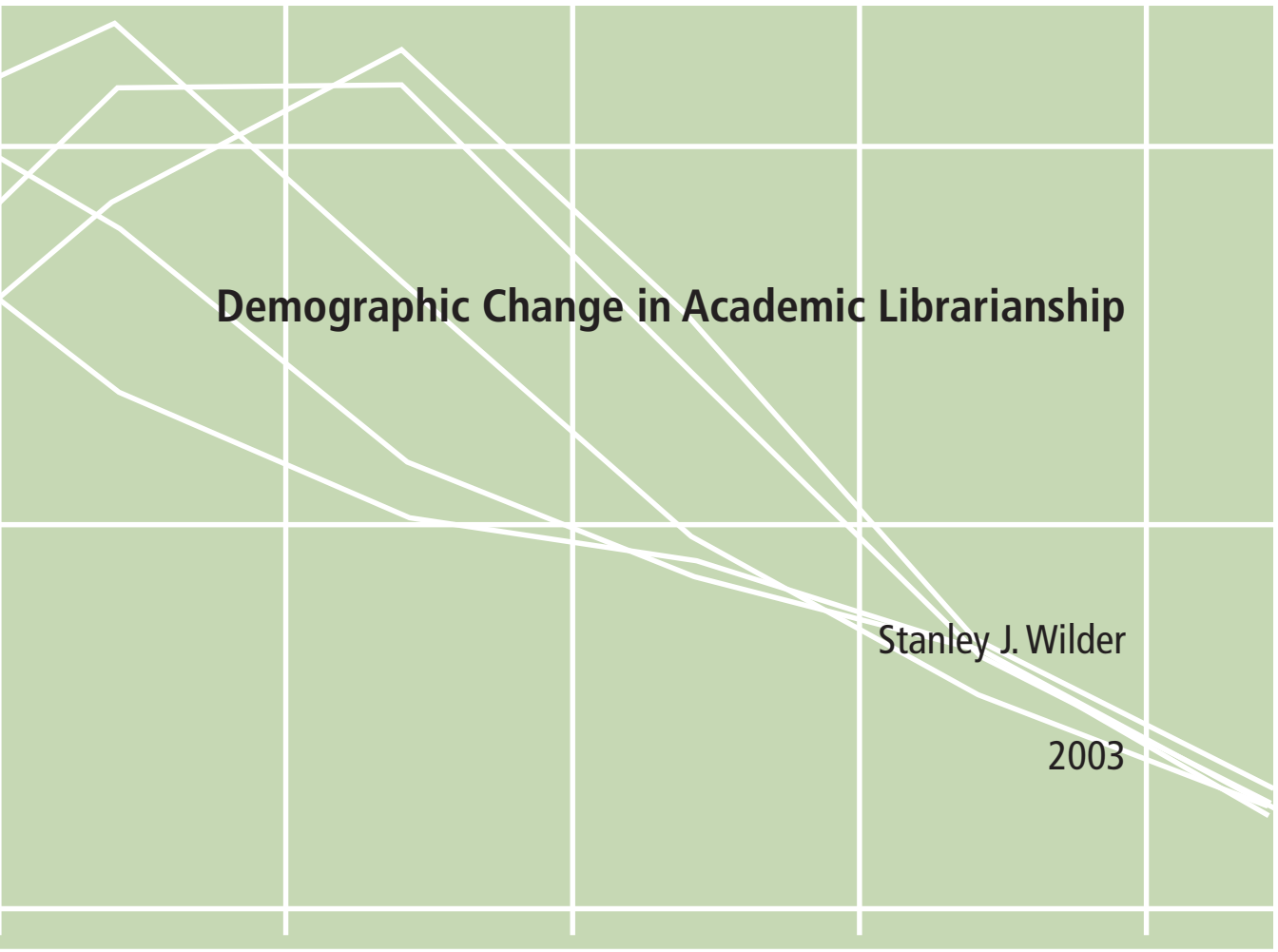
Demographic Change in Academic Librarianship

Association of Research Libraries
WASHINGTON, D.C.



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Stanley J. Wilder

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Foreword

Workforce planning has never been a strength of the American library profession in general, or higher education librarianship in particular. The field has rarely secured a dependable assessment and projection of supply and demand for professional positions. Data collected has not provided effective insights into the geography of future needs, the diversity among types of libraries, and the changing nature of job assignments and specializations.

As a result, national, professional, and institutional strategies have not been developed to guide the preparation, advancement, and replacement of librarians. This is critical to the future vitality and impact of the profession and to the overall health of the information economy in the United States.

Stanley Wilder, in this new work on *Demographic Change in Academic Librarianship*, has filled with methodological soundness and challenging insights these gaps in our understanding of research library workforce trends and requirements. He raised the visibility of this challenge in his 1995 report on *The Age Demographics of Academic Librarians*.

His new and compelling study continues to focus on the Association of Research Libraries academic institutions, but with revised projections and updated analyses of trends. Wilder also discusses with creativity the life cycle of employment planning in academic libraries and the need for a more synergistic view across new entrants, mid-career professionals, and librarians planning retirement. He posits actions that should be embraced by the ARL community and recommends important areas for further research.

Workforce planning is constructed on the collection and evaluation of accurate demographic data and the consideration of critical economic and social trends. It looks at job growth, replacement requirements, position redesign, professional education developments, worker mobility, specialization in the field, compensation patterns, career paths, and quality of professional life, among many factors. Wilder, mining in innovative

ways the annual ARL statistics reports, as well as national census data, investigates across all of these arenas and concludes that the rampant aging of academic research librarians presents a replacement and succession opportunity that could revolutionize the profession.

He encourages us to consider, for example, racial and gender staffing patterns, the dramatic change in professional cataloging, the growth in information technology assignments, the late and often second career entry of individuals into the profession, and the particularly dramatic turnover projections for ARL director positions. He asks that we more systematically and scientifically measure movement in, across and out of the profession, that we identify more regularly the expertise requirements, that we guide the basic and continuing professional education programs, and that we build a professional tolerance for mobility and mutability.

Librarians are in demand wherever information creation, synthesis, navigation, and archiving skills are needed. Libraries will increasingly compete with other industries for this talent, thus further extending the professional recruitment challenges. How can we demonstrate to prospective students that academic librarianship is an exciting and rewarding career choice? How can we manage our collective need for new entrants to the field over the next decade through non-traditional preparation for professional assignments, through creative utilization of support staff, through new approaches to consolidation and cooperation across libraries, and through innovative applications of technology? Stanley Wilder documents and demonstrates the powerful need for such aggressive strategies and uses the demographics vector as a motivation to action.

James G. Neal
Vice President for Information Services and
University Librarian, Columbia University

Acknowledgments

This work would not have been possible without the steadfast support of the Association of Research Libraries and its staff. First among them is Martha Kyrillidou, who has nurtured this project from the outset, lending her considerable statistical and research expertise at every point. I am also indebted to Lee Anne George, Julia Blixrud, and Jaia Barrett for reading my initial drafts and making substantial improvements.

Outside ARL, I feel honored to have had the assistance of demographer Murray Gendell. Dr. Gendell's primary role lay in shaping the projections in the study, but I especially appreciate the guidance he provided throughout the project: his encouragement, his thoughtful criticism, and the many hours he spent reading my work and thinking about the demographics of librarianship.

The projections in this study are also the work of Dr. Michael Irwin of Duquesne University. Dr. Irwin also served as a valuable resource, providing many helpful suggestions that improved this work. Dr. Eduardo Arriaga produced the logistic projection of the number of U.S. ARL institutions and the size of the professional staffing at those libraries. He also provided an insightful analysis of the net change in ARL's population by age for the four survey intervals.

I would like to thank others who helped make this project possible. First among these is Ron Dow, and the staff of the University of Rochester's River Campus Libraries, who allowed me the freedom to mix demographics with my day job, much as Jennifer Cargill and the Louisiana State University Libraries' staff had done for the previous edition. I had excellent support from University of Rochester graduate students Christopher Kam (now a professor at the University of South Carolina) and Timothy Carter, who generated the imputed version of the ARL data. Finally, I would like to thank Jean Coco, without whom nothing is possible.

Responsibility for errors in this work is entirely my own.

This work is dedicated to my daughters Coco and Alice Wilder, who fill my days with exasperated joy and unlooked-for beauty.

Executive Summary

The 1995 report *The Age Demographics of Academic Librarians: A Profession Apart* argued that, as a group, librarians are unusually old and aging rapidly.[1] Drawing on data from the U.S. federal government, the Association of Research Libraries (ARL), and other sources, the study examined some possible explanations for this phenomenon and described aging trends among sub-groups within the ARL population. Finally, the study projected the age profile of librarians in ARL member libraries through 2020, leading to the conclusion that retirements will have an enormous impact on that population at least through 2015.

The data available to support analyses of aging trends have grown substantially since the publication of the 1995 report. There are three additional ARL Annual Salary Survey data sets that include the age variable for the years 1986, 1998, and 2000 as well as electronic data sets that do not include the age variable for the years 1980–1985, 1987–1989, 1991–1993, 1995–1997, and 1999. There are also six additional data sets from the federal government's Current Population Survey and U.S. census data from 1970 and 1990 that did not appear in the 1995 report. The additional data provide two distinct benefits. First, the data now provide a more substantial base from which to discern demographic trends from short-term aberrations. Equally importantly, they make it possible to update the 1995 report at a time when librarians generally, and ARL librarians in particular, approach their years of peak retirements.

In light of these changes, the current work is intended to revisit the aging of librarianship and present revised projections and updated analysis of trends. But it also brings with it a somewhat changed perspective, one that recognizes the connection between the aging of the profession and new entries to the population. One pitfall in thinking about the age of librarianship is to focus overmuch on the inevitable retirements that will ensue. This approach is linear, as if we were describing the age of an individual that has only one entry and one exit point. A population is better considered as a cycle; changes at any point inevitably affect everything that follows. Retirements are only one

event in a cycle that includes new entrants to the population and all the changes that occur to the population in between entry and exit. If we're too focused on retirements, we risk losing sight of trends that may be crucial to understanding *why* the population is aging and may hold important clues as to what the future population of librarianship will look like. The management issue resulting from the aging of librarianship is not retirements; it is how to obtain new entrants in sufficient numbers, quality, and expertise to replace retirees and keep the cycle turning.

The new data support the finding of the 1995 report that librarians are older than comparable professionals. A comparison of librarianship to the professional specialty category in the 2000 CPS data shows that 63 percent of librarians were age 45 and over in 2000, compared to 40 percent of the professional specialty category, confirming that librarianship is indeed unusually old.

Librarians in Canadian ARL member libraries have been consistently older than their counterparts in the U.S. since at least 1986. The two populations have been aging at about the same rate in terms of average age. Between 1986 and 2000, the mean age of Canadian librarians rose from 45 to 49, while that of U.S. librarians rose from 44 to 48; in each case an increase of about 9 percent.

There are a number of factors that affect the age profile of librarianship that are beyond the control of ARL member libraries. The 1995 report stressed the dominating influence of the baby boomers on the ARL librarian age curve. Since baby boomers were age 36 to 54 in 2000, it is likely that the swelling ranks of librarians around age 50 are in part a function of this larger population trend. The baby bust—the period of much smaller numbers of births between 1970 and 1979—must account for some of the decline in the number of librarians age 25 to 34 in 2000, as well.

In addition, the array of potential career choices available to young women has reduced the degree to which they choose female-dominated professions like librarianship. At the same time, while library school students have grown slightly younger since 1995, it is still true that MLS programs attract a much older student body than they did 20 years ago.

However, these trends cannot explain the unusually high proportion of pre-baby boom individuals in ARL libraries: 25 percent of the 2000 population is age 55 and over and 13 percent of the 2005 population is projected to be 60 and over. It is this portion of the ARL population that sets apart ARL librarians, and perhaps librarianship as a whole.

There are hiring behaviors of ARL libraries that also affect the age profile of librarians. The 1995 report noted a sharp drop in the number of new hires in ARL libraries between 1990 and 1994 and suggested that reduced hiring might be one explanation for the aging

of the profession generally. Newer data has made it clear that the number of new hires is in flux, not decline, and between 1998 and 2000 there was a 35 percent increase in new hires. Many of them were young people. As a result, the 2000 population included 41 percent more individuals under age 35 than in 1998.

The 1995 study suggested that retirements among Canadian librarians, who were older than their U.S. counterparts, might spur higher levels of hiring in the future. Instead, the overall size of the Canadian ARL population, having already declined 3 percent between 1990 and 1994, declined another 12 percent between 1994 and 1998. The Canadian portion of the ARL population remained somewhat older than the U.S. population in 2000 and retirements appear to have had very little impact on the number of Canadian new hires.

The most important change among new hires relates to the kinds of expertise in demand in ARL libraries. The most dramatic change is the burgeoning number of functional specialists, now the second largest job category among new hires. The most provocative aspect of this hiring boom is that the individuals who fill these positions are simply different from their colleagues elsewhere in the library. They have fewer MLS degrees, there are more males, and they have fewer years of professional experience but earn higher pay.

New professionals should be the population's primary source of young people. Between 1996 and 2000, hiring of new professionals increased about 12 percent per year, but the increased age of library school students led to a comparable increase in the age of new professionals in the ARL population. From 1986 to 2000, the percentage of new professionals age 45 and over rose from 9 percent to 16 percent.

The study revealed interesting trends among several specific groups of ARL librarians. The supply of professional expertise in ARL technical services operations—cataloging, acquisitions, and related work—has tumbled in recent years. The number of individuals hired for technical services/cataloging jobs dropped 46 percent between 1985 and 2000.

A similar phenomenon is taking place among new professionals. In 1980, 36 percent of new professionals were hired for technical services/cataloging positions, compared to just 12 percent in 2000. The effect of the drop in hiring of new and experienced staff for these positions has had the inevitable effect of reducing the overall number of staff in these areas, down 35 percent between 1985 and 2000.

As a group, librarians are older than comparable professionals and catalogers are old relative to other librarians. Sixteen percent of ARL catalogers were age 60 and over in 2000, compared with 10 percent of the overall ARL population; thirty-two percent were age 55 and over, almost twice as many as in the reference population.

The 1995 report noted that because minority librarians in ARL libraries were younger than their Caucasian colleagues, retirements would have the effect of raising the percentage of minorities in the population as a whole, even in the absence of targeted recruitment efforts. This study compared the percentage of each minority category to the overall ARL librarian population between 1980 and 2000 and found very little change over the 20-year period—slight gains for African American and Hispanic librarians, a slight decline for Asian librarians—leaving the Caucasian portion virtually unchanged.

While the minority portion of the overall ARL librarian population has yet to change, there has been steady progress in the percentage of minorities among new hires. The Hispanic portion of new hires more than doubled since 1985, while the Asian and African American portions nearly doubled.

African American and Hispanic librarians were notably younger than the Caucasian population in the 1995 report and they remained so in 2000. Thirty-five percent of African American librarians and 39 percent of Hispanic librarians were age 50 and over, compared to 48 percent of Caucasian librarians. The Asian librarian age curve continues to stand apart as the oldest population, if one considers the 60 and over cohorts. Nineteen percent of the Asian population falls in this age range, compared to 10 percent of Caucasians.

There are pronounced differences in the distribution of minority librarians by region. In every case, these differences correspond to the geographic distribution of minorities within the larger U.S. population. Relative to Caucasian librarians, Hispanic librarians are concentrated in the southern and western regions and Asian librarians are concentrated in the west. There are relatively few African American librarians in the western region.

Minority librarians also differ from their Caucasian colleagues in terms of their distribution among job categories. Asian librarians are concentrated in the cataloging, reference, and subject specialist categories. African American librarians are concentrated in reference positions. Hispanic librarians are heavily concentrated in the functional specialist, subject specialist, and reference categories.

Library leadership is experiencing its own set of demographic changes, which adds an important new dimension to the challenges facing the profession. This study looked at two sub-groups of leaders: managers (associate and assistant directors, and heads of computer, rare books, cataloging, acquisitions, circulation, reference, and "other" departments and branches) and directors (directors of ARL academic libraries and heads of ARL academic law and medical libraries).

The most significant changes to the demographics of managers are in gender, education, and age. Manager positions have come to be filled increasingly by women. The percentage of women in such positions has risen steadily from 57 percent in 1980 to

65 percent in 2000. The percentage of managers who do not hold a library science degree doubled between 1985 and 2000, from 5 percent to 10 percent. Managers are aging at a faster rate than the ARL population as a whole. Between 1986 and 2000, the average age of managers rose 11 percent, from 45 to 50, whereas the average age of the ARL population rose 8 percent, from 44 to 48.

Directors of law libraries are aging faster than any other job category. Between 1986 and 2000, the portion of the population under 45 years of age dropped from 59 percent to just 7 percent, while the 50+ cohorts rose from 23 percent to 72 percent. The age curves for directors of medical libraries are not quite so stark, but the end result is the same. The percentage of the population under 45 dropped from 26 percent in 1986 to 9 percent in 2000, leaving 84 percent of the population in the 45 to 59 cohorts.

The age shift among ARL academic library directors may be the most dramatic within the ARL population. Directors who were under 50 years of age dropped from 43 percent in 1986 to just 5 percent in 2000. ARL academic library directors have the highest concentration in the 60 to 64 age cohort in the ARL statistics. A remarkable 28 percent of the 2000 ARL director population will reach age 65 between 2000 and 2005.

The 1995 age demographic report noted the increase in the proportion of female ARL directors. Despite the progress made in recent years, some inequity remains in the percentage of female directors. Two factors suggest that women may make further gains in the near future. First, is that just over 50 percent (26 of 50) of the ARL directors hired since 1997 have been women. Second, is that the relatively high proportion of male directors age 60 and over suggests that more men than women will retire by 2005. It is likely that women will soon come to outnumber men in ARL directorships.

Minority representation in ARL directorships is extremely low and has changed little since 1980. The Caucasian portion of this population has ranged from a low of 92 percent to a high of 98 percent. It appears unlikely that minority representation in directorships will change dramatically in the near future.

Directors with seven or fewer years in one library decreased from 45 percent in 1985 to 35 percent in 2000, while the portion with 20 or more years more than doubled, from 11 percent to 29 percent. In this 15-year period, ARL directors demonstrated an increasing tendency to remain in place for longer periods of time.

In 1985, 36 percent of directors had less than 20 years of experience, compared to just 2 percent in 2000. The portion with more than 24 years experience, on the other hand, nearly doubled, from 44 percent to 86 percent.

The great majority of ARL directors hold the MLS as their highest library degree—85 percent in 2000. The number of ARL directors with a library science Ph.D. dropped from

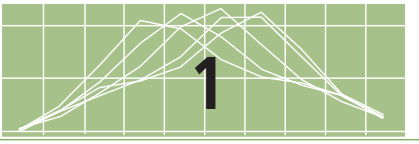
14 percent in 1985 to 7 percent in 2000, though 20 percent held a Ph.D. degree in some discipline.

In demographic terms, the ARL population is undergoing change at each point in its cycle, and in ways that have the potential to alter the face of research librarianship in the coming decades.

Notes

[1] Stanley J. Wilder, *The Age Demographics of Academic Librarians: A Profession Apart* (Washington, D.C.: Association of Research Libraries, 1995).

Demographic Change in Academic Librarianship



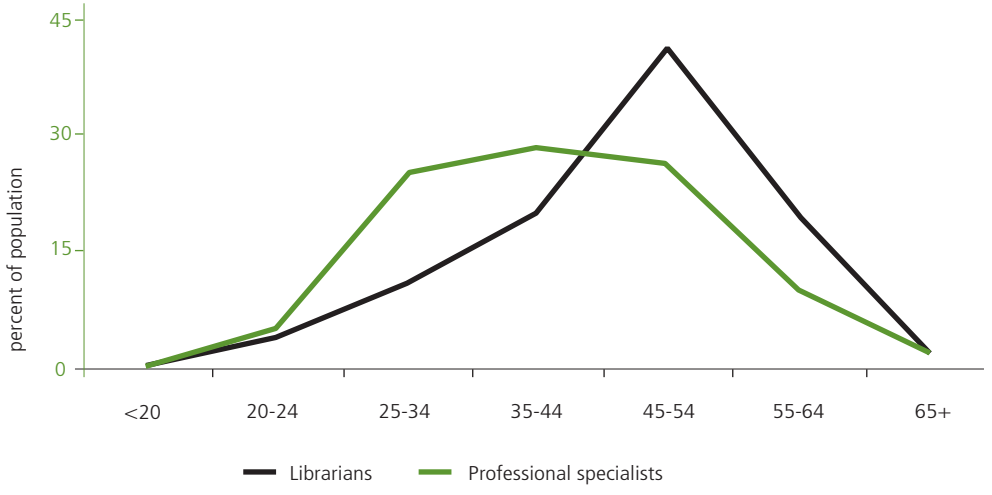
The Age Profile of Librarianship

The Age Profile of U.S. Librarians

What does it mean to say that librarians are unusually old? Older than whom? Studies of age within comparable professions commonly use the U.S. workforce as a benchmark, but the U.S. workforce includes everyone who works in the U.S., including the significant number of individuals under 20 years of age. Any profession with a substantial educational requirement will appear old relative to such a group. A far better benchmark can be found in the Bureau of Labor Statistics' *Current Population Survey* (CPS).[1] The CPS data include age distributions for librarianship dating back to 1989 and places librarianship in a broad category called "professional specialty occupations." This grouping includes teachers, professors, lawyers, medical professionals, and many other professions. Most of the professional specialty occupations require at least a college education; hence it includes few individuals under 20 years of age. This is a good comparison for librarianship, which generally requires a bachelor's degree plus a Masters of Library Science (MLS) degree for entry into the profession.

A comparison of librarianship to the professional specialty category in the 2000 CPS data shows that 63 percent of librarians were age 45 and over in 2000, compared to 40 percent of the professional specialty category, confirming that librarianship is indeed unusually old (**Figure 1**).

Figure 1 Age of Librarians Compared to the Professional Specialty Category, 2000 CPS



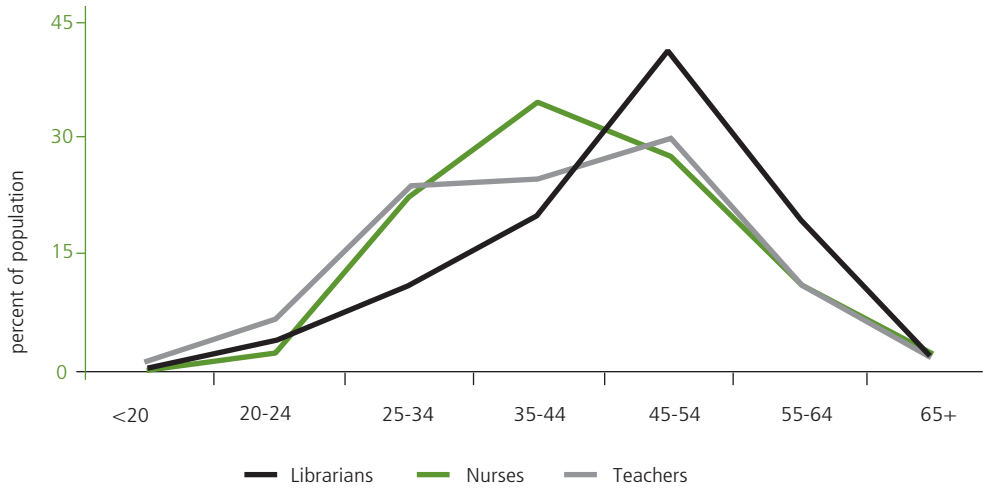
%	<20	20–24	25–34	35–44	45–54	55–64	65+	Total
Librarians	0.9	4.7	11.6	20.2	40.3	19.7	2.6	100
Professional specialists	1.1	5.9	25.1	28.2	26.2	10.6	2.8	100
thousands								
Librarians	2	11	27	47	94	46	6	233
Professional specialists	225	1,254	5,300	5,959	5,538	2,244	593	21,113

Source: Current Population Survey

Comparing librarianship to specific professions yields similar results. For example, nursing[2] and teaching[3] have attracted media interest of late for their aging populations and, indeed, both are much older than the workforce as a whole. But, these professions are only marginally older than those in the larger professional specialty category and they are substantially younger than librarianship (**Figure 2**). Again, the sharpest divergence lies in the 45 and over age cohorts, which includes 40 percent of nurses, 42 percent of teachers, but 63 percent of librarians.

These government data show that librarians are older than comparable professionals. But while this fact may be interesting, it is not necessarily important. As it happens, librarians have been relatively old since at least 1970[4], and could conceivably remain so indefinitely, producing no undesirable consequences. What is significant is that librarians are aging faster, as well. Here again, the professional specialty category proves

Figure 2 Age of Librarians, Nurses, and Teachers, 2000 CPS



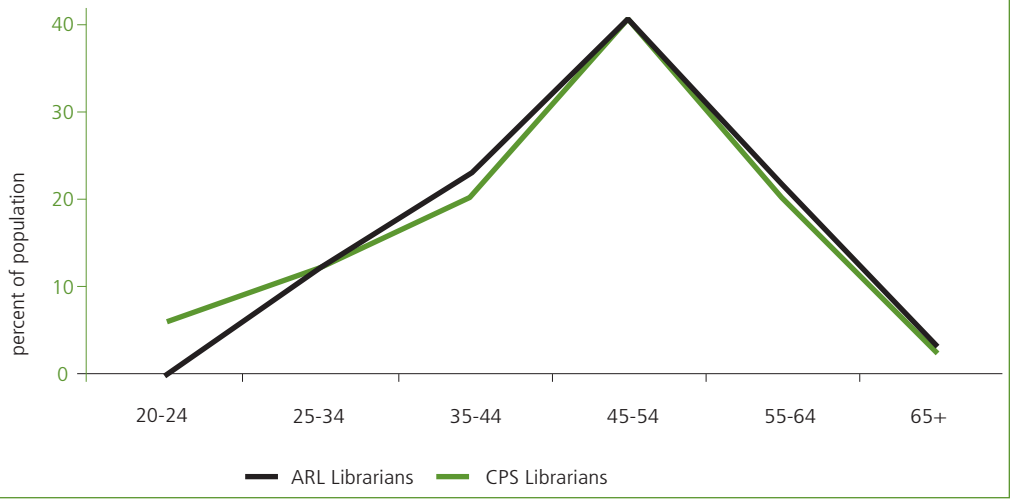
%	<20	20–24	25–34	35–44	45–54	55–64	65+	Total
Librarians	0.9	4.7	11.6	20.2	40.3	19.7	2.6	100
Nurses	0.0	2.6	22.5	34.4	28.2	10.7	1.9	100
Teachers	1.8	7.1	23.9	24.5	30.0	10.7	1.9	100
thousands								
Librarians	2	11	27	47	94	46	6	233
Nurses	0	55	478	731	600	227	37	2,128
Teachers	97	381	1,277	1,314	1,607	574	103	5,353

Source: Current Population Survey

a useful benchmark. The CPS data for the period 1990 to 2000 indicate that the number of individuals age 45 and over in the professional specialty category increased modestly from 32 percent to 40 percent. The number of librarians age 45 and over grew from 46 percent to 63 percent.

The aging of the baby boomers (individuals born between 1946 and 1964) is affecting all professions. In 1970, when the oldest baby boomers were 24, the median age of the U.S. population was 28 years. By 1997, when the oldest baby boomers reached age 51, the population's median age was 35 years.[5] Could it be that librarianship is simply aging along with the boomers? The next chapter will explore this question in more detail.

Figure 3 Age of U.S. ARL Librarians Compared to CPS Librarians, 2000



%	20–24	25–34	35–44	45–54	55–64	65+	Total
CPS Librarians	5.6	11.6	20.2	40.3	19.7	2.6	100.0
U.S. ARL Librarians	0.5	12.1	22.7	39.9	21.5	3.2	100.0
N							
CPS Librarians*	13	27	47	94	46	6	233
U.S. ARL Librarians	38	987	1,848	3,243	1,749	262	8,127

* in thousands

Source: Current Population Survey and ARL Annual Salary Survey

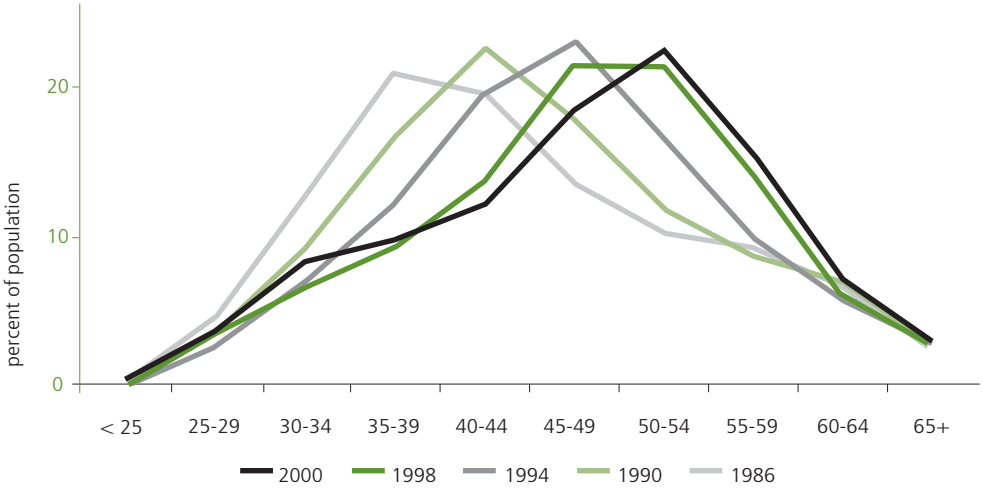
The Age Profile of ARL Librarians

The age data in the *ARL Annual Salary Survey* have been similar to that found in the CPS since 1990, the first year that both data sets contained age data for librarians (**Figure 3**). This finding enhances confidence in the comparability of both data sets and suggests that the age trends identified in the ARL population may apply equally well to librarians throughout the U.S.

Librarians working in academic U.S. ARL libraries, however, have consistently been somewhat older than those in the CPS sets. For example, in the 2000 sets, 62 percent of CPS librarians were age 45 and over, compared with 65 percent of librarians in academic U.S. ARL libraries.[6]

Aging within the ARL population is as dramatic as that of CPS librarians. **Figure 4** presents the progression of the ARL academic librarian age curve from 1986 to 2000 in

Figure 4 Age of Librarians in ARL Academic Libraries, 1986 to 2000

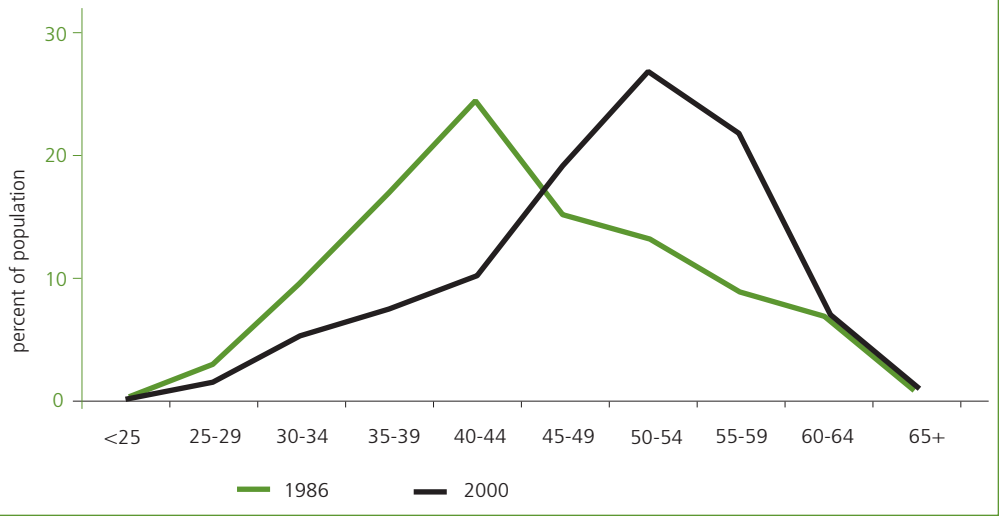


%	<25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	0.1	4.6	12.6	20.9	19.4	13.6	10.2	9.2	6.8	2.6	100.0
1990	0.1	3.7	9.3	16.6	22.4	17.9	11.9	8.7	6.7	2.8	100.0
1994	0.3	2.7	7.2	12.2	19.6	23.0	16.6	10.0	5.7	2.7	100.0
1998	0.3	3.6	6.8	9.4	13.9	21.5	21.4	13.9	6.4	2.9	100.0
2000	0.4	3.6	8.1	9.5	12.0	18.4	22.5	15.4	7.1	3.0	100.0
N											
1986	10	335	926	1,528	1,422	993	745	676	496	193	7,324
1990	10	258	652	1,169	1,579	1,258	835	616	474	195	7,046
1994	21	198	517	880	1,412	1,662	1,201	719	412	193	7,215
1998	20	255	483	669	990	1,529	1,525	991	456	209	7,127
2000	33	283	646	752	951	1,462	1,784	1,218	562	241	7,932

Source: ARL Annual Salary Survey

four-year increments, except for the two-year increment between 1998 and 2000. This graph includes age data for both U.S. and Canadian academic librarians, as reported in the *ARL Annual Salary Survey*.

Figure 5 Age of Librarians in Canadian ARL Academic Libraries, 1986 and 2000



%	<25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	0.2	2.9	9.4	17.0	24.6	15.3	13.2	9.0	7.1	1.2	100.0
2000	0.2	1.4	5.2	7.5	10.3	19.2	26.8	21.8	6.7	0.9	100.0
N											
1986	1	19	61	110	159	99	85	58	46	8	646
2000	1	9	34	49	67	125	175	142	44	6	652

Source: ARL Annual Salary Survey

Age Differences between U.S. and Canadian ARL Librarians

The ARL age curve is somewhat older in Figure 4 than in Figure 3, due in part to the inclusion of the Canadian portion of the ARL population. In 2000, 12 percent of ARL libraries were Canadian, employing 9 percent of the ARL population. Librarians in Canadian ARL member libraries have been consistently older than their counterparts in the U.S. since at least 1986. According to the "as reported" version of that year's data, 70 percent of Canadian librarians were age 40 and over, compared to 61 percent in the U.S. By 2000, 86 percent of Canadian librarians were age 40 and over, compared to 78 percent of U.S. librarians (Figure 5). The two populations have been aging at about the same rate in terms of average age. Between 1986 and 2000, the mean age of Canadian librarians rose from 45 to 49, while that of U.S. librarians rose from 44 to 48; in each case an increase of about 9 percent.

Table 1: Nonresponse Rates for "Year of Birth" by U.S. and Canadian ARL Librarians

		U.S.		Canada		Total	
		N	%	N	%	N	%
1986	Missing	208	3.0	185	22.3	393	5
	Total	6,886		831		7,717	
1990	Missing	1,142	15.1	194	23.1	1,336	16
	Total	7,543		839		8,382	
1994	Missing	821	11.1	180	22.1	1,001	12
	Total	7,401		815		8,216	
1998	Missing	1,078	14.1	195	26.7	1,273	15
	Total	7,671		729		8,400	
2000	Missing	847	10.4	103	13.6	950	11
	Total	8,127		755		8,882	

Source: ARL Annual Salary Survey

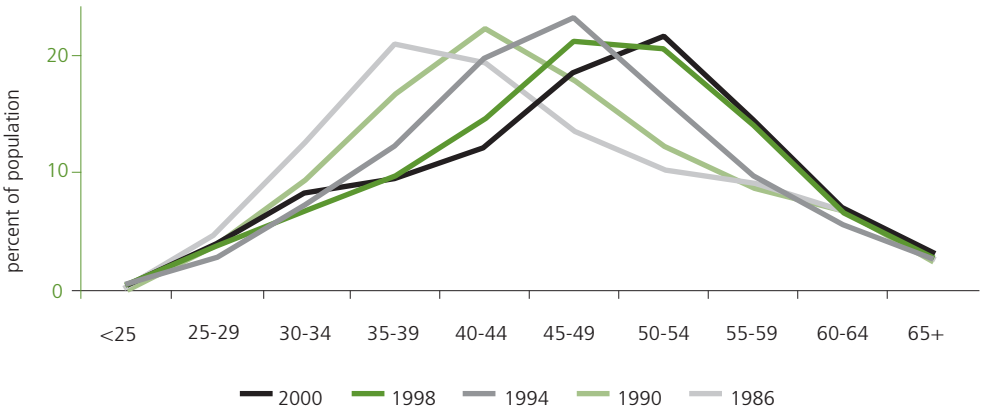
Table 1 shows that the nonresponse rate for the "year of birth" variable for Canadian ARL librarians was considerably higher than for U.S. ARL librarians in every year except 2000. For the years presented in Figure 4, for example, the Canadian nonresponse rates were 22 percent in 1986 and 14 percent in 2000, compared to 3 percent for U.S. librarians in 1986 and 10 percent in 2000.

Imputed U.S. ARL Librarian Age Data

The age projections in this study, like those that appeared in the 1995 study, are based on data that include only librarians from U.S. ARL libraries. That data has a weakness, however, because the nonresponse rate for the age variable has varied from year to year, exceeding 15 percent in 1990 for example. To address this concern, the U.S. ARL data was analyzed to determine whether cases with nonresponse for age differed in a systematic way from the remaining cases. For example, if nonresponses in the age variable were found to be unusually concentrated in cases with very low values in the "years of professional experience" variable, confidence in the data as reported would decrease. The analysis performed on the U.S. ARL data, however, produced no evidence of systematic bias.

The nonresponse rates still posed a problem, as noted in the Appendix, because they represented a large number of cases otherwise lost to the age distribution. For this reason, the U.S. ARL data was imputed to fill in missing age values. The resulting age curves are somewhat younger than those using the reported ARL data, but they illustrate the same older-and-aging-rapidly phenomenon (Figure 6).

Figure 6 U.S. ARL Librarian Imputed Age Curve, 1986 to 2000



%	<25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	0.2	4.8	13.0	21.1	19.0	13.5	9.9	9.2	6.6	2.7	100.0
1990	0.3	3.9	9.7	16.5	21.8	17.8	12.2	8.6	6.4	2.7	100.0
1994	0.4	2.8	7.3	12.7	19.6	22.8	16.2	9.9	5.5	2.8	100.0
1998	0.3	3.5	6.9	10.0	14.7	21.0	20.5	13.5	6.3	3.2	100.0
2000	0.5	3.7	8.5	10.1	12.6	18.3	21.6	14.5	7.1	3.2	100.0
N											
1986	16	331	892	1,454	1,305	930	682	632	454	189	6,886
1990	26	298	731	1,243	1,644	1,343	923	649	485	202	7,543
1994	26	207	540	941	1,454	1,690	1,200	731	407	205	7,401
1998	27	271	533	765	1,129	1,612	1,569	1,036	487	242	7,671
2000	38	300	687	820	1,027	1,491	1,753	1,176	573	262	8,127

Source: ARL Annual Salary Survey

Age Projections for U.S. ARL Librarians

ARL commissioned projections for this study from demographers Murray Gendell and Michael Irwin, and their methodology and results are presented in the Appendix.

The older age cohorts in these projections are dominated by the 40 percent of the population age 45 to 54 in 2000. To illustrate, the percentage of individuals age 45 and over in 2000 is greater than it is projected to be through 2020 (**Table 2**). Five years later, with the group of individuals age 45 to 54 in 2000 now age 50 to 59, the 50 and over cohorts

Table 2: Projected Percentage of Older U.S. ARL Librarians, 2000 to 2020

	45+	50+	55+	60+
2000	64.7	46.3	24.7	10.3
2005	63.1	50.0	32.1	13.3
2010	58.0	46.2	33.3	17.6
2015	53.4	39.8	28.3	17.0
2020	49.7	35.7	22.7	12.8

reach their highest total, as do the 55 and over cohorts in 2010. The influence of the 2000 group of 45 to 54 year olds is such that the aging pattern nearly continues through 2015, despite the fact that the oldest of that group would be 69 years old, meaning that many will have retired.

The individuals age 45 to 54 in 2000 are, of course, baby boomers, having been born between 1946 and 1955. The projections thus reflect the driving force behind the aging of the general population. The baby boom cannot explain, however, the unusually high proportion of pre-baby boom individuals in ARL libraries: the 25 percent of the 2000 population age 55 and over or the 13 percent of the 2005 population age 60 and over. It is this portion of the ARL population that sets apart ARL librarians, and perhaps librarianship as a whole.

The projections are of equal interest for the younger age cohorts. The projections present an under-45 component that rises steadily from 2000 to 2020. This is to be expected, given the large number of individuals who will be exiting the population due to retirement. It is interesting to note, however, that there is virtually no change in the percentage of individuals under 30, no doubt a reflection of the older age of library school students and new professionals as discussed in Chapter 2. Instead, the "youth movement" as seen in these projections occurs mostly in the 35 to 39 cohort, which rises from 10 percent in 2000 to 16 percent in 2020.

Projections of the Size of the U.S. ARL Librarian Population

In the course of preparing the above age projections, it became necessary to project the number of U.S. ARL academic libraries and the size of their professional staffs between 2000 and 2020. There are two projections of the size of the U.S. ARL librarian population. One was made using cohort progression ratios (CPR) calculated from the imputed U.S. ARL salary survey data. The other was made by the use of a logistic function to extrapolate the changes in the number of member U.S. ARL libraries and their average staff size between 1980 and 2000. The increase in the CPR projection is 3.4 percent by 2010

and 9.2 percent by 2020. The other projection indicates modestly larger gains, 8.5 percent by 2010 and 17.4 percent by 2020. It is worth noting that the Bureau of Labor Statistics (in the U.S. Department of Labor) has recently projected to 2010 increases of 7.0 percent for "librarians" and 19.5 percent for "library technicians." For additional information about these ARL projections, see the Appendix.

Notes

1 Bureau of Labor Statistics. Unpublished data from the *Current Population Survey* "Industry and Occupation Tables, Table 12: Employed Persons by Detailed Occupation, Sex and Age."

2 Peter I. Buerhaus et al., "Implications of an Aging Registered Nurse Workforce," *JAMA* 283 no. 22 (June 14, 2000): 2948.

3 Barbara Kantrowitz and Pat Wingert, "Teachers Wanted: Recruiting New Teachers to Replace the Retired," *Newsweek* 136 no. 14 (October 2, 2000): 36.

4 U.S. Bureau of Labor Statistics, *Library Manpower: A Study of Demand and Supply* (Washington, D.C., 1975).

5 Jacob S. Siegel, *Applied Demography: Applications to Business, Government, Law, and Public Policy*. (San Diego: Academic Press, 2002), 35.

6 The U.S. ARL age data is taken from the imputed version of this data as presented in Figure 6.

Demographic Trends that Affect Entry into Librarianship

There is very little that the library community can do about the retirements it faces. Nearly everyone, in every demographic niche imaginable, retires by age 65 and many retire earlier. Given the formidable financial and cultural framework of retirement, there is little expectation of change in this behavior. Isolated individuals may be lobbied successfully to put off retirement, but as a rule, there is almost nothing here to be "managed."

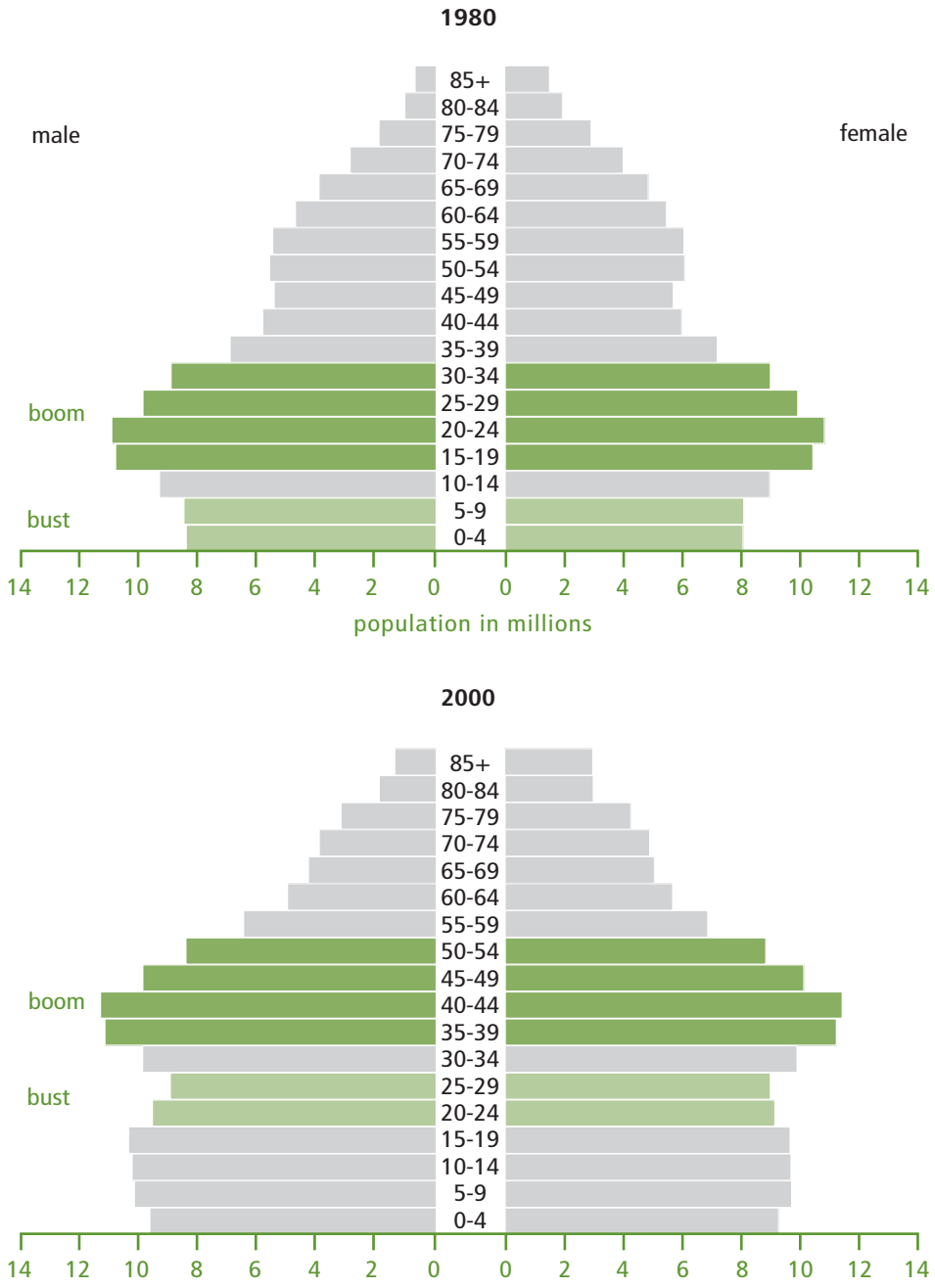
Factors Beyond ARL Libraries that Affect Entry

Baby Boom, Baby Bust

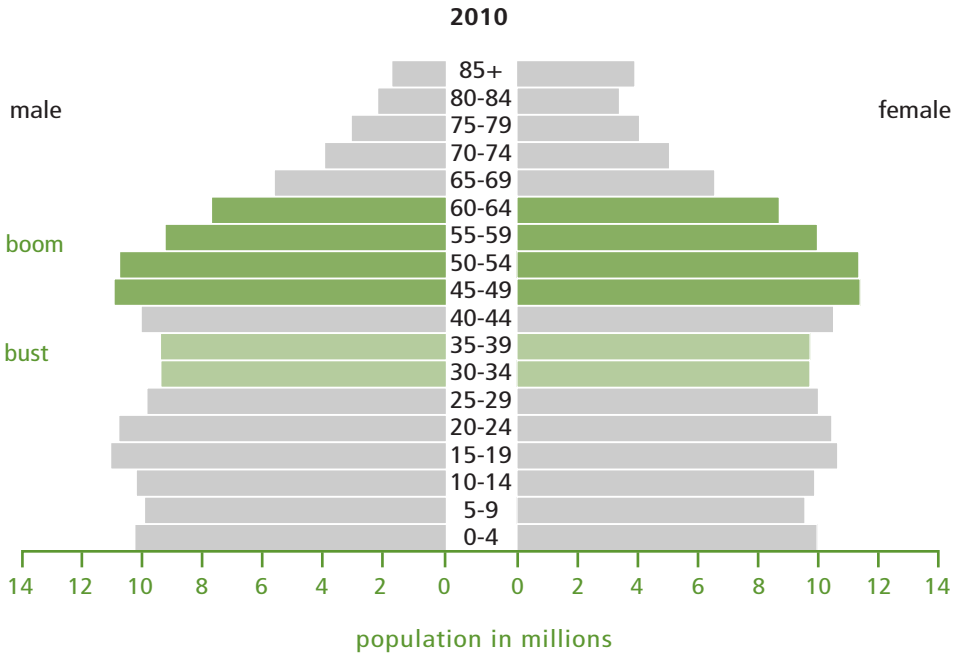
Part of the explanation for why older individuals make up a relatively larger portion of librarianship must lie with the baby boom, the large number of births that occurred between 1946 and 1964. It is impossible to measure with any precision the "baby boom effect" on a population as small as librarianship. If one considers that in 2000 baby boomers were age 36 to 54, it is likely that the swelling ranks of librarians around age 50 is in part a function of this larger population trend.

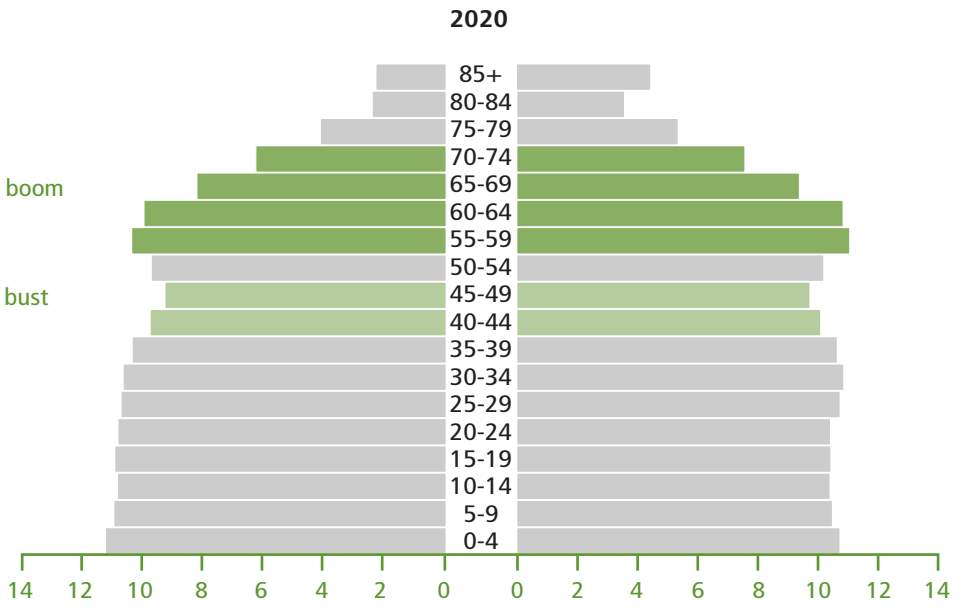
By the same token, the baby bust must account for some of the decline in the number of librarians age 25 to 34 in 2000. The baby bust describes the period of much smaller number of births between 1970 and 1979. **Figure 7** presents the U.S. population by age, indicating the relative size of the baby boom and baby bust portions of the population.

Figure 7 U.S. Population by Age: Baby Boom and Baby Bust



Source: U.S. Census Data, International Data Base





The baby boom cannot entirely explain the swelling ranks of librarians in the older age cohorts, however, because as we have seen, librarianship is older and aging faster than other professions that must be equally subject to broad population trends. And as we will see below, the decline in participation in librarianship by young adults, especially young women, goes beyond that experienced by other professions.

Young Women's Career Choices

For most of the past 100 years, librarianship has been a female-dominated profession and one of a handful of professions open to women. While little has changed in the gender mix within librarianship, the array of potential career choices available to young women has broadened considerably, particularly since the Second World War. This trend has had the inevitable effect of reducing the degree to which young women choose female-dominated professions like librarianship. This trend is not visible in the CPS data, probably because it did not begin tracking librarians until 1989. The decennial census data for 1970 and 1990, however, reveal a stark pronounced change in career choice within female-dominated professions.

The next two tables compare the growth of selected professions to the growth in the number of women under 30 in that profession. In principle, one would expect the female under-30 population to increase at approximately the same rate as the population as a whole. This is not the case, however, in the three female-dominated professions listed in **Table 3**. In teaching and nursing, growth in the number of young women lags well behind overall growth. The case of librarianship is even more dramatic due to the actual decline in the number of young women at a time when the number of librarians grew considerably. In contrast, **Table 4** shows that three male-dominated professions experienced large increases in participation by young women in the same time period.

It is clear that a fundamental shift has occurred with regard to the propensity of young women to choose female-dominated professions, and librarianship in particular. Such a shift of young women to other professions could only have the effect of contributing to the aging of librarianship as a whole.

Age of MLS Students

Drawing from the Association for Library and Information Science Education (ALISE) data on MLS students, the 1995 report noted the dramatic aging of library school students in the years between 1983 and 1994. During those years the portion of the population age

Table 3: **Young Women's Participation in Teaching, Nursing, and Librarianship, 1970 to 1990**

	Growth of the Profession	Growth in Number of Women Under 30
Teaching	+106%	+16%
Nursing	+120%	+31%
Librarianship	+ 62%	– 9%

Source: U.S. Census data

Table 4: **Young Women's Participation in Law, Medicine, and Mechanical Engineering, 1970 to 1990**

	Growth of the Profession	Growth in Number of Women Under 30
Law	+179%	+131%
Medicine	+106%	+388%
Mechanical Engineering	– .01%	+ 635%

Source: U.S. Census data

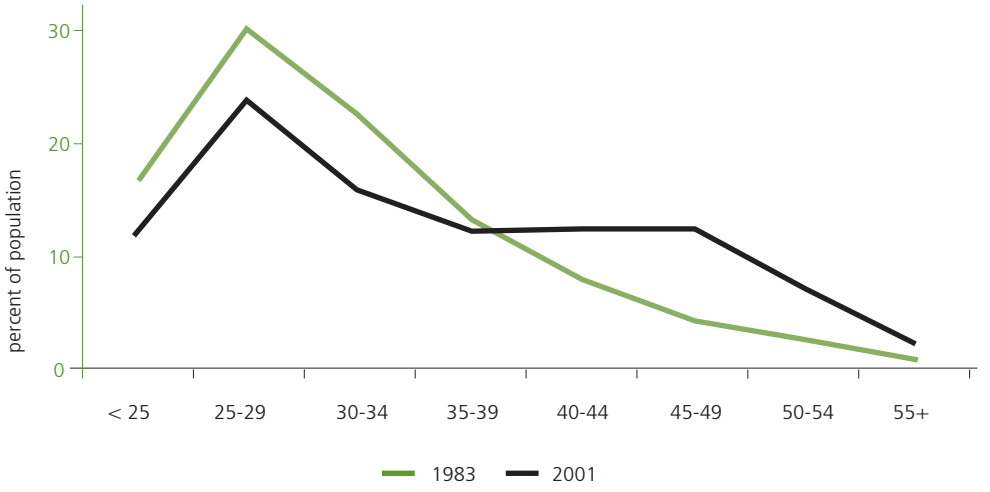
40 and over increased from 17 percent to 36 percent. In the years since, library school students have grown slightly younger, but it is still true that MLS programs attract a much older student body than they did 20 years ago (**Figure 8**).

The MLS student data provide an echo of the census data on young women in librarianship. While the overall number of MLS students nearly tripled between 1983 and 2001, the number of individuals under age 30 *decreased* 24 percent.

ARL Library Hiring Factors that Affect Entry

The baby boom/baby bust, changes in career choice among young women, and the increased age of MLS degree students have all had an impact on entries to the population of librarianship, and all had the net effect of reducing the number of young people in it. There is another class of changes affecting entry, however, which springs from changes in hiring behavior at ARL member libraries. These changes may, like the societal factors above, shed light on the aging of the ARL population, but they have added importance for what they suggest for the future of the profession, especially in terms of who will replace retiring librarians and what kinds of expertise they will have.

Figure 8 Age of MLS Students, 1983 and 2001



%	<25	25–29	30–34	35–39	40–44	45–49	50–54	55+	Total
1983	16.8	30.2	22.9	13.7	8.2	4.3	2.7	1.2	100.0
2001	12.0	23.8	16.4	12.8	12.6	12.6	7.3	2.5	100.0
N									
1983	699	1,259	953	110	340	181	114	52	4,170
2001	1,488	2,933	2,026	1,580	1,557	1,560	896	309	12,349

Source: Association for Library and Information Science Education

New Hires

In the ARL salary surveys of 1986, 1990, 1994, 1998, and 2000, information on "years in library" was elicited. In this study, "new hires" are cases that contain a value of zero or one in the variable "years in library."[7] Analysis of the data relating to new hires proves to be one of the most fruitful uses of the salary survey data. For example, tracking the number of new hires provides a relatively precise measure of the ability of libraries to fill positions each year. This makes new hire data a more accurate reflection of the market for librarians than counting job advertisements, which can only document the intent to hire.

New hire data is also useful when considered longitudinally, since it reveals changing priorities and other trends. New hire data can also be combined with other demographic data to give us a picture of what kinds of expertise were in demand at a given point in time and what kinds of people were being hired to provide that expertise. Considering

this sort of data longitudinally may be the most important analysis of new hires, insofar as these trends shape future populations of librarians, since new hires are a glimpse of the future.

The 1,079 new hires in 2000 represent a surprising 35 percent increase from the 1998 figure (**Table 5**). This finding is consistent with the increase in the percentage of the ARL population under 35 years of age in that same period.

Table 5: Number of New Hires

	Canada		US		Total	
	N	%	N	%	N	%
1986	28	4.3	834	14.0	862	13.0
1990	49	7.1	1,009	16.0	1,058	15.1
1994	24	3.5	778	11.6	802	10.8
1998	22	5.2	775	11.4	797	11.0
2000	31	7.2	1,048	14.8	1,079	14.4

Source: ARL Annual Salary Survey

The 1995 report noted a sharp drop in the number of new hires in ARL libraries between 1990 and 1994 and it suggested that reduced hiring might be one explanation for the aging of the profession generally. Since that time, two newer data sets and one earlier one have become available and the broader perspective has made it clear that the number of new hires is in flux, not decline. With no discernible trend in the number of new hires, there is no clear connection between the rate of hire at ARL libraries and the aging of the profession.

By the same token, it is too soon to call the 35 percent increase in new hires between 1998 and 2000 a hiring boom, though it will certainly bear watching in the future. The spurt of new hiring does appear to have had an immediate impact on the 2000 population, which is up 456, an increase of 5.9 percent for the two-year period. This growth is equivalent to a 12.2 percent growth rate for a four-year period, compared to 9.5 percent growth in the four-year period from 1986 to 1990. It is worth noting that many of the new hires in 2000 were young people. The 2000 population included 124 more individuals under age 35 than in 1998, up 41 percent (**Table 6**).

The growth in the population between 1998 and 2000 occurred without the addition of new libraries to the ARL data set. Table 6 overstates actual change in hiring behavior, however, to the degree that ARL has added libraries since 1986. To correct for growth in

the number of institutions, population growth can be expressed in terms of the average number of professional staff per library. This figure increased 8.4 percent between 1986 and 1990, and 4.9 percent between 1998 and 2000, equivalent to 9.9 percent over a four-year period.

Table 6: Number of Young New Hires

	Under 30	% Change from previous year	Under 35	% Change from previous year
1986	154		382	
1990	154	0	359	– 6
1994	130	– 16	291	– 19
1998	145	+ 12	299	+ 3
2000	187	+ 29	423	+ 41

Source: ARL Annual Salary Survey

The 1995 report further noted that the number of new hires among Canadian ARL libraries was less than one third that of U.S. ARL libraries, by percent of population. The study suggested that retirements among Canadian librarians, who were older than their U.S. counterparts, might spur higher levels of hiring in the future. Since that time, Canadian libraries encountered serious financial problems, particularly between 1996 and 1997, to judge by these libraries' total expenditures in the ARL statistics. The overall size of the Canadian ARL population, having already declined 3 percent between 1990 and 1994, declined another 12 percent between 1994 and 1998. The Canadian portion of the ARL population remains somewhat older than the U.S. population in 2000, but as Table 5 illustrates, retirements appear to have had very little impact on the number of Canadian new hires.

The Rise of the Functional Specialist

The most important change among new hires relates to the kinds of expertise in demand in ARL libraries. **Table 7** compares the top six job categories among new hires in 1985 and 2000 and documents substantial change in each category. Some degree of increase in the number of new hires by job is to be expected, given the addition of seven libraries to the ARL data set in that period. But all of the categories that grew in this period did so at a

rate far higher than the increase in the number of libraries, and two categories actually dropped. Clearly, hiring priorities changed between 1985 and 2000.

Table 7: The Top Six New Hire Job Categories in 1985 and 2000

	1985		2000		
	New Hires	Percent of New Hires	New Hires	Percent of New Hires	Percent Change
Reference Librarian	214	25.3	322	29.9	+50
Cataloger	154	18.2	84	7.8	-45
Functional Specialist	82	9.7	243	22.5	+196
Public Services	75	8.9	47	4.4	-37
Subject Specialist	59	7.0	95	8.8	+61
Head, Other	58	6.9	76	7.0	+31

Source: ARL Annual Salary Survey

The most dramatic change is the burgeoning number of functional specialists, now the second largest job category among new hires. If one compares the rate of growth of functional specialist new hires between 1990 and 2000 to that of reference librarians and then projects that growth into the future, one finds that new hires for functional specialist positions would overtake those for reference by 2003.

What is a functional specialist? According to the instructions for the 2000 salary survey, functional specialists are

> "…media specialists, or…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…" [8]

This definition makes "functional specialist" a kind of catchall category for non-supervisory positions that do not fit neatly in other job categories. The 1998 data, however, include an additional job sub-code, which allows for greater precision. The available sub-codes are as follows:

Acquisitions	Staff Training	Serials
Personnel	Archivist	Audiovisual /Media
Preservation	Systems Analysis/Programming	Interlibrary Loan

In 1998, 61 percent of new hires in functional specialist positions were hired for a systems analysis/programming position and 11 percent were hired for both archival and personnel positions. The remaining functional specialist categories each amount to less than 5 percent. Functional specialists are thus predominantly individuals hired for non-supervisory positions that require information technology-related expertise.

The most provocative aspect of the boom in hiring of functional specialists is that the individuals who fill these positions are simply different from their colleagues elsewhere in the library. For example:

- *Fewer library science degrees.* In 2000, 48 percent of functional specialists had no library science degree, compared to 12 percent of other new hire job categories. If one includes the functional specialist category along with other new hires, the overall number of new hires with no library science degree rises to 20 percent. This is a sharp contrast to 1985 when only 7 percent of new hires had no library science degree. There is a clear trend toward increasing numbers of professionals with no library science degree, fueled in large part by the growth in hires to functional specialist positions.
- *More male.* Forty-four percent of the 2000 functional specialist new hires were males, compared to 33 percent of other job categories.
- *Experience gap.* New hires to functional specialist positions had an average of five years of professional experience in 2000, compared to seven years for other new hires. Of those job categories with more than 25 new hires, only reference had a lower average experience level.
- *Smaller salary gap.* The 1998 new hire data, which includes salary, indicate that while the average experience of functional specialists is only 60 percent that of other categories, functional specialists have 91 percent of the average pay.

Growth in the number of new hires to functional specialist positions has already had a profound affect on the overall ARL population (**Table 8**). But if one compares the growth rate of functional specialist positions to reference positions between 1990 and 2000, and then projects these growth rates into the future, one finds that functional specialists would overtake reference librarians as the largest job category in ARL libraries by 2017.

It is difficult to imagine this situation coming to pass, but this measure is one way of underscoring the importance of the trend. The rapid growth in professional staff whose primary expertise lies in information technology rather than librarianship is certain to introduce an element of change into the overall demographics of the ARL population, especially in the long term. It is enough to warrant consideration of how this group will come to affect compensation, library education, credentialing, and the general culture and values of ARL librarianship.

Table 8: The Top Seven Job Categories in 1985 Compared to 2000

	1985		2000		
	N	%	N	%	% Change
Reference Librarian	1,382	17.0	1,917	21.6	+39
Cataloger	1,215	14.3	880	9.9	-28
Head, Other	719	10.3	782	8.8	+9
Subject Specialist	717	10.2	982	11.1	+37
Head, Branch	549	8.3	565	6.4	+3
Functional Specialist	499	5.4	1,344	15.1	+169
Public Services	483	7.3	276	3.1	-43
Technical Services	353	6.3	145	1.6	-59

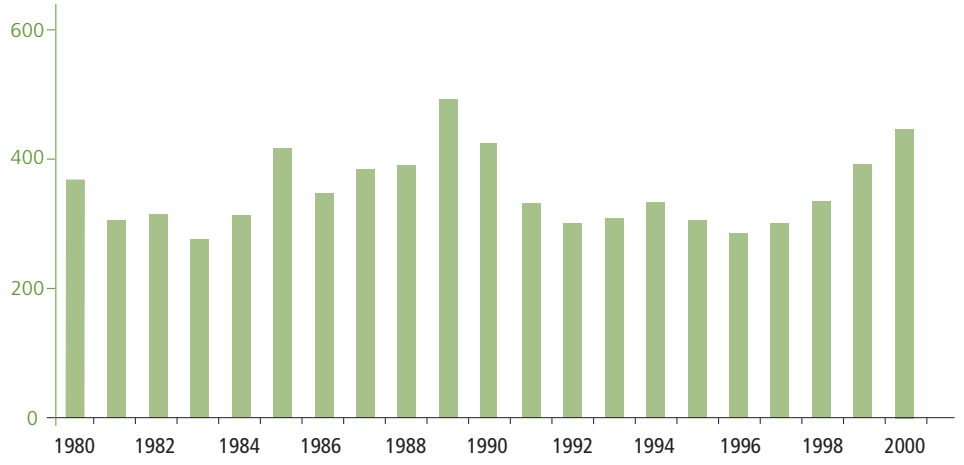
Source: ARL Annual Salary Survey

New Professionals

Each of the salary surveys between 1980 and 2000 contains the variable "years of professional experience." In this study, "new professionals" are cases that contain a value of zero or one in this variable. New professionals are of great interest, and not only as the population's primary source of young people. There are three important trends affecting new professionals: their number, their age, and the positions they are hired into.

There were 447 new professionals in the 2000 data, its second highest level since 1980. The increase in the 2000 data continues an upward trend that began in 1996. Between 1996 and 2000, hiring of new professionals has increased consistently at about 12 percent per year. This growth is probably a reflection of the generally prosperous late-1990s; hence

Figure 9 Number of New Professionals, 1980 to 2000

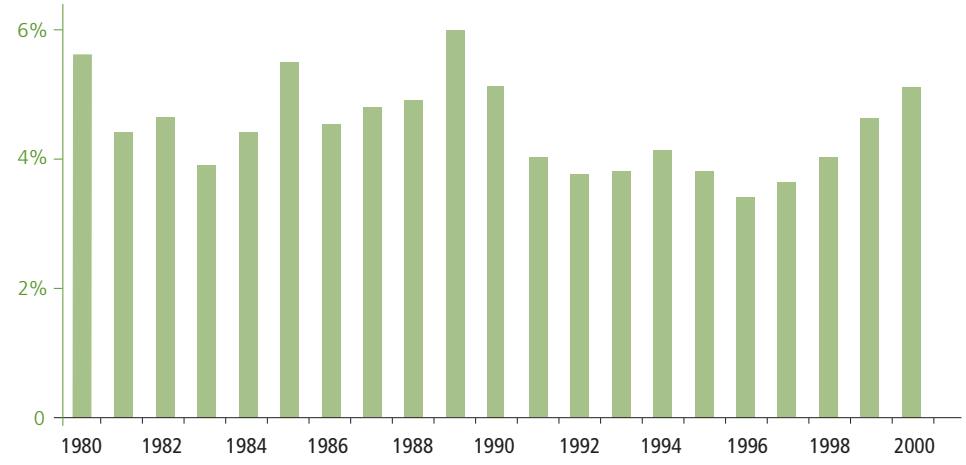


	N	Percent of Population		N	Percent of Population
1980	369	5.6%	1991	330	4.0%
1981	306	4.4%	1992	304	3.7%
1982	316	4.6%	1993	312	3.8%
1983	277	3.9%	1994	334	4.1%
1984	314	4.4%	1995	308	3.8%
1985	415	5.5%	1996	286	3.4%
1986	347	4.5%	1997	302	3.6%
1987	383	4.8%	1998	338	4.0%
1988	393	4.9%	1999	392	4.6%
1989	495	6.0%	2000	447	5.1%
1990	425	5.1%			

Source: ARL Annual Salary Survey

it will be useful to revisit this number should the present economic downturn continue. **Figure 9** presents the number of new professionals per year and **Figure 10** presents new professionals as a percent of the ARL population. The "percent of population" data corrects for the increase in the number of libraries in the ARL data set over the period.

Figure 10 New Professionals as a Percentage of the ARL Population



The increased age of library school students has led to a comparable increase in the age of new professionals in the ARL population. From 1986 to 2000, the percentage of new professionals age 45 and over rose from 9 percent to 16 percent.

Table 9 illustrates that many of the changes taking place among new hires are also evident among new professionals. For example, functional specialists have become one of two primary points of entry for new professionals, displacing catalogers, who are down 46 percent in this category.

Table 9: Number of New Professionals Hired by Position, 1983 and 2000

	1983		2000		% Change
	N	%	N	%	
Reference Librarian	77	27.8	156	34.9	+103
Cataloger	70	25.3	38	8.5	-46
Public Services	38	13.7	25	5.6	-34
Subject Specialist	25	9.0	34	7.6	+36
Functional Specialist	22	7.9	137	30.6	+523
Technical Services	22	7.9	15	3.4	-32

Source: ARL Annual Salary Survey

Movement between Libraries

The ARL data cannot produce actual turnover rates, but they do provide one interesting, albeit limited approximation. By using the variables "years of professional experience" and "years in library," one can determine the number of individuals, at each experience level, who have worked at only one library in the course of their professional careers. Table 10 presents the results of this analysis.

Table 10: Percentage of Staff Who Have Worked in Only One Library, 2000

Years of Experience	N	Have Worked in Only One Library
0	77	100%
1	304	87%
2	254	59%
3	272	58%
4	215	42%
5	243	37%
6–9	847	39%
10–14	1,134	36%
15–24	2,154	29%
25+	1,191	32%

Source: ARL Annual Salary Survey

The most interesting part of Table 10 is the sharp drop-off in the percentage of one-library individuals between zero years of experience and five. First, and contrary to conventional wisdom, ARL libraries do substantial hiring of individuals in the first five years of their professional careers. For example, in 2000, 25 percent of new hires had between two and five years of professional experience. Second, individuals hired into ARL libraries as new professionals may tend to change libraries soon thereafter. One often hears staff express the view that turnover among new professionals at their library is an indication of some failure, whether it be morale, working conditions, compensation, or tenure requirements. But the tendency of new professionals to change jobs in their first five years is widespread among ARL libraries and consistent over time. The simplest explanation for this phenomenon may be that young professionals are more mobile than their older colleagues and thus more amenable to changing jobs to further their careers.

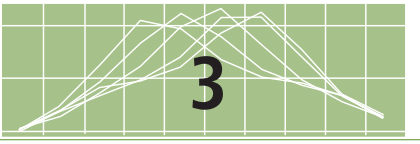
While there is little the library community can do to affect pending retirements, there remains ample room for affecting the rest of the population cycle. Library administrators and the larger library community are responsible first for managing recruitment to the profession, determining the form and content of professional education, and then for the recruitment, compensation, and retention of high quality staff. The management issue resulting from the aging of librarianship is thus not retirements; it is how to obtain new entrants in sufficient numbers, quality, and expertise to replace retirees and keep the cycle turning.

What do we know, then, about the demographic factors affecting entry to librarianship? There are a number of important changes taking place within this environment, some based on larger population or societal trends and some that spring from staffing trends within ARL libraries. Taken together, these changes suggest some possible explanations of the aging of librarianship, they provide clues as to how the population may change in the future, and how the future could be influenced by those committed to the long-term health and viability of the profession.

Notes

[7] This approach both understates and overstates the actual number of new hires in ARL member libraries. This figure underestimates new hires to whatever extent professional staff moves internally from one position to another. The overstatement is a consequence of the survey, which instructs respondents to enter 0 in "years in library" for individuals who have been in the library for 6 months or less. The overstatement results when those 0 "years in library" cases are counted as new hires the next year.

[8] Martha Kyrillidou and Michael O'Connor, comps. and eds., *ARL Annual Salary Survey 1999–2000.* (Washington, D.C.: Association of Research Libraries, 2000), 99.



Technical Services Librarian Trends

The supply of professional expertise in ARL technical services operations has tumbled in recent years, due to two separate but related phenomena: a drastic reduction in hiring and high levels of retirements. Viewed at the level of an individual library, reducing the resources devoted to professional technical services staffing may be a natural response to increased productivity. Viewed collectively, however, the speed and extent of these changes are more troubling, calling into question whether the future supply of technical services expertise can satisfy even a reduced level of need.

Professional technical services staff are librarians whose primary job function lies in cataloging, acquisitions, or related work. The ARL salary survey data grouped these positions into a single category, "technical services," until 1983, when catalogers were given their own category. Catalogers are often compared to reference librarians, hence it is worth noting that reference librarians were counted among public services positions until they too got their own category in 1983. Unless otherwise noted, the cataloger and technical services categories have been combined in the following discussion.

Reduced Hiring for Technical Services Positions

The first challenge facing professional technical services staffing lies in reduced hiring. The number of individuals hired for technical services/cataloging jobs dropped 46 percent between 1985 and 2000. Viewed from another perspective, technical services/

cataloging jobs accounted for 23 percent of all hiring in ARL libraries in 1985, but fell to just 10 percent by 2000. This drop was not part of a general reduction in hiring by ARL member libraries because the overall number of new hires increased by 27 percent in the same period. As can be seen in Table 7 in Chapter 2, libraries continue to hire, but they exhibit a decreasing inclination to fill technical services/cataloging jobs.

Fewer New Technical Services Librarians

A similar phenomenon is taking place among new professionals. In 1980, 36 percent of new professionals were hired for technical services/cataloging positions, compared to just 12 percent in 2000. In the same period, public services/reference positions consistently accounted for about 40 percent of new professional hiring.

New professionals are critically important for the entire population as the primary source of young people and an indicator of hiring trends. But new professionals are especially important to technical services/cataloging positions because these have historically been, along with public services/reference positions, the most important point of entry for new professionals in ARL libraries. In 1980, for example, 69 percent of all new professionals were hired for these two categories alone.

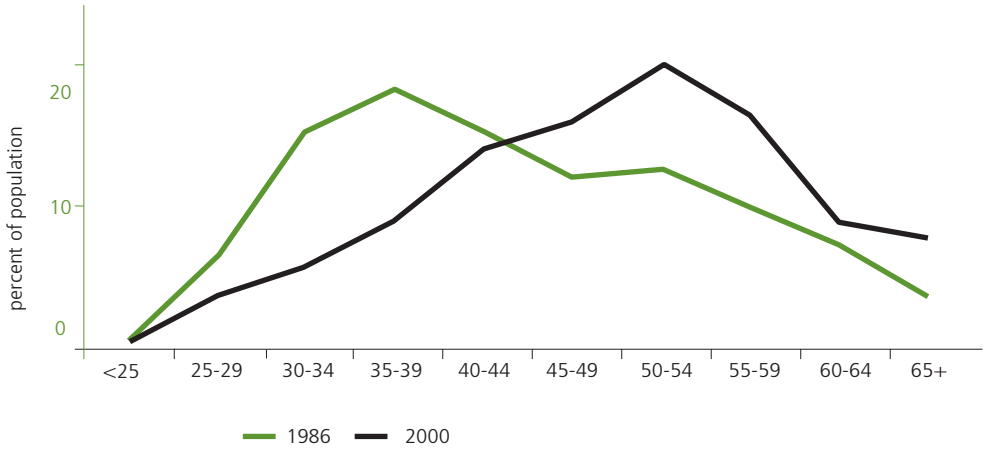
The ARL salary survey data cannot answer all the questions these numbers raise. For example, it is conceivable that there has been an analogous reduction in the number of library school students inclined to take up technical services/cataloging careers, or that some portion of the explanation lies in unsuccessful recruitment efforts. But the extent of the drop, its consistency over an extended period of time, across a large number of large academic libraries, makes unavoidable the conclusion that a fundamental shift has occurred in the staffing priorities of academic libraries away from professional technical services/cataloging positions.

Whatever its source, the effect of the drop in hiring of new and experienced staff for these positions has had the inevitable effect of reducing the overall number of staff in these areas, down 35 percent between 1985 and 2000. This change is more remarkable given that the 2000 data contain seven additional libraries.

Aging and Retirements among Catalogers

The drop in hiring, and especially the drop in hiring of new professionals, must play an important part of a related phenomenon, the advancing age of cataloging staff. As a group, librarians are older than comparable professionals and catalogers are old relative to other librarians. For example, 16 percent of ARL catalogers were age 60 and over in 2000, compared with 10 percent of the overall ARL population. Thirty-two percent of

Figure 11 Age of Catalogers, 1986 and 2000



%	<25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	0.2	6.5	15.1	18.2	15.2	11.9	12.5	9.9	7.2	3.5	100
2000	0.2	3.6	5.5	8.7	13.9	15.8	19.9	16.3	8.6	7.5	100
N											
1986	2	74	173	209	174	136	143	113	82	40	1,146
2000	2	29	44	70	112	127	160	131	69	60	804

Source: ARL Annual Salary Survey

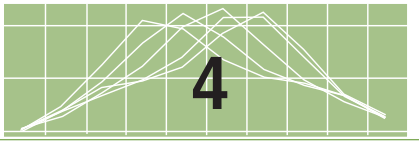
catalogers were age 55 and over, almost twice as many as in the reference population.

Catalogers were old in the 2000 data, but it is the aging of that population that poses the most substantial problem. As **Figure 11** illustrates, 40 percent of catalogers were under age 40 in 1986, which made them somewhat younger than the larger ARL population of the time. This is as one would expect, considering the prominent role cataloging served as a point of entry for young librarians as noted above. In only 14 years, cataloging has gone from being one of ARL's youngest subgroups to one of its oldest.

The implications of the 2000 cataloger age curve are troubling. The 16 percent of catalogers age 60 and over in 2000 and the 32 percent of catalogers age 55 and over foretell an unusually high retirement rate for catalogers over the next 10 years. Retirements must already be a contributing factor behind the steady drop in the number of technical services/catalog staff, but the 2000 age curve suggests that retirements will play a much bigger role in the near future.

Taken as a whole, the professional technical services/cataloging situation is something of a vicious cycle: it starts with a sharp drop in the hiring of staff, especially new professionals. With the supply of recruits reduced, the number of catalogers drops and the group that remains begins to age quickly, approaching retirement at a higher rate, one third of the 2000 cataloging population by 2010. It could be that reduced hiring for technical services/cataloging staff serves as a disincentive to library and information school students who might otherwise choose careers in these areas. Library school faculty may be responding to the lack of hiring by altering their curricula. According to a recent article by John Saye, students inclined to specialize in cataloging are finding that the subject has been moved off the core curriculum at many U.S. library schools and fewer cataloging classes are offered overall.

Professional technical services/cataloging jobs are by their nature apprenticeships, requiring long years of experience to attain full proficiency. As these data show, however, ARL libraries are clearly not choosing to replace these staff to the extent they once did. While it is entirely possible that ARL libraries have reduced their need of advanced bibliographic expertise through automation and outsourcing, it doesn't seem likely that the need for this expertise will go away altogether. In a period when large numbers of the most experienced technical services/cataloging staff reach retirement age, it remains to be seen whether libraries will be able to secure enough of this expertise to satisfy their lower level of need. The staffing cycle is in danger of collapse in this important area of librarianship.



4

Minority Librarian Trends

The recruitment, retention, and promotion of members of minority groups to professional positions in libraries are matters of intense interest in the library community. The number of minority librarians in academic U.S. ARL libraries has increased since 1980, particularly for African Americans (up 87 percent) and Hispanics (up 96 percent).[9] These increases appear somewhat less dramatic, however, if one considers that the Caucasian portion of that population grew by 52 percent. A better measure of minority representation, one that corrects for the growth in the number of ARL libraries during the period, results from comparing the percentage of each minority category to the overall ARL librarian population. Here we find very little change over the 20-year period—slight gains for African American and Hispanic librarians, a slight decline for Asian librarians—leaving the Caucasian portion virtually unchanged (**Table 11**).

Minorities among New Hires

The 1995 age demographics report noted that because minority librarians in ARL libraries were younger than their Caucasian colleagues, retirements would have the effect of raising the percentage of minorities in the population as a whole, even in the absence of targeted recruitment efforts. The report then suggested that tracking minorities as a percentage of new hires would be a better indicator of the success of minority recruitment.

Table 11: Number and Percentage of Minorities, 1980, 1990, and 2000

	1980		1990		2000	
	N	%	N	%	N	%
African American	180	3.4	272	3.6	337	4.1
Hispanic	84	1.6	125	1.7	165	2.0
Asian	338	6.3	410	5.4	436	5.4
American Indian	6	0.1	11	0.1	14	0.2
Caucasian/Other	4,731	88.6	6,723	89.2	7,175	88.3
Total	5,339	100	7,541	100	8,127	100

* Respondents are permitted to choose more than one category. **Source:** ARL Annual Salary Survey

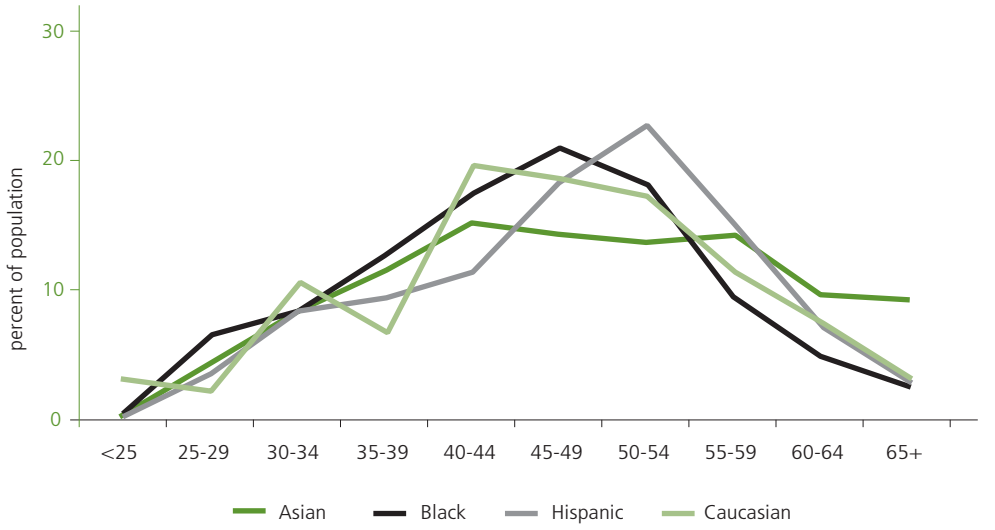
As we have seen, the minority portion of the overall ARL librarian population has yet to change, but there has been steady progress in the percentage of minorities among new hires. As **Table 12** indicates, the Hispanic portion of new hires more than doubled since 1985, while the Asian and African American portions nearly doubled. It may be some time, however, before the improved new hire numbers have an appreciable affect on the overall ARL librarian population.

Table 12: Number and Percentage of New Hires by Minority Group

%	1985	1986	1990	1994	1998	2000
Caucasian/Other	91.6	90.8	87.9	87.7	86.6	84.5
Minority Total	8.4	9.2	12.1	12.3	13.4	15.5
African American	3.8	4.1	4.1	4.6	4.8	6.4
Hispanic	0.9	1.3	2.9	2.2	2.1	2.5
Asian or Pacific Islander	3.6	3.5	5.0	5.5	6.2	6.4
American Indian or Native Alaskan	0.1	0.4	0.2		0.4	0.2
N						
Caucasian/Other	738	757	886	778	671	886
Minority Total	68	77	122	96	104	162
African American	31	34	41	36	37	67
Hispanic	7	11	29	17	16	26
Asian or Pacific Islander	29	29	50	43	48	67
American Indian or Native Alaskan	1	3	2	0	3	2

* Respondents are permitted to choose more than one category. **Source:** ARL Annual Salary Survey

Figure 12 Age of Minority Librarians, 2000



%	<25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 +	Total
Asian/Pacific Islander	0.3	4.2	8.2	11.6	15.0	14.2	13.7	14.2	9.5	9.2	100
African American	0.0	6.3	8.0	12.6	17.5	21.0	17.8	9.4	4.9	2.4	100
Caucasian/Other	0.4	3.6	8.4	9.4	11.6	18.4	22.9	15.1	7.1	2.9	100
Hispanic	3.0	2.3	10.5	6.8	19.5	18.8	17.3	11.3	7.5	3.0	100
N											
Asian/Pacific Islander	1	16	31	44	57	54	52	54	36	35	380
African American		18	23	36	50	60	51	27	14	7	286
Caucasian/Other	27	236	542	611	750	1,193	1,482	979	458	189	6,467
Hispanic	4	3	14	9	26	25	23	15	10	4	133

Source: ARL Annual Salary Survey

Age of Minority Librarians

African American and Hispanic librarians were notably younger than the Caucasian population in the 1995 report and they remain so in 2000 (**Figure 12**). For example, 35 percent of African American librarians and 39 percent of Hispanic librarians were age 50 and over, compared to 48 percent of Caucasian librarians. The Asian librarian age curve continues to stand apart as the oldest population, if one considers the 60 and over cohorts. Nineteen percent of the Asian population falls in this age range, compared to 10 percent of Caucasians.

By percentage, Asian librarians have nearly twice the population in the 60 and over cohorts compared to the Caucasian population. The number of Asian new hires jumped substantially between 1998 and 2000, but new hires will need to maintain their 2000 level or higher in order to replace those retiring.

The African American and Hispanic populations are aging along with the overall ARL population (**Table 13**). Once again, however, the Asian population proves atypical, growing slightly younger by this measure. This is almost certainly the result of high levels of retirements.

Table 13: Percentage of Minority Librarians under Age 45

	1986	1994	2000
Asian	33	38	39
African American	67	55	44
Caucasian	59	42	33
Hispanic	46	44	42

Source: ARL Annual Salary Survey

Regional Distribution of African American, Hispanic, and Asian Librarians

There are pronounced differences in the distribution of minority librarians by region (**Table 14**). In every case, these differences correspond to the geographic distribution of minorities within the larger U.S. population.[10] Relative to Caucasian librarians, Hispanic librarians are concentrated in the southern and western regions and Asian librarians are concentrated in the west. There are relatively few African American librarians in the western region.

Table 14: Percentage of Minority Librarians by Region

	NE	NC	S	W	S+W
Black	25	23	43	9	52
Hispanic	25	13	38	25	63
Asian	30	18	22	30	52
American Indian	14	50	0	36	36
Caucasian	30	24	29	17	46
*Total	124	128	132	117	249

* Respondents are permitted to choose more than one category. **Source:** ARL Annual Salary Survey

Minority Librarians' Job Categories

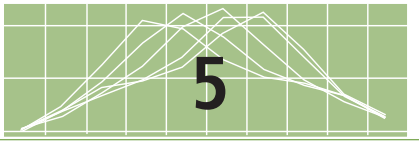
Minority librarians also differ from their Caucasian colleagues in terms of their distribution among job categories. To some degree, this is a natural consequence of the language expertise that minority librarians often bring with them, but there are also differences that bear no obvious connection to language. For example, in the 2000 data, Asian librarians are concentrated in three job categories—cataloging (25 percent), reference (18 percent), and subject specialist (17 percent)—but lag the Caucasian population in the functional specialist category (9 percent vs. 16 percent). African American librarians are concentrated in reference positions (32 percent vs. 18 percent of the Caucasian population) and lag among subject specialists (6 percent vs. 11 percent for the Caucasian population). Hispanic librarians are heavily concentrated in three job categories—functional specialists (20 percent), subject specialists (21 percent), and reference (22 percent).

By many of the indicators noted above, one could conclude that U.S. ARL libraries have made only limited progress in making their professional staff more diverse. In many categories, the number of minorities is up substantially, but only so as to keep pace with growth in the corresponding white population. ARL libraries have made undeniable progress, however, in the most important measure: the number of minorities as a percentage of new hires. Raising the percentage of minorities within new hires is the surest way to make our libraries more diverse and this can only occur through the concerted efforts (such as ARL's Initiative to Recruit a Diverse Workforce) of individual libraries, library schools, and professional associations.

Notes

[9] The ARL data allow us to identify minority staff, but only those that work in U.S. libraries. Canadian law prohibits the identification of Canadians by ethnic category.

[10] Maps of minority concentration by region drawn from the 2000 Census can be found at the US Census Bureau Web site, American Factfinder, basic facts: http://factfinder.census.gov/servlet/BasicFactsServlet?_basicfacts=2&_mult1=22299588&_geo2=010&_current=&_action=_subjectSelected&_child_geo_id=&_lang=en



Trends in Leadership Positions: Managers and Directors

Demographic change is affecting traditional library skills in such a way as to raise concerns for their continuity and future direction. To a great extent, the task of managing these changes will fall to the leadership of academic libraries themselves. But that leadership is experiencing its own set of demographic changes, which adds an important new dimension to the challenges facing the profession.

Leadership can, of course, come from virtually any part of an organization, but for the purposes of the present discussion "leadership positions" are those job categories in ARL libraries that include a substantial supervisory component. These positions have been further divided into two sub-groups: managers (associate and assistant directors, and heads of computer, rare books, cataloging, acquisitions, circulation, reference, and "other" departments and branches) and directors (directors of ARL academic libraries and heads of ARL academic law and medical libraries).

The demographics of directorships are of sufficient interest to warrant separate attention, simply because they are directorship positions. But as it happens, the demographic challenges facing directors make them a kind of intensified microcosm of library leadership and of the population as a whole. Directors are like the rest of the ARL population, only more so.

Table 15: Number of Managers by Job Category, 1980 and 2000

	1980	2000	% Change
Associate Director	115	296	157
Assistant Director	203	273	34
Head, Branch	555	565	2
Head, Reference	132	180	36
Head, Cataloging	136	242	78
Head, Serials	77	47	-39
Head, Documents	109	102	-6
Head, Circulation	97	134	38
Head, Rare books	98	95	-3
Head, Other	651	782	20
Head, Acquisitions	na	140	*
Head, Computer Systems	na	113	*

* The Head, Acquisitions category was created in 1981 and rose from 85 that year to 140 in 2000, an increase of 65 percent. The Head, Computer Systems category was created in 1984 and rose from 42 that year to 113 in 2000, for an increase of 169 percent. **Source:** ARL Annual Salary Survey

Number of Managers

The number of ARL academic library managers has risen 37 percent since 1980. This increase has done nothing more than match the growth of the overall ARL population, up 35 percent in the same period. If the ratio of managers to those managed is an indicator of basic organizational structure, this measure suggests that ARL libraries are neither flatter nor more hierarchical than they were in 1980.

While growth in the number of managers has been steady since 1980, there has been considerable variability among the jobs that make up the managerial category (**Table 15**).

Managers among New Hires

While the number of newly hired managers grew 43 percent from 1985 to 2000, that growth did nothing more than keep pace with the rising number of new hires. Newly hired managers accounted for about 10 percent of new hires throughout the period. **Table 16** presents the change in each managerial job category.

Minorities in Manager Positions

Data on minority status relate only to U.S. ARL academic libraries, as Canadian libraries do not report such data. The number of minorities holding managerial positions has gone up somewhat, but only in the same proportion as the population of managers has risen.

Table 16: Managerial New Hires, 1985 and 2000

	1985	2000	% Change
Associate Director	11	27	+145
Assistant Director	13	16	+23
Head, Branch	36	39	+8
Head, Reference	13	11	-15
Head, Cataloging	11	17	+55
Head, Serials	4	2	-50
Head, Documents	7	6	-14
Head, Circulation	5	19	+280
Head, Rare books	8	9	+13
Head, Other	58	76	+31
Head, Acquisitions	9	9	0
Head, Computer systems	11	8	-27

Source: ARL Annual Salary Survey

In fact, the percentage of Caucasian managers has remained virtually constant at about 91 percent since 1980. The percentage of minority managers (9 percent) trails slightly the percentage of minorities in the ARL population (11 percent) (**Table 17**).

Table 17: Minorities in Manager Positions, 2000

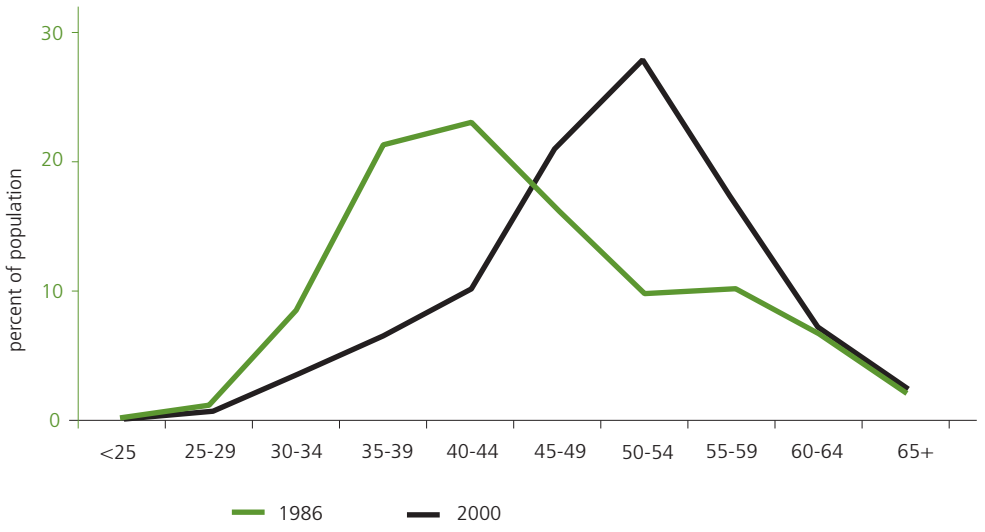
	N	%
African American	102	3.7
Hispanic	34	1.2
Asian or Pacific Islander	111	4.1
American Indian or Native Alaskan	4	0.2
Caucasian/Other	2,474	90.8
Total	2,725	100.0

Source: ARL Annual Salary Survey

Age of Managers

It is no surprise that managers are older than the overall ARL population, given that the positions they hold generally require previous experience and sometimes extensive experience. But managers are aging and at a faster rate than the ARL population as

Figure 13 Age of Managers, 1986 and 2000



%	<25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	0.0	1.4	8.7	21.2	23.2	16.2	9.9	10.3	6.9	2.3	100
2000	0.1	0.9	3.6	6.6	10.5	21.5	28.5	17.8	7.5	2.9	100
N											
1986	1	35	225	549	600	418	255	266	179	60	2,588
2000	3	24	97	179	284	580	769	480	202	78	2,696

Source: ARL Annual Salary Survey

a whole. In the 14-year period covered by the salary survey data, the percentage of individuals age 35 to 44 declined from 44 percent to 17 percent, while those age 45 to 54 rose from 26 percent to 50 percent. The average age of managers rose 11 percent in the period, from 45 to 50, whereas the average age of the ARL population rose 8 percent, from 44 to 48 (**Figure 13**).

Managers Approaching Age 65+

As a group, 28 percent of managers in the 2000 ARL population will reach age 65+ by 2010. Managerial positions with more than 28 percent in this age range appear in **Table 18**.

One can only conclude that at a time when traditional library skill positions face extensive retirements, those charged with managing the transition will themselves be retiring at an even faster rate.

Table 18: 2000 Managerial Population that will Reach Age 65+ by 2010

	N	%
Head, Rare Books	33	37
Head, Documents	34	35
Associate Directors	86	33
Head, Branch	166	32
Assistant Director	79	32
Head, Cataloging	68	31
Head, Acquisitions	36	30

Source: ARL Annual Salary Survey

Gender of Managers

Manager positions have come to be filled increasingly by women. The percentage of women in such positions has risen steadily from 57 percent in 1980 to 65 percent in 2000. The 2000 level represents something of a milestone as a measure of gender equity, in that it matches the proportion of women in the overall ARL population, which has held at about 64 percent since at least 1980.

Education of Managers

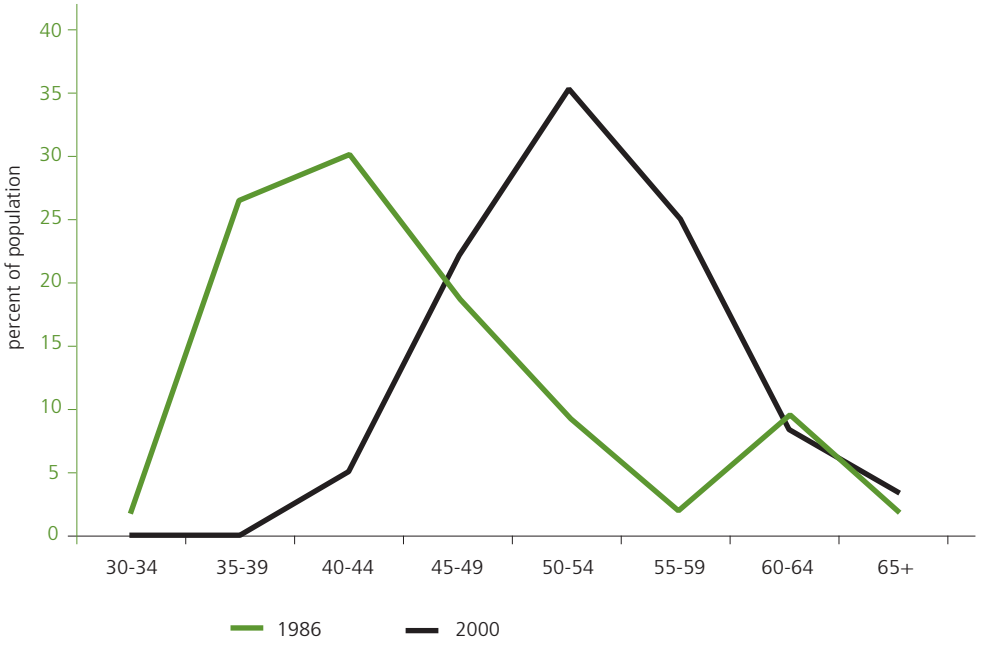
ARL libraries are increasingly hiring individuals who do not hold a library degree for managerial positions. The percentage of managers who do not hold a library science degree doubled between 1985 and 2000, from 5 percent to 10 percent. The manager group of jobs includes the third highest percentage of individuals with no library science degree, after the job categories "administration" and "functional specialist." Most of the managers with no library science degree are clustered in the "other," computer, rare book, branch, and circulation categories.

Age of Heads of ARL Academic Law and Medical Libraries

The same experience requirements that make managers older than non-managers make directors and the heads of law and medical libraries the oldest job categories in the ARL population. This is to be expected and would be of little interest if these positions were not also aging dramatically.

Directors of law libraries are aging faster than any other job category, their average age increasing 17 percent between 1986 and 2000, from 45 to 53. **Figure 14** illustrates a

Figure 14 Age of Heads of ARL Academic Law Libraries, 1986 and 2000



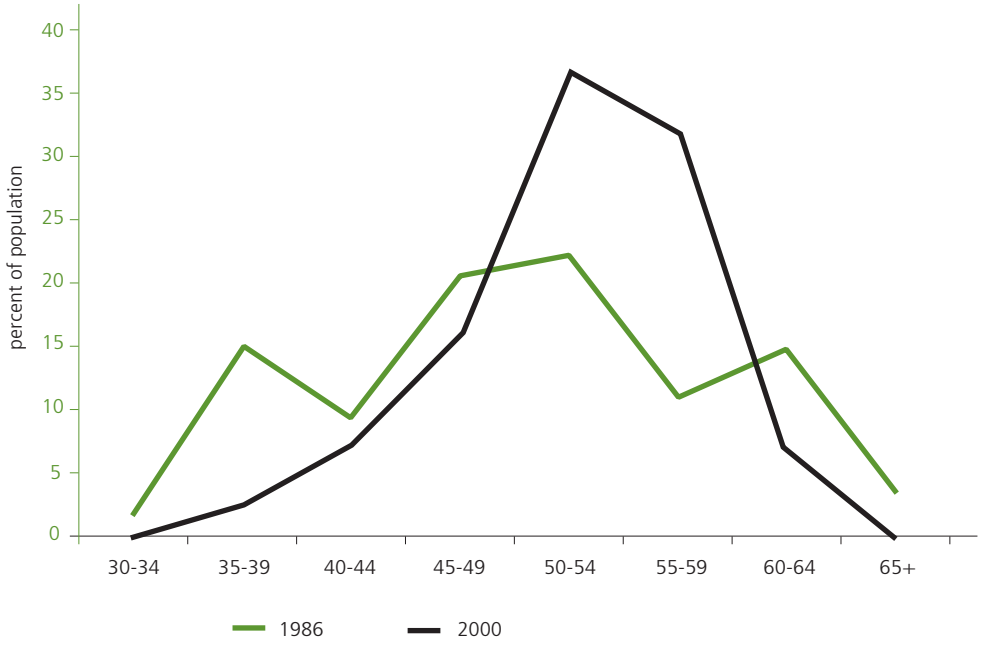
%	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	1.9	26.4	30.2	18.9	9.4	1.9	9.4	1.9	100
2000	0.0	0.0	5.1	22.0	35.6	25.4	8.5	3.4	100
N									
1986	1	14	16	10	5	1	5	1	53
2000	0	0	3	13	21	15	5	2	59

Source: ARL Annual Salary Survey

population that shifts from being mostly under age 45 to mostly over 50. Between 1986 and 2000, the portion of the population under 45 years of age dropped from 59 percent to just 7 percent, while the 50+ cohorts rose from 23 percent to 72 percent.

The age curves for directors of medical libraries are not quite so stark, but the end result is the same. The percentage of the population under 45 dropped from 26 percent in 1986 to 9 percent in 2000, leaving 84 percent of the population in the 45 to 59 cohorts. Medical library directors are thus even more concentrated in that age range than law library directors (**Figure 15**).

Figure 15 Age of Heads of ARL Academic Medical Libraries, 1986 and 2000



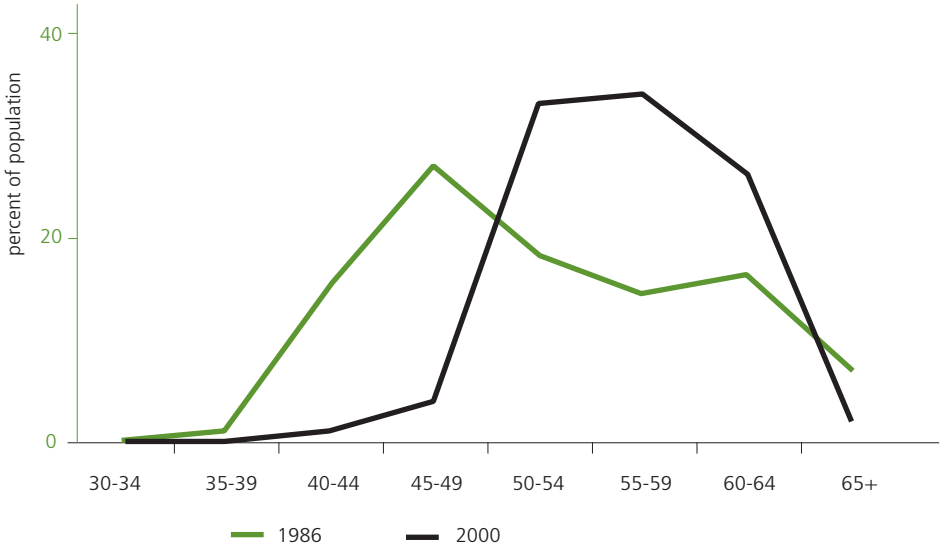
%	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	1.9	15.1	9.4	20.8	22.6	11.3	15.1	3,8	100
2000	0.0	2.3	6.8	15.9	36.4	31.8	6.8	0.0	100
N									
1986	1	8	5	11	12	6	8	2	53
2000	0	1	3	7	16	14	3	0	44

Source: ARL Annual Salary Survey

Age of Directors of ARL Academic Libraries

The age shift among ARL academic library directors may be the most dramatic within the ARL population (**Figure 16**). Like directors of law and medical libraries, directors in the younger age cohorts have virtually disappeared—43 percent of directors in 1986 were under 50 years of age, dropping to just 5 percent in 2000. Again like law and medical library heads, the 2000 population spikes in the age 50 to 54 cohort, but what sets the ARL academic library director curve apart is the age 60 to 64 cohort. This group rose from 17 percent in 1986 to 26 percent in 2000. This compares to just 8.5 percent for law library directors and just under 7 percent of medical library directors. More to the

Figure 16 Age of Directors of ARL Academic Libraries, 1986 and 2000



%	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
1986	0.0	1.0	15.5	26.8	18.6	14.4	16.5	7.2	100
2000	0.0	0.0	1.0	4.0	33.0	34.0	26.0	2.0	100
N									
1986	0	1	15	26	18	14	16	7	97
2000	0	0	1	4	33	34	26	2	100

Source: ARL Annual Salary Survey

point, ARL academic library directors have the highest concentration of staff in the age 60 to 64 cohort in the ARL statistics. If one adds those directors age 65+ and over, it becomes clear that a remarkable 28 percent of the 2000 ARL academic library director population will reach age 65 between 2000 and 2005.

Gender of Directors of ARL Academic Libraries

The 1995 age demographic report noted the increase in the proportion of female ARL directors. **Table 19** places this trend into further relief by the addition of data going back to 1980 and forward to 2000. Despite the progress made in recent years, some inequity remains in the percentage of female ARL directors—46 percent in 2000 compared to 64 percent in the larger ARL population.

But there are two additional factors that suggest that women may make further gains in the near future. First, of the ARL directors hired since 1997, just over 50 percent have been women (26 of 50). Were it to continue, this trend alone would bring the gender ratio into greater balance.

Table 19: Gender of Directors of ARL Academic Libraries, 1980 to 2000

	Female		Male	
	N	%	N	%
1980	13	15.5	71	84.5
1985	23	23.0	77	77.0
1990	38	37.3	64	62.7
1995	41	40.6	60	59.4
2000	51	45.9	60	54.1

Source: ARL Annual Salary Survey

Age by Gender

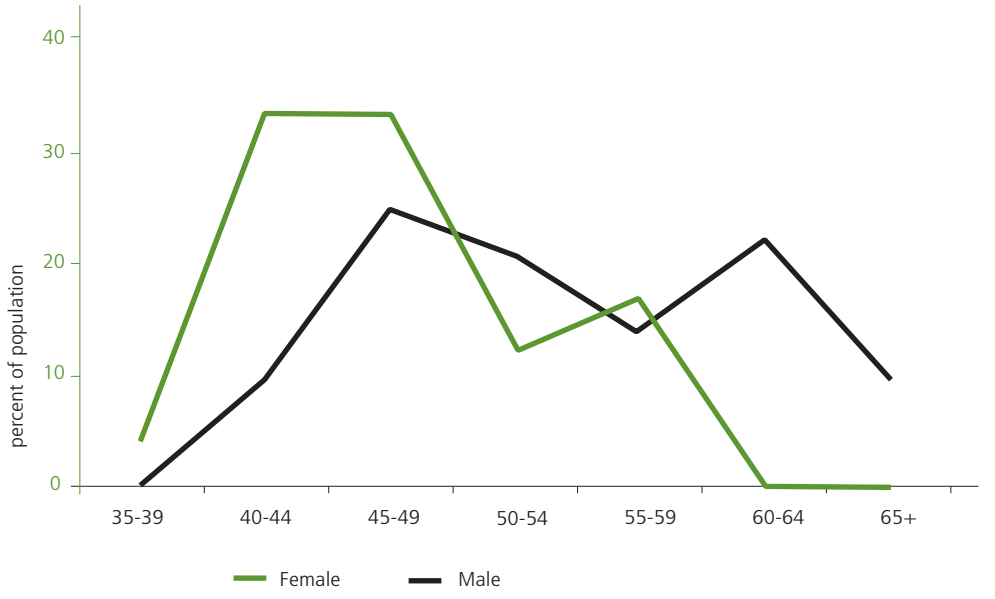
The second factor that may ameliorate the gender imbalance is the disparity in age between male and female directors. **Figure 17** presents the age profile of male and female directors in 1986. In this graph, one can see first the effect of a newfound acceptance of women in top administrative roles in the disproportionate number of young women.

This impression is enhanced at the other end of the curve, where one finds virtually no women age 60 and over, compared to 32 percent of the male population. Figure 17 provides a snapshot of an important moment of history in librarianship; it documents a change in the willingness of institutions to consider women for their libraries' top leadership positions.

This impression is deepened by considering the population of female directors in 1986 in terms of their length of tenure. Of this population, 62 percent had worked four or fewer years in their library, compared to just 21 percent of men. This data suggests that a substantial jump in the hiring of female directors occurred in the early 1980s. While there has been precedent for hiring female directors since 1971, they were few in number.

By 2000, the percentage of female directors with four or fewer years in their library dropped from 62 percent to 30 percent, much closer to the 24 percent of male directors in that category. As a result, the 2000 age curves for directors by gender indicates that men and women are nearly equivalent through the 50 to 54 cohort (**Figure 18**).

Figure 17 Age by Gender of Directors of ARL Academic Libraries, 1986



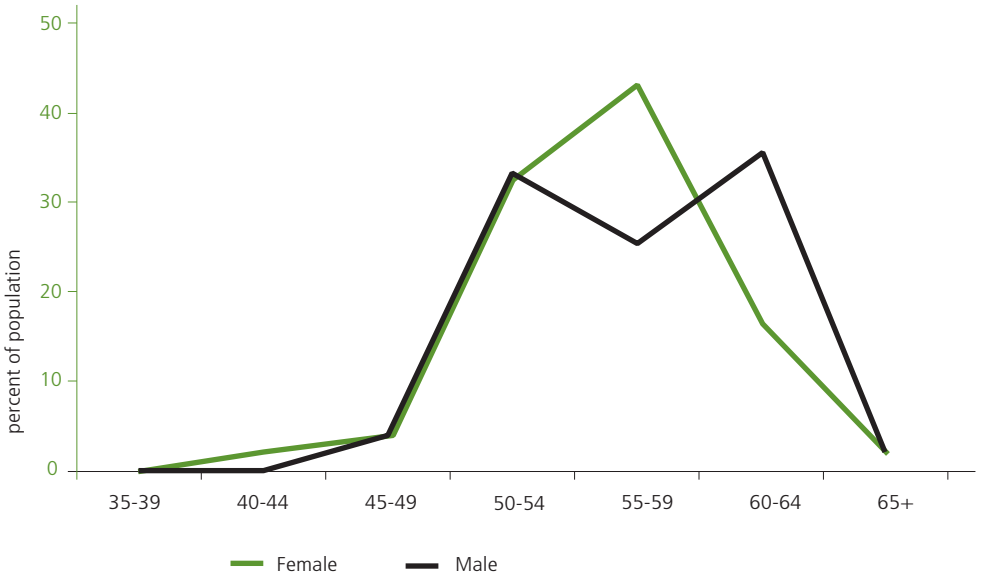
%	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
Female	4.2	33.3	33.3	12.5	16.7	0.0	0.0	100
Male	0.0	9.6	24.7	20.5	13.7	21.9	9.6	100
N								
Female	1	8	8	3	4	0	0	24
Male	0	7	18	15	10	16	7	73

Source: ARL Annual Salary Survey

The remnants of the sex discrimination in director hires can be discerned in the 55 and over age cohorts, where women remain substantially younger—especially in the 60 and over cohorts, which includes 37 percent of the male population, compared to 18 percent of the female. The 60 and over cohorts are critically important, if only as an indicator of potential retirements within the near term.

In the case of male and female directors, the relatively high proportion of men age 60 and over suggests that more men will probably retire by 2005 than women. When one combines this thought with our knowledge that recent hires for director positions have been about 50 percent female, it is likely that women will soon come to outnumber men in ARL directorships.

Figure 18 Age by Gender of Directors of ARL Academic Libraries, 2000



%	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
Female	0.0	2.0	4.1	32.7	42.9	16.3	7.2	100
Male	0.0	0.0	3.9	33.3	25.5	35.3	2.0	100
N								
Female	0	1	2	16	21	8	1	49
Male	0	0	2	17	13	18	1	51

Source: ARL Annual Salary Survey

Minority Directors

Minority representation in ARL directorships is extremely low and has changed little since 1980. The Caucasian portion of this population has ranged from a low of 92 percent to a high of 98 percent and even that variation may only be a function of the small number of minorities, typically five or fewer.

It is difficult to guess at the prospects minority groups have to bring their representation in directorships up to the level of their representation in the ARL academic population as a whole, because directors are commonly hired from a wide variety of positions and library settings. **Table 20** provides a summary of recent director hires according to their previous positions. The 10 percent of directors hired from

other ARL libraries don't change the population of ARL librarians and it is impossible to measure the potential for minority hires from the 55 percent hired from non-ARL positions. As for the 35 percent hired from ARL assistant or associate librarian positions, 93 percent of the 2000 population in these positions were Caucasian. From this admittedly limited perspective, it thus appears unlikely that minority representation in directorships will change dramatically in the near future.

Table 20: Previous Positions of Directors Hired Since 2000

	N	%
Previous ARL directorships	2	10
ARL Assistant Director positions	7	35
non-ARL positions	11	55

Source: ARL data

Years of Experience of Directors

As one would expect, years of experience correlates very closely with age; hence it is not surprising that the 2000 director population had much more experience than that of 1985. In 1985, for example, 36 percent of directors had fewer than 20 years of experience, compared to just 2 percent in 2000. The portion with more than 24 years experience, on the other hand, nearly doubled, from 44 percent to 86 percent.

Mobility of Directors

The ARL salary survey variable "years in library" is critically important as the source of "new hire" data. It is also useful as an indicator of mobility among ARL directors, though it does not account for directors hired internally. That said, the "years in library" measure for directors changed considerably between 1985 and 2000, such that a much higher percentage of this population have many years in their library. Directors with seven or fewer years in one library decreased from 45 percent in 1985 to 35 percent in 2000, while the portion with 20 or more years more than doubled, from 11 percent to 29 percent. In this 15-year period, ARL directors demonstrated an increasing tendency to remain in place for longer periods of time.

It is hard to imagine how this trend could extend much beyond 2000, however. Given the high levels of hiring in the time since the 2000 data collection, and the high levels of expected retirements, it is far more likely that this measure will swing decisively towards the lower end of years in library in the very near future.

Turnover of Director Positions

In recent years there has been substantial turnover in director positions, in large part due to an increase in the number of ARL directors taking retirement. In the period between January 1997 and December 2001, 53 director positions turned over. Retirements accounted for 55% of those vacancies. All but three of the 53 vacancies were filled by individuals who had never been a director of an ARL library. Given the age of ARL directors in 2000, turnover among directors is likely to remain high for the foreseeable future (**Table 21**).

Table 21: ARL Library Director Turnover, 1997 to 2001

	Retirements	Positions Filled	First-time Hires
2001	10	17	17
2000	6	6	5
1999	7	7	7
1998	3	9	8
1997	3	14	13
Total	29	53	50

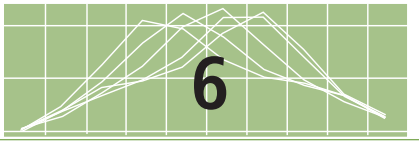
Source: ARL data

Educational Credentials of Directors

Librarians are naturally sensitive to the educational credentials of their directors and in particular to cases in which a director does not have a library science degree. The ARL data suggest that such cases are rare, holding steady at about 3 percent since 1985. The great majority of ARL directors hold the MLS as their highest library degree—85 percent in 2000. The number of ARL directors with a library science Ph.D. dropped from 14 percent in 1985 to 7 percent in 2000, though 20 percent held a Ph.D. degree in some discipline.

The 2000 demographics of ARL directorships provides a fascinating picture of a population in the midst of dramatic change: the influence of female hires, the sharp reduction in the number of individuals age 45 and younger, and the imminence of high levels of retirements, particularly of male directors. The overall impression of the 2000 ARL director population is of a pendulum at the moment of its furthest rightward

movement, about to swing back to begin its cycle again. The recent data on the flurry of director retirements and new hires supports the notion that we are at a pivotal moment for the directorships of America's largest academic libraries.



6

Conclusion

In demographic terms, the ARL population is undergoing change at each point in its cycle, and in ways that have the potential to alter the face of research librarianship in the coming decades.

Change in New Entrants to the ARL Population

Change is present at the beginning of the cycle, among new entrants to the population. New hires have become substantially older since 1986, the first year ARL collected age data. This trend may be the result of change beyond ARL libraries. For example the baby boom may be responsible for the large portion (55 percent) of individuals age 36 to 54 among 2000 new hires. But librarianship is almost certainly affected by two other factors closer to home: the diminished tendency of young women to choose traditionally female-dominated professions and growth in the number of mid-life or mid-career individuals in MLS degree programs. Both factors are likely to have had a direct effect on ARL libraries' population of new professionals, who are new hires with zero or one year's professional experience. Always the youngest portion of the population, these older new professionals must be a contributing factor in the aging of the ARL population.

There are other important changes affecting new hires, the most important being change in who is being hired and for what specialized areas. For example, ARL libraries

are reducing their demand for cataloging expertise, while increasing their demand for expertise in IT-related fields. As noted in Chapter 2, if new hires to IT positions were to increase at the same rate they did in the 1990s, they would come to outnumber new hires for reference positions by 2003.

If these new IT hires consisted of individuals who were otherwise similar to their colleagues, this shift in hiring priorities would have a limited effect on the demographics of the population as a whole. But the IT hires are also younger, more male, they often do not have the MLS degree, and they earn more pay for less experience. It remains to be seen how the growth of this group will affect research librarianship in the future.

Change in the Age Structure of Mid-Career ARL Librarians

Changes in the pattern of entries into the ARL population have almost certainly had an effect on the middle portion of the population cycle. U.S. ARL librarians were already older than the population of U.S. librarians in the 1990 data from the Current Population Survey (CPS), which in turn was older than comparable professional groups. This fact is not surprising, given that U.S. librarians have been older than comparable U.S. professionals since at least 1970 and could presumably remain older indefinitely.

The surprising change at work on the ARL population cycle is its rapid aging. Using the imputed version of the U.S. ARL data, the portion of the population age 45 and over increased from 42 percent in 1986 to 65 percent in 2000. This is a remarkable shift for a 14-year period, even if one takes into account the baby boom, which has aged the entire U.S. population. In the same period, the portion of individuals in comparable professions age 45 and over in the U.S. rose from 30 percent to 40 percent.

The baby boom, and the subsequent baby bust, are certainly important factors behind the rapid aging of the ARL population, but they cannot explain the degree to which the population is aging faster than comparable professions or the U.S. population as a whole. For this, one must turn to other factors, such as the changes affecting entry to the population, described above. There may well be other important factors to consider, such as a slowing of the rate of growth in professional staffing. The 1995 age demographic study noted, for example, the dramatic growth in ARL staffing that occurred during the great expansion of higher education in the 1960s, followed by a prolonged period of level staffing between 1970 and 1985.[11] It is remarkable that 12 percent of the individuals in the 2000 population have professional experience dating back to the years 1960 through 1970, particularly if one considers that many of the librarians hired in those years would have already retired. The 1960s hires must be one contributing factor behind the unusually large percentage of pre-baby-boomers in the ARL population.

Change Among the Older Age Cohorts

The age profile of ARL librarianship as of 2000 makes unusually high levels of retirement a near certainty in the coming years. While the ARL data do not allow us to derive retirement rates, the projections of the age structure of the U.S. ARL population allow us an informed guess as to how many librarians will reach age 65 through 2020. These projections provide a sobering view—about half of the 2000 population can be expected to reach age 65 by 2020. The projections also show us the large baby boom cohorts (46 percent of the U.S. ARL population in 2010 and 2020) reaching age 65 in that period. Finally, the projections present the imminent departure of ARL's unusually large pre-baby-boom population. This group accounts for 25 percent of the 2000 population, dropping to 13 percent in 2005, when its youngest reach age 60.

Retirements are of particular interest within some subgroups of the ARL population. Chapter 3 described the precipitous fall in the number of catalogers and their dramatic aging, which transformed one of the youngest job categories to one of the oldest. In 2000, 52 percent of catalogers were age 50 and over. Chapter 4 presented the case of Asian librarians, who have somehow managed to maintain their numbers since 1994, despite having almost 20 percent of their population in the 60 and over cohort. And finally, Chapter 5 described the particularly troubling case of library leadership, where of the 2000 population, 62 percent of ARL directors and 28 percent of library managers will reach age 65 and over by 2010. Any retirement represents a tremendous loss of accumulated experience and expertise, but these subgroups of the ARL population will face particularly acute challenges.

Cycle Renewal

Consideration of impending retirements naturally draws our attention back to the beginning of the population cycle, to those hired to replace their retiring colleagues. The age projections shed light on this issue as well, showing us a modest but discernable "youth movement," wherein the portion of the under 40 population rises from 23 percent to 33 percent between 2000 and 2020.[12] The bulk of this increase falls in the 35 to 39 age cohort, which rises from 10 percent in 2000 to 16 percent in 2020. The projections thus reflect not only heavy replacement hiring, but also the older age of new professionals and new hires of recent years.

So while ARL libraries will face difficulty in terms of replacing the expertise of their most senior professionals, they will face another difficulty arising from the heightened level of replacement demand that results from their retirement. Turning again to the age projections, the ARL population may include 1,103 individuals age 60 and above in 2005,

1,482 in 2010, and 1,458 in 2015. While we cannot estimate the number and timing of the retirements that will flow from these over-60 groups, their numbers suggest that future replacement demand for library professionals will surpass that of recent years.

Other Potential Influences on the Population

There are many other factors that could affect the demographics of U.S. ARL librarianship as presented here. Three such factors appear below.

- **Health care and other economic concerns**. One of the most important parts of an individual's decision to retire is the affordability of health care. In response to the dramatic rise in health care costs, some employers have already reduced the health care benefits they offer their retirees and it is possible that others will follow. U.S. Medicare benefits are vulnerable to decline relative to health care costs. In either case, it stands to reason that continued rises in the cost of retirees' health care may cause some individuals to delay retirement. By the same token, reductions in retirement benefits other than health could also lead to delayed retirement, as would a general decline in the value of investment portfolios.

- **Demand and replacement assumptions.** How reasonable are the projections for the number of staff in ARL libraries presented in the Appendix? These projections are based on past growth and so take no account of the possibility that library professional staffing could decline in the future. Further, the "youth movement" as noted above in the age projections passes over the question of whether there will be enough MLS graduates to fill a heightened number of vacated positions, or whether their education will prepare them for the work libraries wish them to perform. Finally, there is no assurance that libraries will have the freedom to fill all of the positions vacated by retiring librarians. It is possible that the imperative to provide new services in an increasingly sophisticated digital environment will oblige administrators to convert some vacant positions to cover the costs.

- **Organization of information technology work on campus**. The growth of IT positions in the library hints at a general convergence of interest between the library and the campus computer center, or at least its educational technology arm. It is possible that this convergence of interest could lead to a blurring of organizational lines that could stretch the definition of "professional" positions in ARL libraries, to say nothing of those in the computer center.

Threat and Opportunity

What is one to make of all this? There is certainly cause for serious questions concerning the future of librarianship. The case of cataloging presented in Chapter 2 could be seen as the foreshadowing of a possible future for the profession as a whole. Cataloging suffers through low levels of hiring, reducing the overall number of catalogers and aging the group dramatically. As large percentages of catalogers prepare to retire, the question arises as to whether and how they will be replaced.

But what if librarianship's unique demographic situation were an opportunity rather than a threat? Surely some of the decline in cataloging must be the result of at least 30 years' effort to automate operations, streamline workflows, and establish international networks and standards. In the face of such progress, it's hard to imagine anyone arguing for a return to cataloging staffing levels of 1980, for example.

In the meantime, libraries have discovered needs for new kinds of expertise. We may be fortunate that at the very moment that information undergoes its biggest revolution since Gutenberg, librarianship appears positioned to take on substantial numbers of new people with new skills to help it adapt. There may even be a competitive advantage in being obliged to recruit large numbers of young people *sooner* than comparable professions.

But will these young people change the traditional culture and values of librarianship? Perhaps they will change it for the better. It is helpful to remember the last great generational shift, the staffing boom that brought thousands of people into librarianship in the 1960s. That generation also brought new skills to a changing profession, in ways that now appear to have been healthy, even necessary.

By this view, there is no cause for alarm if today's new hires do not look more like traditional librarians. In fact, the long-term interest of librarianship may make those differences necessary, just as they were for the generation before them. Now, as before, the kids are alright.

Or the kids *will* be alright, provided there are enough of them. The profession's most important task is to bring fresh ideas to bear on the questions of professional education, recruitment, and compensation to make librarianship a more attractive choice for young people. For those kids smart enough to make this choice, it only remains for veteran librarians to prepare them for success. It is like parenting, in the sense that these elders can be a living link between librarianship's past and future, transmitting what they know, and what they value, and the honorable role they serve in our culture.

Suggestions for Further Research

Better Data on Exits and Entries

The existing ARL Annual Salary Survey data are limited in that they can only provide information on *net* exits and entries. For example, the count of "new hires" is excellent as a measure of hiring activity, but it is an imperfect estimate of entry to the ARL population because some portion of "new hires" must consist of individuals who have simply moved from one ARL library to another. On the exit side, we know very little about how people leave their jobs: when they retire, what portion leave for other jobs, either within ARL libraries or not, what portion quits working short of retirement, or dies. With better entry and exit data, researchers could derive retirement rates, estimate "retirement age," provide turnover data, and develop an alternative to the projection methodology described in the Appendix. Collecting better exit/entry data would inevitably require some additional work for ARL's member libraries, but tracking these changes is surely worth the effort, particularly over the next 10 to 15 years.

The Demand for Library Expertise

What are the determinants of demand for library expertise? For example, a study could examine the relationship between institutional characteristics such as undergraduate and graduate enrollment, size of faculty, percent of faculty with PhDs, cost of enrollment (net of financial aid) in relation to family income. Such factors could be studied by type of library—medical libraries, law libraries, main libraries with no medical, and so on.

The Supply of Library Expertise

Heim and Moen's study *Occupational Entry: Library and Information Science Students' Attitudes, Demographics and Aspirations Survey* provided excellent data on the nature of library and information science students in 1989. Given the many changes affecting every aspect of this field, an update of this study is needed. It would be useful to gauge student's current interests in terms of expertise and in terms of intended work environment—public library, academic, special, or non-library institutions. For example, such a study could tell us how many new catalogers are likely to seek jobs in academic libraries.

Information Technology Expertise and the Functional Specialist Job Category

Given the tremendous growth in IT expertise in ARL libraries, it would be useful to know more about them. A study could examine the professional experience and educational

background of new hires to library IT positions, entry-level salaries, the progression of salaries over time, retention, and turnover. It would also be interesting to note their professional aspirations, motivations for working in libraries, and relationships with their colleagues.

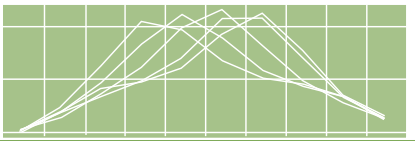
Any future work on this subject would benefit from the creation of a new job category for non-supervisory IT positions in the salary survey, removing them from the functional specialist category.

Notes

[11] The "growth in staffing" measure from the 1995 age demographic report included only the 58 libraries that reported data throughout the period. The "growth in staffing" measure presented in the Appendix includes libraries added to the data as they became ARL members.

[12] The ARL Annual Salary Survey data suggest that the "youth movement" may actually have begun between the years 1998 and 2000, when the imputed ARL population under age 40 grew after a prolonged period of decline.

APPENDICES



Projections and Methodology

The objective of the current set of projections is to estimate the future size and age structure of the U.S. ARL academic librarian population out to the year 2020. Changes in the size and age structure of an organization occur over a period of time as a result of the net effect of age-specific entries into and exits from the organization, as well as the aging of the remaining population. If age-specific data on entries and exits had been available, we could have projected the age-specific numbers of entries and exits, along with calculating the increase in age of the remaining population. In their absence, we had to resort to calculating the net effect of entries and exits. We did this by calculating the proportional change in the numbers as five-year cohorts aged five years. That is, we calculated the ratio of the number at the end of the five-year period to the number at the beginning of the period. For example, the ratio of those age 40–44 in 2000 to those age 35–39 in 1995. This tells us by what multiple the numbers at the beginning of the period changed by the end of the period.

A set of these cohort progression ratios (CPR) was calculated for each of three periods: 1985–1990, 1990–1995, and 1995–2000. Then two sets of average ratios were calculated, one for the three periods and another for the two most recent periods, 1990–1995 and 1995–2000 (**Table 22**). Since these two sets of average ratios were similar, it was decided to use the set of the two most recent periods for the projection.

Table 22: Cohort Progression Ratios

	A	B	C	Mean Values	Mean Values
	1985–1990	1990–1995	1995–2000	(B,C)	(A,B,C)
25–29 / 20–24	24.833	8.346	12.000	10.173	10.173[1]
30–34 / 25–29	2.189	1.718	3.166	2.942	2.358
35–39 / 30–34	1.334	1.198	1.602	1.480	1.378
40–44 / 35–39	1.099	1.108	1.172	1.140	1.126
45–49 / 40–44	1.118	1.038	1.083	1.061	1.080
50–54 / 45–49	1.103	0.962	1.027	0.995	1.031
55–59 / 50–54	1.024	0.868	0.910	0.889	0.934
60–64 / 55–59	0.763	0.639	0.715	0.678	0.706
65–69 / 60–64	0.457	0.439	0.631	0.535	0.509

[1] The value of 24.833 (1985–1990) was excluded in calculating this mean because it was judged to be too extreme to be reliable.

Starting with the age-specific numbers in 2000, we applied these ratios to get the projection for 2005. Then we applied the ratios to the numbers for 2005 to get the projection for 2010, and so forth (**Table 23**).

We could not, however, use this method to project the data for the age 20–24 cohort, since this was the youngest age group in the population. The method used to project that age group was to calculate the ratio of the U.S. ARL academic librarian population to the U.S. population in 2000 and then apply that ratio to the projection of the U.S. population who will be age 20–24 in 2005. Then the projected U.S. ARL academic librarian population 20–24 in 2005 was related to the U.S. projected population 20–24 in 2005 and that ratio was applied to the 2010 projection of the U.S. population 20–24. The projections of the 2015 and 2020 U.S. ARL academic librarian population 20–24 were obtained in the same way. The survey numbers in this age group were very small, rising from 12 in 1985 to 38 in 2000. The projected numbers are only slightly larger, varying from 41 to 43 between 2005 and 2020. So this method of projecting the age group that is the starting point at each date for the application of the cohort progression ratios appears to be satisfactory (**Table 24**).

Table 23: Logistic Projection of Total Size of the U.S. ARL Academic Librarian Population, 2000–2020

	2000 (Base)	2005	2010	2015	2020
20–24	38	41	44	46	45
25–29	300	393	438	460	471
30–34	687	745	991	1,097	1,125
35–39	820	977	1,077	1,421	1,538
40–44	1,027	949	1,151	1,257	1,623
45–49	1,491	1,107	1,041	1,250	1,335
50–54	1,753	1,507	1,138	1,060	1,245
55–59	1,176	1,582	1,383	1,036	944
60–64	573	809	1,107	959	702
65+	263	312	448	607	515
Total	8,128	8,422	8,818	9,193	9,543
Summary % Distribution					
<40	22.70	25.60	28.92	32.89	33.31
40–54	52.56	42.30	37.76	38.80	44.04
55+	24.74	32.09	33.32	28.30	22.64
Total	100.00	99.99	100.00	99.99	99.99
Quartile Age					
1st	40.90	39.70	38.40	37.40	37.40
Median	49.00	50.00	48.40	46.30	44.90
3rd	54.90	56.90	57.70	56.50	54.10

These methods produced a projection of both the size and age structure of the U.S. ARL academic librarian population. Another method was also used to project just the size of that population. The data on (a) the number of ARL member libraries and (b) the average professional staff size per library for the years between 1980 and 2000 (**Table 25**) were each extrapolated by a logistic function to project the number of libraries and the average staff size for each of the four projection dates (**Table 26**). The arithmetic product of the two numbers provided the projected U.S. ARL academic librarian population.

Table 24: Imputed and Projected U.S. ARL Academic Librarian Population, by Age, 1985–2020

	imputed							projected			
	1985(E)	1986	1990	1994	1995(I)	1998	2000	2005	2010	2015	2020
20–24	12	16	26	26	25	27	38	41	42	43	42
25–29	334	331	298	207	217	271	300	387	418	428	438
30–34	932	892	731	540	512	533	687	733	945	1,021	1,046
35–39	1,496	1,454	1,243	941	876	765	820	962	1,026	1,323	1,429
40–44	1,201	1,305	1,644	1,454	1,377	1,129	1,027	935	1,097	1,170	1,508
45–49	837	930	1,343	1,690	1,707	1,612	1,491	1,090	992	1,164	1,241
50–54	634	682	923	1,200	1,292	1,569	1,753	1,484	1,085	987	1,158
55–59	636	632	649	731	801	1,036	1,176	1,558	1,319	965	877
60–64	442	454	485	407	415	487	573	796	1,055	893	653
65+	182	189	202	205	213	242	262	307	427	565	479
Total	6,706	6,885	7,544	7,401	7,435	7,671	8,127	8,293	8,406	8,559	8,871
Summary % Distribution											
	1985(E)	1986	1990	1994	1995(I)	1998	2000	2005	2010	2015	2020
< 40	41.4	39.1	30.5	23.2	21.9	20.8	22.7	25.6	28.9	32.9	33.3
40–54	39.8	42.4	51.8	58.7	58.9	56.2	52.6	42.3	37.8	38.8	44.0
55+	18.8	18.5	17.7	18.2	19.2	23.0	24.7	32.1	33.3	28.3	22.7
Total	99.99	100.01	99.99	100.00	100.00	99.99	100.00	100.00	100.00	100.00	100.00
Quartile Age											
	1985(E)	1986	1990	1994	1995(I)	1998	2000	2005	2010	2015	2020
1st	36.3	36.7	38.3	40.5	41.1	41.4	40.9	39.7	38.4	37.4	37.4
Median	42.4	42.9	44.5	46.6	47.1	48.5	49.0	50.0	48.4	46.3	44.9
3rd	51.7	51.7	52.0	52.9	53.3	54.5	54.9	56.9	57.7	56.5	54.1

E = extrapolated I = interpolated

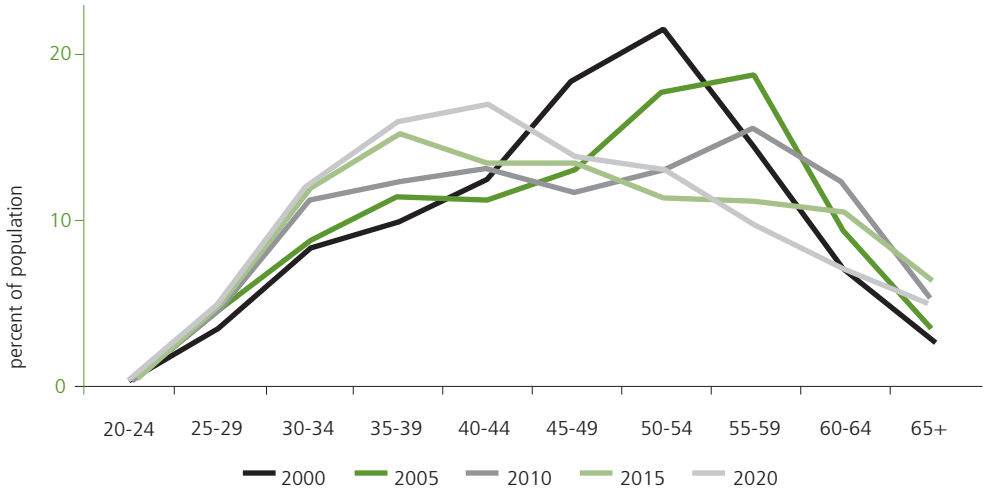
Table 25: Number of U.S. Academic ARL Member Libraries and Professional Staff per Library, 1980–2000

	Number of Libraries	Professional Staff Total	Professional Staff Average
1980	89	5,975	68.7
1981	89	6,198	69.6
1982	89	6,213	69.8
1983	92	6,369	69.2
1984	93	6,456	69.4
1985	93	6,707	72.1
1986	93	6,886	74.0
1987	93	7,145	76.8
1988	94	7,252	77.1
1989	94	7,344	79.0
1990	94	7,543	80.2
1991	94	7,408	78.8
1992	95	7,375	77.6
1993	95	7,390	77.8
1994	95	7,401	77.9
1995	95	7,435	78.3
1996	96	7,562	78.8
1997	97	7,682	79.2
1998	98	7,671	78.3
1999	98	7,858	80.2
2000	99	8,127	82.1

Table 26: Projection, 2005–2020

	Number of Libraries	Professional Staff Total	Professional Staff Average
2005	100.40	8,422	83.88
2010	102.44	8,818	86.08
2015	104.38	9,193	88.07
2020	106.19	9,543	89.87

Figure 19 Projected U.S. ARL Academic Librarian Age Distribution



	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total
2000	0.47	3.69	8.45	10.09	12.64	18.35	21.57	14.47	7.05	3.22	100.00
2005	0.49	4.67	8.84	11.60	11.27	13.14	17.89	18.79	9.60	3.70	99.99
2010	0.50	4.97	11.24	12.21	13.05	11.80	12.91	15.69	12.55	5.08	100.00
2015	0.50	5.00	11.93	15.46	13.67	13.60	11.53	11.27	10.43	6.60	99.99
2020	0.47	4.94	11.79	16.11	17.00	13.99	13.05	9.89	7.36	5.40	100.00

In a chart, the logistic function looks like an elongated letter S. It is applicable to phenomena that grow slowly at first, then more rapidly, only to slow again as they approach some limit. **Figure 19** provides a graphic representation of the projections, expressed in terms of percent of population.

The projected increase in the number of U.S. academic ARL member libraries and average professional staff size are both substantially less than the gains that took place between 1980 and 2000 (**Table 27**).

As a result, the projected U.S. ARL academic librarian population increases by 17.4 percent between 2000 and 2020, as compared with a rise of 36.0 percent between 1980 and 2000. This projection produces a population estimate in 2020 (9,543) that is only 7.6 percent greater than the estimate for 2020 (8,871) produced by the CPR projection, well within the likely margin of error of the two types of projections. To enhance comparability

Table 27: Percentage Increase in Number of U.S. ARL Academic Libraries and Professional Staff Size

	Number of Libraries	Average Professional Staff Size
1980–2000	+13.8%	+19.5%
2000–2020	+8.0%	+7.1%

of the two projections, the projected totals in the logistic projection have been distributed by age in the same proportion as in the CPR projection.

Even without these projections, one can see that major changes will be occurring in the next two decades. The largest five-year cohort in 2000 was those age 50–54 (1,753). The next largest was those age 45–49 (1,491). The third largest was those age 55–59 (1,176). These three cohorts accounted for 4,420, or 54 percent, of the total U.S. ARL academic librarian population of 8,128. Another 836 were 60 years old or older, for a total of 5,256 age 45 or older. By 2020, all of them will be 65 or older. Unless a major increase in the age at which ARL library staff stops working occurs, it is highly likely that at least 4,000 of the 5,256 will have stopped working between 2000 and 2020. (Current life tables suggest that less than 20 percent of these exits would be the result of death.) The number of exits could well be around 4,500. Thus, about half of the 2000 U.S. ARL academic librarian population will very likely be gone by 2020. They will probably be replaced mainly by people under the age of 35 or 40. The survey data indicate that this had already begun to take place during the late 1990s.

It is worth noting here that the CPR projection shows a substantial increase, from 23 to 33 percent, in the U.S. population under age 40 between 2000 and 2020. Also, the number of net exits between 2000 and 2020 of those who were age 45 or older in 2000 implied in the CPR projection are consistent with the numbers implied by the 2000 age structure, as described in the preceding paragraph: 1,110 exits in 2005; 2,454 in 2010; 3,797 in 2015; and 4,776 in 2020 (**Table 28**). The consistency between the CPR projection and the inferences from the survey data regarding the future changes in the numbers of young and old persons in the U.S. ARL academic librarian population indicate that the CPR projection is reasonable.

The projections presented in this report are a revision of the projection reported in 1995. The previous projection was based on ARL salary survey data collected in 1990 and 1994. Since then, survey data for 1986 were found and surveys were conducted in 1998 and 2000. Thus, the base of survey data has been considerably expanded. Also, the 2000 survey permitted the direct calculation of five-year cohort progression ratios, after the age

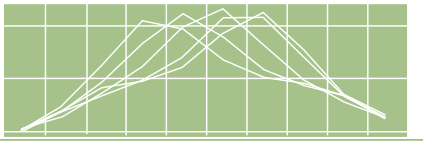
Table 28: Implied Number of Net Exits in 2005–2020 by Librarians Who Were 45 or Older in 2000

2005	2010	2015	2020
1,110	2,454	3,797	4,776

structure of the U.S. ARL academic librarian population for 1985 and 1995 were obtained by extrapolation (1985) and interpolation (1995). In the previous projection, four-year ratios (called "retention rates") were used to *estimate* five-year ratios. In addition, the current data were disaggregated by age alone rather than by age and experience, as in the previous projection, in order to assure larger numbers on which to base the ratios, thereby increasing their reliability. Moreover, the quality of the age data was evaluated. It was found that despite substantial non-response rates (10–15 percent), except in 1986 (3 percent), the age data did not appear to be significantly biased. Nevertheless, in order to avoid the loss of the considerable number of cases for which age was not reported, their age was imputed, thus providing age data for all persons included in the survey. In sum, the current set of projections represents a considerable improvement over the previous projection.

Note on the Imputation Methodology

The imputed version of the ARL salary survey data was created using NORM 2.2, a software program designed to perform multiple imputation that was created by Joe Schafer of the Department of Statistics, Pennsylvania State University. For this project, NORM produced results by year, based on correlations between age and other salary survey variables. This process was repeated three times for each year, such that the missing age values for each iteration were filled in by three different random draws from a joint distribution. The imputation results presented here are the simple mean values from the three data sets for each year.



Data Sources

While demographics is rarely the primary subject of research in librarianship, demographic data about librarians can be found in many places. Some of these works contain data on the age of librarians, but no studies treat age demographics as an issue with particular relevance for librarians. Age data on librarians appear virtually without comment in most sources.

The principal sources for this study are five statistical compilations: the U.S. government's Current Population Survey and census, ARL's annual statistics and salary survey statistics, and the Association for Library and Information Science Education's annual statistics.

Each of the sources used in this study has its unique set of strengths and weaknesses. One weakness common to all the sources described below is that age data are ultimately based on self-report and people can report inaccurate information if they wish. There is, however, no reason to believe that misreporting age affects the use of these data sets. Below is a summary of the principal sources of recent age data for librarians and library and information studies students.

Current Population Survey

The Current Population Survey (CPS) is a monthly demographic study conducted by the U.S. Bureau of the Census for the Bureau of Labor Statistics. The survey includes

about 60,000 households per month and is conducted by in-person interview. The survey is administered to a particular household monthly for four months and then again the next year for the same four months. The data from these surveys are reported in the publication *Employment and Earnings* and are also provided in an annual compilation available on computer tape and CD/ROM. All CPS data in this study come from the annual compilation.

The strengths of the CPS are its currentness and the fact that it is based on in-person interviews. The interview format is a strength of the CPS because it reduces the likelihood that respondents will claim mistakenly or falsely to be a librarian. There are no real safeguards, however, to prevent a non-librarian from claiming to be a librarian. The converse is also true; if a law librarian wished to be counted as a lawyer, for example, the survey will list the respondent as a lawyer.

The U.S. government defines "librarian" as including "…occupations concerned with administering libraries and performing related library services. Includes selecting, acquiring, cataloging, classifying, circulating and maintaining library materials; furnishing reference, bibliographical and readers advisory services." A separate category exists for library support staff.

U.S. Census Data

<http://www.census.gov/main/www/pums.html>

The decennial census is the most thorough survey of the general U.S. population and subgroups such as librarians. The census includes an extremely detailed questionnaire that 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 one percent and a five percent sampling in CD/ROM and on the Web.

Respondents are given little guidance in filling out the form and miscoding inevitably occurs. For example, the 1990 census data lists 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 weakness, 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 professionals, 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. Also, 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 the librarians. Researchers can use only what is available; and make note of factors that make their conclusions less than certain.

ARL Annual Salary Survey

< http://www.arl.org/stats/salary/>

The principal sources for this work are unpublished data sets generated by ARL from its annual salary surveys. As part of its annual survey of professional staff salaries at member institutions, ARL included supplemental questions in its 1986, 1990, 1994, 1998, and 2000 surveys to gather rudimentary demographic data on all professional staff, including year of birth. The response rate for the individual variables varies considerably.

The data sets include only ARL's 112 university library members in the United States and Canada. These member libraries' law and medical libraries are included in the data.

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

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 88 percent of ARL professionals held some sort of library science degree in 2000, so the predominance of librarians makes the term "professional" nearly synonymous with "librarian."

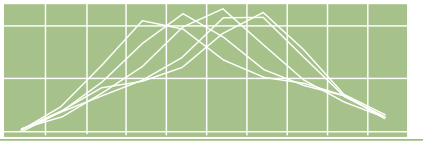
ARL Statistics

<http://www.arl.org/stats/arlstat/>

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 fashion similar to the ARL salary survey.

Association for Library and Information Science Education (ALISE) Statistical Report
<http://www.alise.org/publications/statisticalrpts.shtml>

ALISE produces an annual statistical report 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 of information.



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