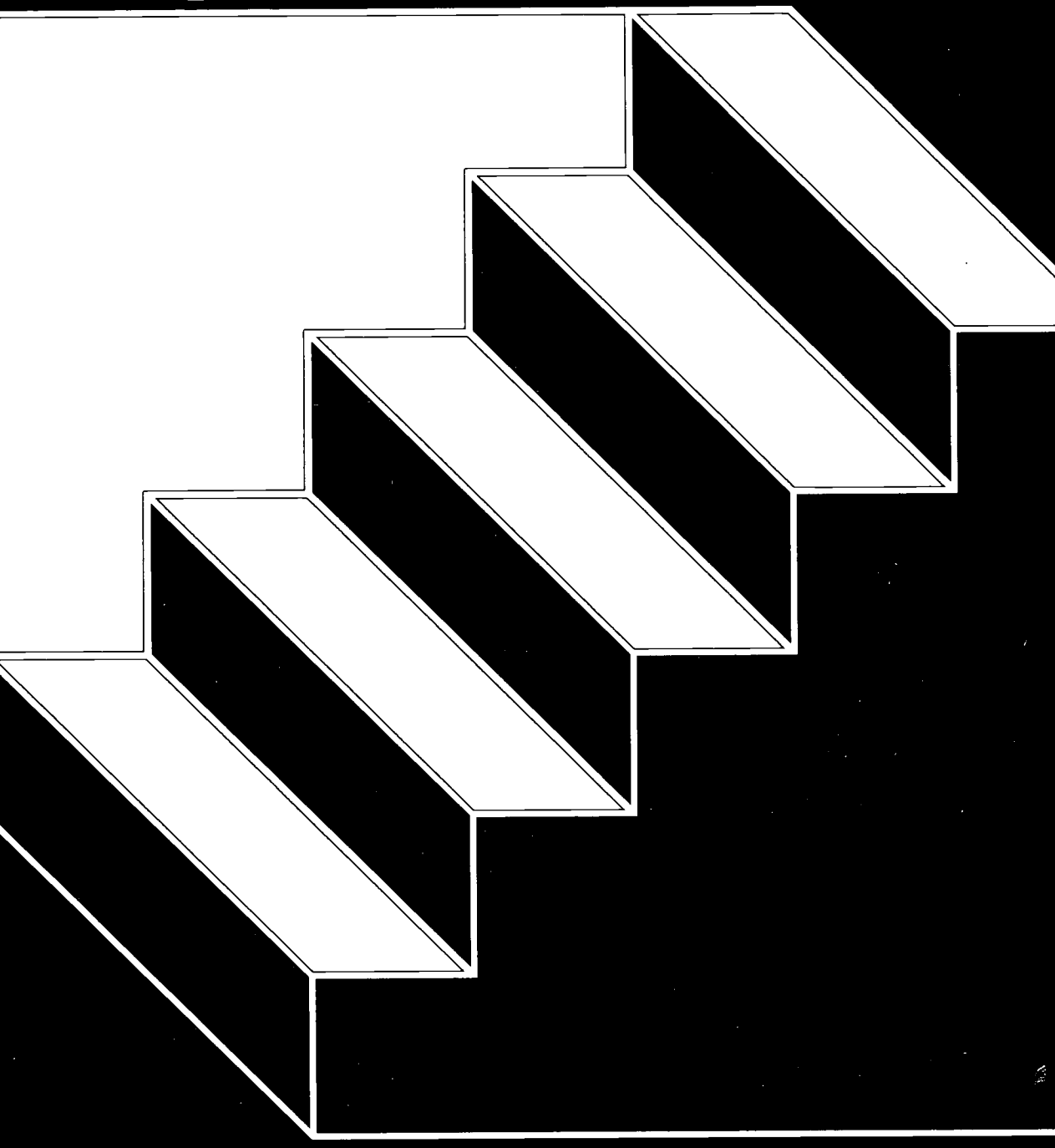

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