

The Practice of Zooarchaeology: An Assessment from the International Literature, 1969-1998

KAREN M. MUDAR

National NAGPRA Office, National Park Service, USA



ABSTRACT: A review of papers published in five international journals since 1965 indicates that publications with a zooarchaeological focus make up approximately 20% of the total. The majority of the papers presented methodological or thematic information of interest to a general audience; BAR was the only publication that routinely handled site reports or extensive analyses of regional faunas. Important methodological themes included quantification, taxonomy, taphonomy, and age assessment. The majority of authors was either European (including Israel), American, Australian, or New Zealander. This, no doubt, reflects the degree of national social support for archaeological research and the fact that English is the publication language for three out of the five journals. Asia and South America were noticeably under-represented in the sample. Authorship was male-dominated at the beginning of the study; the sex-ratio was equal at the end of the time period. The publications in this study are the products of an established discipline with well-defined areas of study and goals, that encourage development of new methodologies. The results of the study also suggest that the international journal publications are not sensitive to regional zooarchaeological developments.

KEY WORDS: ZOOARCHAEOLOGY, PUBLICATIONS, TRENDS, GENDER

RESUMEN: Un listado de artículos publicados en cinco revistas internacionales desde 1965 evidencia que las publicaciones de índole zooarqueológica constituyen aproximadamente el 20% sobre el total. La gran mayoría de estos artículos presentaron información metodológica o temática de interés para una audiencia general; sólo las monografías del BAR presentaron de forma sistemática análisis puntuales sobre yacimientos o análisis amplios sobre faunas regionales. Temas metodológicos importantes incluían la cuantificación, taxonomía, tafonomía y evaluación de las edades. La mayoría de los autores eran europeos (incluyendo israelíes), norteamericanos, australianos o neozelandeses. Esto, sin duda, refleja el nivel de apoyo social nacional para la investigación arqueológica y el hecho de que el inglés sea la lengua de publicación en tres de las cinco revistas. Asia y Sudamérica aparecían llamativamente infrarrepresentadas en la muestra. La autoría de los artículos estaba dominada por varones al comienzo del estudio pero esta relación de sexos era prácticamente idéntica al final del lapso temporal. Las publicaciones en este estudio son el resultado de una disciplina bien establecida con áreas de análisis y objetivos bien definidos que potencian el desarrollo de nuevas metodologías. Los resultados del estudio también sugieren que las publicaciones de las revistas internacionales no parecen ser sensibles a los acontecimientos zooarqueológicos de índole regional.

PALABRAS CLAVE: ZOOARQUEOLOGÍA, PUBLICATIONES, TENDENCIAS, GÉNEROS

INTRODUCTION

Like many other disciplines, zooarchaeology has developed through exchange of developments in research methodologies, quantitative framework, and increasingly sophisticated research agendas. Much of this information, as well as discussion and debate, is communicated through publications and conference presentations. Unlike conference presentations, however, publications codify information for later reference and transcend space and time. They provide access to debate and research when conference attendance is not possible.

Publications also provide a way to monitor intellectual growth within a developing field in terms of research methodologies, terminology, and the framing of research questions. The purpose of this study is to examine trends in zooarchaeological research world-wide, through the assessment of publications in journals with, potentially, an international readership. While books and conference proceedings are important sources of zooarchaeological information, the regular publication schedule of journals provided a more consistent means of monitoring research in zooarchaeology in the last 30 years. This study endeavors to identify trends in zooarchaeological research in terms of the development of methods, significance assigned to research topics, the geographical areas of research, and the demographic composition of zooarchaeologists through a diachronic assessment of zooarchaeological publications.

METHODS

The data that form the basis for this study were collected from five publications with an international distribution. Zooarchaeological articles were identified through review of journal issues. The zooarchaeological publications that were included in the study consisted of three categories: 1) articles and monographs whose main topic focused on some aspect of zooarchaeology that could be identified from the title or the abstract; 2) articles and monographs that were about other topics, such as site reports but that included a section, chapter, or appendix on zooarchaeology and 3) publications that included discussion of animal representation of utilization, such as ethnohistories

or rock art analyses. The study did not include book reviews, editorials, obituaries, or letters to the editor.

All of the journals chosen for comparison were established in the last forty years, publish primarily in English, and have a history of publication of zooarchaeological research. These are *World Archaeology* (WA), *British Archaeological Reports (International Series)* (BAR), *Journal of Archaeological Science* (JAS), *International Journal of Osteoarchaeology* (IJO), and *Archaeozoologia* (AZ). WA and BAR include publications on a wide variety of anthropological topics. JAS appears to publish primarily on methodological topics pertaining to archaeological research. IJO and AZ focus more narrowly on bioarchaeological topics. IJO included human osteological studies; AZ is devoted almost completely to zooarchaeology.

The zooarchaeological papers in this sample were assigned to one of four categories: syntheses, methods, site reports, and topical reports. Syntheses included topical overviews as well as reviews of regional historical development. Methodological papers focused on analytical and interpretive techniques. There was some overlap between methodological papers and topical papers. Topical papers focused on a particular research problem or presented an analytical model for testing. It usually encompassed data from more than one site, and did not include the entire faunal assemblage. Discussions of faunal assemblages were tabulated as site reports. Each article was only tabulated once in this study, although it might fit under more than one category. This sample is not exhaustive, and was limited by access, in some instances, to abstracts of publications in lieu of the full text, and the inaccuracies inherent in this method of assessment.

World Archaeology (WA)

The oldest publication in this study, *World Archaeology* (WA), has been published in Great Britain since 1969 (see Table 1). It usually consists of three volumes per year. All articles are published in English. The articles in each issue are usually organized around a topical theme; papers for each issue can be solicited or independently submitted. Early issues had broad themes such as "Chronology" or "Analysis"; the themes of more recent issues tend to be more narrowly focused, such as "Buddhist Archaeology". Only one issue

Year	Total Assessed	<i>World Archaeology</i>		<i>Journal of Archaeological Science</i>		<i>British Archaeological Reports</i> Total Published		<i>British Archaeological Reports</i> Sample Size (%) N (%)		<i>Archaeozoologia</i> N (100%)	<i>International Journal of Osteoarchaeology</i>		Sample size	
		Total	N (%)	Total	N(%)						Total	N (%)	N	(%)
1969-72	96	96	8 (8)										8	(8)
1973-76	192	101	8 (8)	91	16 (18)								24	(12)
1977-80	247	100	7 (7)	118	32 (27)	55		29 (52)	16 (55)				55	(22)
						(39)a		13 (40)	1 (8)					
1981-84	357	103	7 (7)	138	48 (35)	187		116 (62)	58 (50)				113	(32)
						(137)b		(66) (48)	6 (9)					
1985-88	565	112	5 (4)	165	51 (31)	240		236 (98)	16 (7)	52			124	(22)
1989-92	490	109	3 (3)	181	54 (30)	98		98	7 (7)	31	71	12 (17)	107	(22)
1993-96	607	109	0	277	64 (23)	60		45 (75)	0	32	144	21 (15)	117	(19)
1997-98	288	55	12 (22)	93	19 (20)	51		48 (94)	7 (15)	10	82	32 (36)	80	(28)
Total	2842	785	50	1063	287	625		523	101	125	297	65	632	

TABLE 1

Zooarchaeological papers published between 1969-1998 in five international journals.

a BAR Volume 62 tabulated as a single volume, rather than as individual articles in monograph.

b BAR Volumes 202 and 227 tabulated as single volumes, rather than as individual articles.

with a zooarchaeological theme was published in the time period assessed, in 1996.

All issues published between 1969 and 1996, a total of 730 articles, were included in this study. Of these 50, or 6%, addressed zooarchaeological issues.

Journal of Archaeological Science (JAS)

Journal of Archaeological Science, also published in Great Britain, issued their first volume in 1975. Initially, this journal was issued quarterly; in 1983 publication was increased to every two months. The number of articles per volume increased dramatically in 1994, going from 39 to 74.

All volumes published between 1975 and 1997 were assessed, a total of 1063 articles. Of these 287, or 27%, addressed zooarchaeological issues.

British Archaeological Reports, International Series (BAR)

British Archaeological Reports, International Series (BAR) began publication in 1972. It has had an irregular publication history, as there were few volumes published between 1991-1994. The first volume available to this study was published in 1979. In 1998, the BAR had published 625 issues; 523, or 85%, were available for assessment. The missing volumes may not have been published in English, but may have included zooarchaeological topics. This study assumes that an 85% sample of volumes is representative of the total population.

BAR consists of book-length monographs and symposia proceedings. A total of 37 volumes were included in this study, consisting of 34 mono-

graphs and 3 symposia (two additional symposia devoted to zooarchaeology were not available to this study). The individual articles in the conference proceedings were tabulated as independent publications.

The International Journal of Osteoarchaeology (IJO)

This journal is published in the U.S.; the first year of publication was 1991. All volumes published between 1991 and 1998 were included in this study, a sample of 297 articles. Of these 65, or 22%, focus on zooarchaeology.

This journal specializes on both human osteology and zooarchaeology.

Archaeozoologia (AZ)

Archaeozoologia (AZ), as its name implies, is devoted to zooarchaeological topics. Although the majority of papers are published in English, it is published in France and will accept papers submitted in English, Spanish, French, and German.

The first year of publication of AZ was 1986. A total of 125 articles were published between 1986 and 1998; all were devoted to zooarchaeology.

The publications in this study were chosen because they were international in readership and had a history of publishing papers with a zooarchaeological content. Each journal, however, had different degrees of commitment to zooarchaeology, ranging from WA, which included faunal papers only as they related to other themes, to AZ, which was devoted completely to publication of

JOURNAL	SYNTHESES	METHODOLOGICAL	SITE REPORTS	TOPICAL ANALYSES
<i>World Archaeology</i>	20	10	16	9
<i>British Archaeological Reports</i>	10	10	22	75
<i>Journal of Archaeological Science</i>	8	123	33	118
<i>Archaeozoologia</i>	18	32	35	31
<i>International Journal of Osteoarchaeology</i>	3	34	19	9

TABLE 2

Tabulations of types of articles published between 1969-1998 in five international journals.

zooarchaeological papers (see Table 2). Each of the journals examined here had a specific profile, a characteristic mix, of different types of zooarchaeological studies. These profiles remained relatively unchanged throughout the history of the journal. The oldest journal, WA, also had the highest proportion of overview or synthesis articles. BAR was suited for publication of longer studies, and able to accommodate publication of extensive data tables. This no doubt accounts for the high proportion of papers in BAR that contains primary data. BAR also published the highest frequency of symposia proceedings.

JAS focuses on topical studies and methodological studies. Few site reports were published, and almost no papers that were characterized as syntheses or overviews.

Two of the journals, IJO and AZ are devoted to the publication of osteological studies. IJO includes human osteology, but AZ publishes only zooarchaeological papers. The largest category of zooarchaeological papers in IJO is methodological; AZ papers are almost equally distributed among the four categories.

PUBLICATION CHARACTERISTICS

The number of articles published per year did not stay static over time, but increased as new publication series were established. The only journal in this study that was published in the period 1969-1972 was WA; about 8 percent of WA articles were focused on zooarchaeology. During the period 1973-1976, JAS was established, doubling the percentage of published papers in the sample devoted to zooarchaeology. BAR entered the study during the 1977-1980 time period, and the proportion rose to 21 percent. The following period saw the proportion of zooarchaeological papers in the sample rise to 29 percent, without the establishment of new journals. This is probably due to the publication of several BAR volumes devoted to zooarchaeological conference proceedings (Volume 202 and 227), that were tabulated by individual article. Although two of the journals in the study were established after 1984, the percentage of faunal papers in the sample dropped to 22%, and stayed stable throughout the duration of the remainder of the time period of the study.

The different types of articles were not distributed evenly throughout all of the journals.

Syntheses

The largest percentage of syntheses was found in WA; 38% of the articles in this journal consisted of overviews of geographical areas or of zooarchaeological topics. It is possible that the way that this journal assembles papers for publication lends itself to overviews. Historical factors may also be involved, as WA was the oldest publication in this sample of journals.

Topical and Methodological Papers

Topical and methodological studies were equally represented in JAS, AZ, and ISO. Topical papers were well represented in the BAR volumes. These studies were often book (or dissertation) length, and were more compatible with the BAR venue than journals that focused on shorter manuscripts. Topical studies constituted 58% of the BAR zooarchaeological studies by volume count. Two aspects of these publications were of interest to the study, research focus, and country of research.

In order to identify research topics that were significant to zooarchaeologists during the time period of the study, a sub-sample of publications was examined in more detail. Articles from JAS were used, as JAS has the longest publication history of the journals that routinely carried methodological and topical papers. A tabulation of these papers (see Table 3) suggests that several topics are of enduring significance; taxonomy, derived measures of assemblage composition, and taphonomy.

A concern for the development of criteria for identification of species reflects the influence of one of the origins of zooarchaeology in paleontology. A closely related topic, domestication, has also been of continuing interest, as evidenced by the steady number of publications. The first paper in JAS that used DNA to assess taxonomy was published in 1997. The development of this identification method may spark a flurry of papers in the future as DNA libraries are established and DNA analyses become more economical.

Interest in techniques for ageing individuals peaked in the late 1980s, within the time period of

	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Dietary reconstruction	3	6	6	7	7	6	2
Taxonomy	3	3	7	6	3	4	2
Domestication	5	2	1	2	2	5	2
Morphological assessment	6	5	2	2	0	1	1
Derived measurements	0	1	4	6	4	10	2
Ageing animals	1	0	2	6	4	3	1
Extraction techniques (hunting, ...)	1	2	2	4	4	7	4
Phytoliths	1	0	0	0	0	1	1
Climate reconstruction	1	0	1	2	1	0	0
Bone-chewing	1	0	0	0	0	0	0
Ethno-archaeology	1	0	0	0	1	3	0
Environmental reconstruction	0	4	6	2	14	5	3
Taphonomy	0	2	0	12	11	19	2
Bone tool-making	0	0	3	0	0	3	0
Wool/hair analysis *	0	2	3	0	0	0	0
Seasonality	0	2	4	2	2	2	1
Dating	0	1	0	0	0	0	0

TABLE 3

Tabulation of zooarchaeological topics published 1969-1998 in *Journal of Archaeological Science*.

this study, as researchers explored the applications of thin-sectioning to tooth morphology.

The appropriate quantification of faunal samples has been of concern to zooarchaeologists since before the period of this study, and continues to be important, as the number of papers on the topic published between 1993 and 1996 demonstrates. This concern is, no doubt, partially fueled by the detailed information storage and processing made possible by access to computers, and the numerical structure to data tables that applications employ.

The large number of papers on environmental reconstruction in the late 1980s and early 1990s are partially to the extensive debate on anthropogenic sources of faunal extinction, megafaunal and otherwise, that made its way into the literature. This debate seems to have subsided at the present time.

Taphonomic studies in zooarchaeology have flourished throughout the past 30 years. This topic

has probably benefitted from cross-over research in early hominid studies, which seem to exhibit increased impetus as well, possibly as a result of changing political landscapes in Africa and the Near East. The increase in fossil hominid studies funded by American institutions may also be a function of changing political landscapes in the U.S., as the passage of repatriation laws has blocked access to collections of Native American remains.

Although zooarchaeology has moved beyond the basic goals of dietary reconstruction, it continues to be important. Stable isotope analysis has also fostered new interest in the topic; the first article that included stable isotope analysis was published in JAS in 1986.

Another significant trend in topical studies is a renewed interest in reconstructing foraging economies and extractive techniques. Eleven papers

were published on this subject in JAS since 1993. In a similar vein, there has been a renewed interest in seasonality. New analytical techniques for extracting information from malacological samples may be responsible for this resurgence of interest.

An effort was also made to identify the country in which the published research took place (see Table 4). The most common countries listed were the United Kingdom, the United States, South Africa, and Israel. Southeast Asia and the Asian mainland were noticeably under-represented in the journals utilized for this study. The causes for this are unknown, as there is a dearth of both Asian nationals and foreign researchers publishing on zooarchaeological topics. This suggests national research agendas, international politics, and language barriers may all play a role, depending on the specific country.

AUTHOR CHARACTERISTICS

Country of origin

The country of origin for each author was identified from contributors' profiles (WA), or from professional affiliations (IJO, AZ) (see Table 5). Contributors who changed countries of residence during the years covered by this study were tabulated as being affiliated in more than one place. This was, however, the only reasonably easy way to identify the scientific communities that were contributing the most to these journals. BAR and JAS are excluded from this discussion, as it was not possible to identify the nationality of the majority of the authors.

Despite a relatively long history of publication, WA authors were primarily from the United Kingdom and former colonies, including the United States. IJO had a much wider distribution of nationalities of its authors, and contained the highest proportion of Asian authors of any of the journals in this study.

Gender

To assess gender characteristics of the population of researchers involved in zooarchaeological researches over time, the gender of authors was

monitored (see Table 6). It is assumed here that both genders were equally motivated to publish research results and had similar opportunities to do so, once the analysis was completed. Publication, therefore, would be a more appropriate means to monitor research activities than conference participation or even professional society membership. These professional opportunities may be linked to employment, and employment parity cannot be assumed, especially among the older cohorts of zooarchaeologists, if the development of archaeology in the United States serves as a model for other countries.

It was not always possible to determine the gender of the author, as several of the journals (IJO and JAS) encouraged the use of initials rather than first names in listing authors. They were also the most frequent publishers of papers by Asian researchers, whose authors' first names were unfamiliar to this Western author.

Overall, the proportions of author's genders appear to shift over time, from being male dominated to fluctuations around equilibrium. The causes for this gradual change through time are not clear from the data. As noted, the oldest journal, WA, tended to publish more syntheses addressing a specific topic. Often a guest editor who often solicited papers edited these volumes. A low recruitment of females to the field of archeology in general, and zooarchaeology in particular, might account for a lack of senior women in the field from which to solicit synthetic contributions to edited volumes.

The shift in proportion of female to male authors appears to begin in the early 1980s. It is unclear whether this is due to increased female recruitment to the field, or to the establishment of journals that publish a wider range of articles than WA. It is unfortunate that gender information is not available for authors in JAS. Tracking the gender of authors for a journal with open solicitations that encouraged methodological submissions that was established in the mid-1970s would add additional insight.

CONCLUSION

This review of zooarchaeological articles from five journals spanning the last 30 years has explored the range of variability in article content, choice

EUROPE

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Austria								1
France	1		1	2	7	2	3	3
Germany				1	1		4	1
Italy				1	3	2	2	4
Lithuania							1	
Netherlands				1	3		1	1
Poland								1
Portugal								1
Spain			1	3	2	1	6	3
Switzerland					1			
Ukraine						1		
United Kingdom	1	4	6	6	4	7	6	7
Balkans								
Bulgaria					1			2
Cyprus		1						
Greece					1		1	2
Hungary				1	1		1	
Serbia					1			
Scandinavia								
Denmark		1		1	1		1	
Iceland					1			
Norway					1			

AFRICA

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
East Africa								
Kenya				1		1	2	
Madagascar						1		
Malawi	1							
Sudan		1			3	1		
Tanzania					1	1	1	1
Zaire								1
North Africa								
Algeria				1				
Egypt				2	1	4	4	1
Libya						1		
South Africa								
Botswana								2
Namibia						1		
South Africa	1	1	1	2	6	6	3	1
West Africa								
Mali			1		1			
Senegal						1		

TABLE 4

Countries hosting zooarchaeological research, 1969-1998.

THE PACIFIC

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Australia	1	1	1		1	2	2	1
Cook Islands				1			1	
Easter Island						1	1	
New Guinea					1			
New Zealand		3	3		1	2	1	3

ASIA

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
China								1
India								1
Japan			1		1	1	8	1
Philippines					1			
"Siberia"					1	1	3	1
Thailand	1	1	2					

THE AMERICAS

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Argentina							2	
Mesoamerica		1						
Peru			3		2		1	
Mexico			1					2
United States				1	3	10	10	7
Canada						2		2
Bolivia						1		
Greenland								1
Patagonia								1

THE MIDDLE AND NEAR EAST

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
"Arabia"						1		
Iraq					1			
Israel		3		3	1	3	2	1
Jordan			1			1		
Lebanon		1						
Syria		1	1				2	

TABLE 4 (CONT.)

of journal, and gender and nationality of author. This variability can be linked to a variety of factors, including changes in the demography of the profession, changes in opportunities for employment and publication in specific countries, and opportunities for study and travel, as the borders of countries open and close in response to local politics. However, many of the themes of the publication have remained relatively constant across journals and through time.

Site reports and the publication of raw data continue to be important, although there is more emphasis on interpretation. Faunal data is used increasingly to answer a wider range of questions than simply economy and climate. These data have been used as a reference point when interpreting rock drawings, reconstructing ethnicity, and interpreting religious symbolism.

Zooarchaeological studies have provided the impetus for tooth sectioning studies, models for

EUROPE

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Belgium					2	2	7	
Bulgaria								1
Denmark					2		1	1
France					11	6	3	1
Germany	1			1	6	6	7	
Greece					1			
Hungary				1	5		2	
Italy					3	2	2	3
Lithuania							2	
Netherlands					10	2	1	2
Norway							1	
Poland							2	4
Russia				1	4	2	6	4
Spain					1			
Sweden					3			
Switzerland					4	2		
United Kingdom	1	1	2	5	12	19	18	10

AFRICA

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Senegal						1		
South Africa				2	6			

THE PACIFIC

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Australia	1					2	1	
New Zealand		2	1		1			3

ASIA

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
China								2
Japan							12	2
Philippines					1			

THE AMERICAS

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Argentina					1	1	1	
Mexico								
United States	7	1	5	7	16	14	5	4
Canada		1	1		2	3	8	3
Panama						1		

THE MIDDLE AND NEAR EAST

COUNTRY	1969-72	1973-76	1977-80	1981-84	1985-88	1989-92	1993-96	1997-98
Israel				1		3	10	4

TABLE 5

Country of Affiliation of Authors of Zooarchaeological Publications, 1969-1998. (Data from WA, BAR, IJO, and AZ).

Year	<i>World Archaeology</i>			<i>British Archaeological Reports</i>			<i>Archaeozoologia</i>			<i>International Journal of Osteoarchaeology</i>		
	Female	Male	(?)	Female	Male	(?)	Female	Male	(?)	Female	Male	(?)
1969-72	1	8	(1)									
1973-76	0	8										
1977-80	3	5		6	9	(9)						
1981-84	1	8	(1)	18	28	(14)						
1985-88	1	1	(3)	8	7	(1)	30	31	(3)			
1989-92	1	1	(1)	3	2	(1)	13	27	(4)	2	7	(7)
1993-96				0	0		14	17	(16)	10	21	(13)
1997-98				3	7	(2)				15	22	(14)

TABLE 6

Gender of Authors of Zooarchaeological Papers from four selected journals, 1969-1998.

domestication, ageing and sexing of animals, and stable isotope analysis. The first mDNA zooarchaeology paper in the study was published in 1997; it is likely that this analytical tool will become more common in the future. There also appears to be a relatively constant concern with site formation processes and quantification issues pertaining to derived measures of assemblage characteristics.

Although this study was intended to document the development of international trends in zooarchaeology, the corpus of papers examined here suggest that by the early 1970s the basic goals of zooarchaeology were established in terms of development of appropriate methodology, faunal interpretations, and research agenda. The most significant changes appear to be demographic, in terms of gender composition, nationality, and research

landscape. This suggests that we would have to look at the previous 30 years, or more to see a significant change in the ways that faunal data were used in archaeological research.

ACKNOWLEDGMENTS

I am grateful to Dr. Elizabeth Moore and Dr. Lynn Snyder for their invitation to participate in their symposium at the 1998 ICAZ meetings. I am also grateful to Mr. David Reser, Library of Congress for obtaining titles and abstracts of all of the LOC holdings of BAR reports, and for the table of contents for all published issues of AZ. As always, I am grateful to my husband, Chris, for his assistance in editing and graphics.

