DOCUMENT RESUME

ED 093 650 SE 017 406

AUTHOR	Speert, Kathryn H., Ed.; And Others
TITLE	Proceedings: Association for Population/Family Planning Libraries and Information Centers (6th, New Orleans, Louisiana, April 24-25, 1973).
INSTITUTION	Association for Population/Family Planning Libraries and Information Centers, Chapel Hill, N.C.
PUB DATE	Dec 73
NOTE	156p.
EDRS PRICE	MF-$0.75 HC-$7.80 PLUS POSTAGE
DESCRIPTORS	*Conference Reports; *Family Planning; Information Retrieval; *Information Services; *Library Reference Services; *Population Education; Population Growth; Population Trends; Thesauri

ABSTRACT

The Sixth National Conference on Population/Family Planning (1973) sponsored by the Association for Population/Family Planning Libraries and Information Centers (APLIC), was held in conjunction with the annual meeting of the Population Association of America (PAA). This document contains reports on workshop sessions and papers presented at the conference. The workshop classifications were: Microfilm System for Population/Family Planning Libraries; Family Planning Information Centers; Scientific and Technical Information Centers; Thesaurus Development and Usage; Introduction to Computer Usage; Communication and Information Services; and Reference Sources and Computerized Bibliographic Retrieval. Other sections at the conference covered the following areas: Analysis of the Questionnaire on the Bibliography of Family Planning and Population; Information Sources for the 1970s; and The Dissemination of Population/Family Planning Information. (JP)

APLIC

PROCEEDINGS of the Sixth Annual Conference

New Orleans, Louisiana
April 24-25, 1973

PROCEEDINGS

SIXTH ANNUAL CONFERENCE

ASSOCIATION FOR POPULATION/FAMILY PLANNING
LIBRARIES AND INFORMATION CENTERS

(APLIC)

Monteleone Hotel
New Orleans, Louisiana

April 24-25, 1973

edited by

Kathryn H. Speert
International Institute for the Study
of Human Reproduction

with assistance from

Law Sullivan
and
Karin Gleiter
Carolina Population Center

Association for Population/Family Planning Libraries and Information Centers
Chapel Hill, North Carolina

December 16, 1973

TABLE OF CONTENTS

INTRODUCTION

The Sixth National Conference on Population/Family Planning Library and Information Services was held in New Orleans, Louisiana, on April 24 and 25, 1973. The conference, sponsored by the Association for Population/Family Planning Libraries and Information Centers (APLIC), was held in conjunction with the annual meeting of the Population Association of America (PAA). It was hoped that the proximity of scheduling would be of mutual benefit to the members of both APLIC and PAA for information exchange and exposure.

The Sixth Conference featured two workshop sessions, one each morning, reports, a panel discussion on "Everything You've Always Wanted to Know About Specialized Libraries and Information Centers, But Didn't Know Whom to Ask," and a session titled "Information Sources for the 1970's." In addition there was a business meeting.

Again this year, APLIC was requested to supply a panel for the PAA meeting. Our members addressed the meeting on Thursday morning, April 26; the subject was "Communication and Dissemination of Population/Family Planning Information."

The conference was opened by the chairman, Rolf Versteeg, President of APLIC. After greeting and welcoming the participants, he explained that the decision had been made to hold the meeting in New Orleans this year rather than in Chapel Hill, as previously, because the Carolina Inn in Chapel Hill was no longer large enough to take care of our various requirements, and we wanted to explore the advantages of meeting in conjunction with PAA. We would decide, after this meeting, whether to continue this experiment.

The President next gave an overview of the program to follow and requested a summary from each workshop which would represent a five-minute report. He then directed the attendees to the locations of the morning workshops.

PROGRAM

Tuesday, April 24

9:00-10:00 Registration

10:00-10:30 Opening Session

Rolf Versteeg, President
Association for Population/Family Planning
Libraries and Information Centers

10:30-12:30 Workshop Sessions

MICROFILM SYSTEMS FOR POPULATION/FAMILY PLANNING LIBRARIES

Dan Joldersma
Department of Population Planning
University of Michigan

FAMILY PLANNING INFORMATION CENTERS

Blanche Horowitz
Planned Parenthood/World Population

Carol Berde
Planned Parenthood of Minnesota

Faye Richardson
National Center for Family Planning Services
U. S. Department of Health, Education and Welfare

SCIENTIFIC AND TECHNICAL INFORMATION CENTERS

Helen Kolbe
Population Information Program
The George Washington University

Melvin Weinstock
Institute for Scientific Information

THESAURUS DEVELOPMENT AND USAGE

Kathryn Speert
International Institute for the Study of Human Reproduction
Columbia University

Stanley Jablonski
National Library of Medicine

Caroline Lucas
Carolina Population Center
University of North Carolina at Chapel Hill

Jo Brooks
Institute for Sex Research
Indiana University

12:30-2:15 Lunch

2:15-2:45 Report from Donn Casey on the Bibliography of Family Planning and Population

2:45-3:30 New Developments

3:30-3:45 Coffee

3:45-5:30 Panel Discussion on EVERYTHING YOU'VE ALWAYS WANTED TO KNOW ABOUT SPECIALIZED LIBRARIES AND INFORMATION CENTERS, BUT DIDN'T KNOW WHOM TO ASK

Moderator:

Rolf Versteeg
Center for Population Research
National Institute for Child Health and Human Development
National Institutes of Health

Panelists:

Samuel Baum
Bureau of the Census

Bates Buckner
Carolina Population Center
University of North Carolina at Chapel Hill

Doreen Goyer
Population Research Center
University of Texas at Austin

Frances Jacobson
Population Reference Bureau, Inc.

Dorothy Kaufman
Bureau of the Census

Kathryn Speert
International Institute for the Study of Human Reproduction
Columbia University

6:30-7:30 Reception

Wednesday, April 25

9:30-10:30 Business Meeting

Chairman:

Rolf Versteeg, President
Association for Population/Family Planning Libraries and Information Centers

a. APLIC Legal Status
b. APLIC/PAA Relationship
c. Sub-committee Reports
d. Nominating Committee and Elections
e. Financial Report

10:30-12:30 Workshop Sessions

INTRODUCTION TO COMPUTER USAGE

Carl Gray
Bureau of the Census

COMMUNICATION AND INFORMATION SERVICES

William O. Sweeney
Ford Foundation

Bates Buckner
Carolina Population Center
University of North Carolina at Chapel Hill

Karen Wilhelm
Ford Foundation

Sumiye Konoshima
East-West Communication Institute

REFERENCE SOURCES AND COMPUTERIZED BIBLIOGRAPHIC RETRIEVAL

Barbara Glouchevitch
Population Index

Charlotte Kenton
National Library of Medicine

Irene Goddard
Caltech Population Program

2:30-5:30 INFORMATION SOURCES FOR THE 1970s

Chairman:

Wilma Winters
Harvard Center for Population Studies

Speakers:

"Population Education"
Stephen Viederman
The Population Council

"Demography and Human Ecology"
Halliman H. Winsborough
Center for Demography and Ecology
University of Wisconsin

"Sex and Family Life Education"
Kathleen Everly
Family Planning and Population Information Center
Syracuse University

Thursday, April 26 Population Association of America Annual Meeting

8:30-10:20 THE COMMUNICATION AND DISSEMINATION OF POPULATION/ FAMILY PLANNING INFORMATION

Chairman:

Samuel Baum
Bureau of the Census

Speakers:

"A Cross-Disciplinary Vocabulary for Indexing the Literature"
Kathryn Speert
International Institute for the Study of Human Reproduction
Columbia University

"Selected Inventory of Information Networks"
Jeanette Goldberg
Department of Population Planning
University of Michigan

"How Good are Existing Bibliographies?"
Richard Walker
Carolina Population Center
University of North Carolina at Chapel Hill

"An Analysis of the Scope and Character of the Demographic Literature: Dilemma in Information Retrieval"
Charles Cargille, M. D.
Institute for Global Dynamics

ASSOCIATION OF POPULATION/FAMILY PLANNING LIBRARIES AND INFORMATION CENTERS (APLIC)

c/o Carolina Population Center Library
University Square
Chapel Hill, North Carolina 27514

Tel.: (919) 933 3081
Cable: POPCENTER

SIXTH NATIONAL CONFERENCE ON POPULATION/FAMILY PLANNING
LIBRARY AND INFORMATION SERVICES

Final List of Speakers and Participants -- April 24-25, 1973

Ms. Petrina Amonoo
Librarian
Population Dynamics Program
University of Ghana
P. O. Box 145
Legon, Accra
GHANA

Ms. Martha A. Bargar
Statistical Demographer
International Statistics Program
U. S. Department of Commerce
Social and Economic Statistics Administration
Bureau of the Census
Washington, D.C. 20233
(301) 763-2750

Mr. Samuel Baum
International Statistical Programs Division
U. S. Bureau of the Census
Washington D.C. 20233
(301) 763-2870

Ms. Elizabeth Bedikian
Librarian
Business and Science Division
New Orleans Public Library
219 Loyola Avenue
New Orleans, Louisiana 70140

Ms. Carol Berde
Director, Population Resource Center
Planned Parenthood of Minnesota
1562 Univeristy Avenue
St. Paul, Minnesota 55104
(612) 646-9603

Ms. Jean Brand
Extension Education Specialist
Extension Service, Room 5043-S
U. S. Department of Agriculture
Washington, D.C. 20520
(202) 447-7186

Ms. Jo Brooks
Assistant Librarian
Institute for Sex Research
416 Morrison Hall
Bloomington, Indiana 47401
(812) 337-7686

Ms. Bates Buckner
Head, Technical Information Service
Carolina Population Center
5th floor, University Square
Chapel Hill, North Carolina 27514
(919) 933-3006

Ms. Carolee Bush
Director, Orientation and Guidance Center
Clearinghouse and Laboratory for Census Data
1601 North Kent Street
Rosslyn, Virginia 22209
(703) 525-1480

Ms. Sylvia Cambiaso
Information Officer
Department of Health and Population Dynamics
Pan American Health Organization
525 23rd Street, N.W.
Washington, D.C. 20037
(202) 331-4284

LIST OF PARTICIPANTS

Mr. Charles Cargille, M.D.
National Institute of Child Health and Human Development
Bethesda, Maryland 20014

Mr. Donn Casey
Simon Population Trust
141 Newmarket Road
Cambridge, CB5 8HA
ENGLAND (0223) 66675

Ms. Gail Cassagne
Librarian
Business and Science Division
New Orleans Public Library
219 Loyola Avenue
New Orleans, Louisiana

Mr. Robert D. Colligan
Administrator
Department of Cell Biology
Baylor College of Medicine
1200 Moursund Avenue
Houston, Texas 77025
(713) 529-4951, ext. 302

Ms. Anne Cotterill
Editor, Overview
Technical Information Service
Carolina Population Center
University Square
Chapel Hill, North Carolina 27514
(919) 966-2153

Mr. Martin Dillon
Assistant Professor
School of Library Science and Department of Computer Science
207A New West Building
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina 27514

Ms. Rebecca Dixon
Head Librarian
Institute for Sex Research Library
Indiana University
416 Morrison Hall
Bloomington, Indiana 47401
(812) 337-7686

Ms. Brenda Emerson
Emory University
Atlanta, Georgia

Ms. Kathleen Everly
Executive Director
Family Planning and Population Information Center
760 Ostrom Avenue
Syracuse, New York 13210
(315) 475-6233

Ms. Catherine Fogle
Technical Information Service
Carolina Population Center
5th floor, University Square
Chapel Hill, North Carolina 27514
(919) 933-3006

Ms. Lillian R. Freedman
Chief, Program Administration and Analysis Branch
National Institute of Child Health and Human Development
National Institutes of Health
Bethesda, Maryland 20014

Ms. Ruth Galaid
Special Assistant for Information and Education
Department of Health, Education and Welfare
Office of Population Affairs
Washington, D.C. 20201
(202) 962-3823

Ms. Barbara Glouchevitch
Editor, Population Index
Office of Population Research
5 Ivy Lane
Princeton, New Jersey 08540
(609) 452-4949

Ms. Irene Goddard
Director of Information Services
Caltech Population Program 228-77
California Institute of Technology
Pasadena, California 91109
(213) 795-6811. 1073

LIST OF PARTICIPANTS

Ms. Jeannette Goldberg
Librarian
Department of Population Planning
School of Public Health - II
1420 Washington Heights
Ann Arbor, Michigan 48104
(313) 764-9556

Ms. Nancy Gooch
Librarian
Planned Parenthood/World Population,
Southwest Region
Family Planning and Population Library
4928 Burnet Road, Room 201
Austin, Texas 78756
(515) 452-6417

Ms. Salme H. Gorokhoff
Assistant Librarian
Social and Economics Statistics
Administration Library
Washington, D.C. 20233
(301) 763-7161

Ms. Doreen S. Goyer
Librarian
Population Research Center
200 East 26 1/2 Street
Austin, Texas 78705
(512) 471-5514

Mr. Carlingford Gray, Jr.
Data Systems Specialist
International Statistical Programs
Center
Bureau of the Census
Washington, D.C. 20233
(301) 763-2870

Mr. Avi Green
Associate Librarian
United Nations Fund for Population
Activities - LX 19-18
485 Lexington Avenue
New York, New York 10017
(212) 754-1234, ext. 4887

Ms. Margaret Gross
Librarian
Population Division
Graduate School of Public Health
University of Pittsburgh
Pittsburgh, Pennsylvania 15213

Mr. Stanley L. Helgeson
Associate Director, Science Education
ERIC/SMEAC
400 Lincoln Tower
The Ohio State University
Columbus, Ohio 43210
(614) 422-6717

Ms. Edris E. Hoover
Librarian
The American College of Obs. and Gyns.
One East Wacher Drive
Chicago, Illinois 60601
(312) 222-1600

Ms. Blanche Horowitz
Director of Library Services
Katharine Dexter McCormick Library
Planned Parenthood/World Population
810 Seventh Avenue
New York, New York 10019
(212) 541-7800

Mr. Stanley Jablonski
Head, Index Section, BSD
National Library of Medicine
8600 Rockville Pike
Bethesda, Maryland 20014
(301) 496-6766

Ms. Frances B. Jacobson
Research Librarian
Population Reference Bureau, Inc.
1755 Massachusetts Avenue, N.W.
Washington, D.C. 20036
(202) 323-2388

LIST OF PARTICIPANTS

Ms. Rene Jaimes
Head Librarian
International Planned Parenthood Federation
Western Hemisphere Region
111 Fourth Avenue
New York, New York 10003
(212) 533-1050

Mr. Dan Joldersma
Librarian
School of Public Health
Department of Population Planning
University of Michigan
Ann Arbor, Michigan 48104
(313) 763-4345

Ms. Susan Glowski Jones
Librarian
International Population Program
Carnell University
Uris Hall
Ithaca, New York 14850
(607) 256-4924

Ms. Dorothy W. Kaufman
Librarian
Social and Economic Statistics Administration
Washington, D.C. 20233
(301) 763-5040

Ms. Charlotte Kenton
Head, NLM MEDLARS Search Section
Technical Information Specialist
National Library of Medicine
Bethesda, Maryland 20015
(301) 496-5117

Ms. Joung I. Kim
Librarian
Korean Institute for Family Planning
115, Nokbun-dong, Sudaemun-ku
Seoul 120-02
KOREA
(38) 8003/7

Ms. Jean King
Librarian
National Family Planning Board
5 Sylvan Avenue
Kingston 5
JAMAICA

Ms. Susan Kingsley
Reference Librarian
International Institute for the Study of Human Reproduction
Columbia University
78 Haven Avenue
New York, New York 10032
(212) 579-4033

Ms. Mary Kinney
Librarian
Family Health Foundation
136 South Roman Street
New Orleans, Louisiana 70112
(504) 581-3378

Ms. Helen K. Kolbe
Research Librarian
Population Information Program
George Washington University
Medical Center
2001 South Street, N.W.
Washington, D.C. 20009
(202) 462-5828

Ms. Sumiye Konoshima
Resource Materials Specialist
East-West Communication Institute
1777 East-West Road
Honolulu, Hawaii 96822

Ms. Sirkka Laaksonen
Karolinska Institutet
Biomedical Documentation Center
Fack 104 01 Stockholm
SWEDEN

LIST OF PARTICIPANTS

Ms. Eugenia Labbe-Norris
Assistant Librarian
(CELADE)
Latin American Demographic Centre
Casilla 91
Jose M. Infante 9
Santiago
CHILE
257806 (anwo 901)

Ms. Nancy Lambert
Reference Librarian
International Institute for the
Study of Human Reproduction
Columbia University
78 Haven Avenue
New York, New York 10032
(212) 479-4033

Ms. Caroline Lucas
Research Librarian
Technical Information Service
Carolina Population Center
University Square
Chapel Hill, North Carolina 27514
(919) 933-3081

Mr. James McClure
Research Associate
Carolina Population Center
University of North Carolina
at Chapel Hill
302 Manning Hall
Chapel Hill, North Carolina 27514
(919) 933-8365

Ms. Sara S. Mulligan
Writer-Editor
Center for Disease Control
Family Planning Evaluation
Atlanta, Georgia 30333
(404) 633-3111, ext. 3611

Dr. Jeanne S. Newman
Coordinator, Population Information
Unit
Population Center
School of Hygiene and Public Health
Johns Hopkins University
615 North Wolfe Street
Baltimore, Maryland 21205

Ms. L. R. Olton
Librarian
Family Planning Training Institute
24 West Franklin Street
Baltimore, Maryland 21201
(301) 685-0940

Dr. Harald Pedersen
Chief, Family Planning Services Division
Office of Population
U. S. Agency for International Development
Washington, D.C. 20523
(703) 557-9340

Ms. Anna Peters
Librarian and Technical Information
Specialist
Room 214 RPE
U. S. Agency for International Development
Washington, D.C. 20523
(703)

Ms. Nina Pugatchenko
Librarian
The Population Council
245 Park Avenue
New York, New York 10017
(212) 687-8330

Ms. Faye B. Richardson
Information Specialist
Information and Education Office
National Center for Family Planning
Services
5600 Fisher's Lane
Rockville, Maryland 20852
(301) 443-4273

Dr. Fred Roper
Assistant Professor
School of Library Science
University of North Carolina
at Chapel Hill
203 Manning Hall
Chapel Hill, North Carolina 27514
(919) 933-8366

Ms. Ruth Sandor
Library, Center for Demography
University of Wisconsin
3216 Social Science Building
Madison, Wisconsin 53706
(608) 262-2182

LIST OF PARTICIPANTS

Ms. Marylis Sevilla-Que
Senior Technical Associate
Transnational Family Research Institute
8555 Sixteenth Street
Silver Spring, Maryland 20910
(301) 587-8201

Ms. Ruth W. Smith
Administrative Specialist
Scripps Foundation
Miama University
218 Harrison Hall
Oxford, Ohio 45056
(513) 529-2812

Ms. Kathryn H. Speert
Librarian
International Institute for the Study of Human Reproduction
Division of Social and Administration Sciences
Columbia University
78 Haven Avenue
New York, New York 10032
(212) 579-4072

Ms. Catharine A. M. Stubbings
Librarian
International Planned Parenthood Federation
18-20 Lower Regent Street
London SW1Y 4PW
ENGLAND
(o1) 838-2911

Mr. William O. Sweeney
Project Specialist
The Ford Foundation
320 East 43rd Street
New York, New York 10017
(212) 573-5197

Mr. Russel J. Swenson
Communications Resources Specialist
PHA/POP/IEC
U. S. Agency for International Development
Washington, D.C. 20523
(703) 557-5042

Ms. Carann Graham Turner
Reference Librarian
Technical Information Service
Carolina Population Center
University Square
Chapel Hill, North Carolina 27514
(919) 933-3081

Mr. Rolf Versteeg
Program Liaison Officer
Center for Population Research
NICHD, National Institutes of Health
Landow Building, Room A-721
7910 Woodmont Avenue
Bethesda, Maryland 20014
(301) 496-1101

Mr. Stephen Viederman
Assistant Director
Demographic Division
Population Council
245 Park Avenue
New York, New York 10017
(212) 687-8330

Mr. Richard L. Walker
Area Files Librarian
Technical Information Service
Carolina Population Center
University Square
Chapel Hill, North Carolina 27514
(919) 933-3081

Mr. Melvin Weinstock
Senior Information Scientist
Institute for Scientific Information
323 Chestnut Street
Philadelphia, Pennsylvania 19106
(215) 923-3300

Ms. Karen E. Wilhelm
Administrative Assistant
Population Office
The Ford Foundation
320 East 43rd Street
Mew York, New York 10017
(212) 573-4918

LIST OF PARTICIPANTS

Mr. Eddie H. Willner
Social Science Analyst
International Statistical Programs
Center
U. S. Bureau of the Census
Washington, D.C. 20233
(301) 763-2835

Mr. Alton E. Wilson
Publis Health Advisor/FP
Kingston-ID Department of State
(USAID/JAMAICA)
Washington, D.C. 20521
(KGM) 927-0968

Mr. Halliman H. Winsborough
Director
Center for Demography and Ecology
3218 Social Science Building
Madison, Wisconsin 93706

Ms. Wilma E. Winters
Librarian
Harvard Center for Population Studies
665 Huntington Avenue
Boston, Massachusetts 02115
(617) 734-3300, ext. 798

Workshop on

MICROFILM SYSTEMS FOR POPULATION/FAMILY PLANNING LIBRARIES

Dan Joldersma
Department of Population Planning
University of Michigan

17/18

MICROFILM SYSTEMS FOR POPULATION/FAMILY PLANNING LIBRARIES

reported by Dan Joldersma

The main purpose of the workshop was to examine how microfilm is being used to solve information storage and retrieval problems in a variety of industries, government agencies and libraries in general, and to see if these solutions are relevant for population/family planning libraries in specific.

The workshop began with a brief historical overview of microfilm from its initial use in the Franco-Prussian War, when thousands of microfilmed messages were sent into the besieged city of Paris via carrier pigeons, to its growth today into a one-half billion dollar industry.

Next, the workshop identified a wide range of publications which are available on microfilm and which would be relevant to population libraries. It was pointed out that a wide variety of census publications are available on microfilm from commercial sources and government agencies, including parts of or the entire 1970 U. S. Census and the *International Population Census Bibliography* prepared by the University of Texas. More and more Ph.D. dissertations are being written in our field and are available from University Microfilms. By now, several hundred documents are available from the East-West Center on microfiche on an exchange basis. The ERIC Clearinghouses are now including more and more information on microfiche, especially in the areas of population, environmental, and sex education. Finally, the Government Printing Office has plans for making all of its publications available on microfiche in the near future.

Then the workshop identified a number of advantages in using microfilm in libraries:

1. Rapid access to information. By using certain coding systems, information can be retrieved much faster than by a manual search. In the case of telephone operators, airlines, law enforcement agencies, and medical records departments, speed is crucial and is the prime reason for using microfilm. The group agreed, however, that the emphasis on speed was not crucial in most population libraries.

2. Preservation and security. It was pointed out that microfilm has a much longer life than paper. This becomes particularly important when large parts of the collection are printed on poor quality paper which deteriorates and fades rapidly. Furthermore, if duplicate copies of microfilm are stored off the premises, they may serve as security against "misplaced" articles, stolen items, flood and fire.

3. Access to out-of-print materials. By using microfilm, population libraries can gain access to a wide range of important, historical,

hard-to-obtain or rare population/family planning literature. We have all been frustrated in attempting to acquire a book or document which may be only a year or two old, only to discover that it is now out-of-print. This is especially true of U. N. documents, conference proceedings or working papers which are produced in limited editions. If these documents were microfilmed, inexpensive duplicates would always be available.

4. Duplication. Microfilm copies can be duplicated inexpensively and quickly. For example, a typical microfiche containing 98 pages can be duplicated for about five cents in only a few seconds. If this same document were xeroxed at ten cents per page, it would cost nearly ten dollars.

5. Distribution. In addition to being economical to duplicate, microfilm copies are inexpensive to distribute. This has important implications for inter-library loan. For example, if a population library had a rare, hard-to-obtain document which it did not want to send through the mails, a microfilmed copy of that document could be sent for eight cents domestic or 21 cents overseas airmail.

6. Space savings. This is the most obvious and spectacular advantage of microfilm. Depending on the reduction ratio, up to 3,000 pages of information can be contained on a single microfiche or reel. If crowded conditions exist in your library, this may be reason enough to use microfilm. Periodicals and document collections in particular lend themselves to microfilm.

With regard to actually using microforms, the workshop agreed that librarians are often too fascinated with the storage of information, and do not pay enough attention to the retrieval and use of information. It does no good to have a superior collection of materials if there is no easy and convenient access to them; it only contributes to reader resistance. With this in mind, the workshop examined several types of microfilm readers, ranging from inexpensive hand-held viewers to lap readers, portable readers which fold into attache cases, desk-top readers, and finally the very convenient reader-printers. In selecting any reader, the librarian should consider these points: a) Is the machine easy to load? b) Is the film protected during winding? c) Is the image clear and does it snap into focus? d) Are the controls conveniently located? e) What is the size of the screen? f) Is the illumination even across the entire screen? g) Is it a durable machine? h) What is its reliability record? i) Is servicing for the machine available? j) Which microforms will it handle? k) Is the price reasonable and competitive?

The workshop attempted to identify other applications of microfilm in the population library or its parent organization. By using a rotary microfilm camera, for example, the entire card catalogue could be microfilmed in a few hours and could be shared with other population libraries or individual researchers within the department. Vertical-pamphlet files lend themselves well to microfilming, and microfilming back issues of periodicals saves not only space but binding costs as well. Furthermore, it is possible not only to microfilm the monthly acquisitions lists but also to send complete copies of all the documents to affiliated libraries.

Finally, the librarian should also consider how microfilm can be used elsewhere in the department. Microfilm could economically and efficiently be used for student records, administrative records, huge backlogs of research data, and department publications.

In conclusion, the workshop noted that solutions to the problems of the identification of literature are being realized, thanks to the bibliographic efforts of the *Population Index*, *Bibliography of Family Planning and Population*, and other recent computerized systems. The group further noted that solutions to the problems of indexing and cataloging materials will be largely solved by the excellent work of Columbia University and the Carolina Population Center in the area of controlling the vocabulary of our field. The group felt that it is now time to explore the possibilities of cooperative acquisition and distribution of literature and to recognize the important role that microfilm can play in the development of a Population Information Network here in the United States and abroad. In keeping with the project orientation of APLIC, perhaps APLIC members could begin to explore and test these possibilities as one way to handle the information explosion.

BIBLIOGRAPHY

American Library Association. *Library Technology Reports*. Chicago, ALA, 1965. (Loose-leaf, with Supplements.) Especially Vols. 2 and 6.

Avedon, Don M. *NMA Standard Glossary of Micrographics*. Silver Spring, Maryland, Natl. Micr. Assoc., 1971 (NMA Publn. MS-100-1971).

Ballou, Hubbard W., ed. *Guide to Microreproduction Equipment*, 5th Edn. Silver Spring, NMA, 1971. Also: *User's Supplement* . . . (Readers and Reader/Printers) . . . 1971. (See also 1st to 4th Edns. and Suppls.)

Ballou, Hubbard W. What to Look for in a Reading Machine. *ALA Bulletin*. 55:67-69, 1/61.

Barrett, W. J. The Evaluation of Microfilm Readers. *Jour. Micr.* 6:51-63, 11/72.

Diaz, Albert James. *Guide to Microforms in Print*. Washington, Microcard Editions (Now: NCR), 1961+ (1970 Ed.: Carol Wade).

_____. *Subject Guide to Microforms in Print*. Washington, Micr. Edns., 1962+.

Lee, Thomas G. *Microform Systems: A Handbook for Educators*. Ann Arbor, Michigan, Michigan Audiovisual Association, 1970.

National Microfilm Association. *Introduction to Micrographics.* Silver Spring, Maryland, NMA, 1973.

_____. *Proceedings . . .* (1st to 18th, 1952-1969).

Rubin, Jack, ed. *International Directory of Micrographic Equipment.* Saratoga, California, Int. Micr. Congrl, 1967. (Available from the Natl. Micr. Assoc., Silver Spring, Maryland.)

Sherman, Alonzo J. How to Select a Microfilm Reader or Reader Printer. *Infor. and Records Manage.* 6:62+, 4/72.

U. S. Library of Congress. *National Register of Microform Masters.* Washington, LC, 1967+.

U. S. National Archives and Records Service. *Microform Retrieval Equipment Guide.* Washington, GPO, (1971). Publn. #7610-181-7579.

Veaner, Allen B. *The Evaluation of Micropublications . . .* Chicago, ALA, (c1971). LTP Publn. #17.

Weber, David C. Specifications for a Superior Microtext Reading Machine. *Amer. Doct.* 16:246-7, 7/65.

Williams, Bernard J. S. *Miniaturized Communications: A Review of Microforms.* London, The Libr. Assoc., 1970.

Serials

American Society for Information Science, Journal. (Formerly: American Documentation.) Esp. the early years.

Information and Records Management. ALSO: Microfilm Techniques (began 12/71).

Journal of Micrographics (1969+).

Microdoc.

Microfiche Foundation Newsletter. ALSO: Publications on the Microfiche.

The Microfilm Newsletter.

Microform Review.

Micrographic Weekly.

Workshop on

FAMILY PLANNING INFORMATION CENTERS

Blanche Horowitz
Katharine Dexter McCormick Library
Planned Parenthood/World Population

Carol Berde
Population Resource Center
Planned Parenthood of Minnesota

Faye Richardson
National Center for Family Planning Services
Department of Health, Education and Welfare

23/24

FAMILY PLANNING INFORMATION CENTERS: PLANNING, DEVELOPMENT, AND OPERATION

Carol Berde

This practical outline is based on the experiences of the Information Section of the National Center for Family Planning Services and the Population Resource Center of Planned Parenthood of Minnesota.

I. MECHANICS OF ORGANIZING, MAINTAINING AND EXPANDING A POPULATION/FAMILY PLANNING INFORMATION CENTER

A. Classification as the traditional library means of storing information

1. A method of grouping materials into subjects, then regrouping related subjects under the umbrella of a larger subject category for the purpose of bringing together all materials that logically belong together.

2. Information stored in a classification can be fact, statistic, title, author, or entire subject.

3. Retrieval of information is achieved by:
   a. identifying the exact subject of search
   b. using the proper guide to locate subject (author, title, or subject catalog)
   c. locating actual documents
   d. locating required information in documents

B. Subject index as the traditional library means of locating information

1. Refers searcher to related subjects in the classification where other useful documents and information may be found.

2. Is especially useful in a multidisciplinary field such as family planning.

3. The Katharine Dexter McCormick Library's Family Planning Classification Index is an illustration of how such a system works.

C. Subject catalog - how extensive can and should it be?

1. A small library with a small collection and limited staff time can get by without a subject catalog. Good retrieval can be attained by using the classification and index to gain entry to subject, and by using title and author catalogs to achieve further accessibility.

2. A subject catalog can be limited to a single card for each book in the collection or can be expanded to as many cards per book as there are subjects discussed in the book.

3. A subject catalog for articles in journals received by the library is often necessary if readers are to be able to locate pertinent, current material quickly. A medium-size library might find useful the system developed by the Population Resource Center:

a. The catalog is a large looseleaf notebook with pages identified by typed headings that correspond to the KDM Family Planning Classification Index (i.e., the same numbers and headings as are used for the vertical files, so that access is gained to the journal subject catalog at the same time that it is gained to the vertical file).

b. Every relevant article in journals received by the library is typed on the appropriate page, or pages, if pertinent to more than one subject.

c. The system can be expanded to include chapters in books that are compilations by several authors on several subjects.

4. The most comprehensive subject catalog contains cards or entries for every item in the library's collection, both book and non-book. Such a catalog is difficult and time-consuming to maintain: it requires a consistent system and constant attention, and should not be attempted unless these are available on a long-term basis.

E. "Should the library a lender be?"

1. Each library will have to decide in the light of its own circumstances if any material circulates and, if so, what types and for how long.

2. The Population Resource Center decided to lend books to the general public on a two-week basis, using the following checkout system:

a. Each book (and each copy of a book, if there are multiple copies) has its own 5" x 8" ruled file card on which are typed the call number, title, and author.

b. These are filed by number (and also serve as a shelf list).

c. The borrower signs the date and his name, address, and phone number on the next available line.

d. The date due is entered on a clip for that purpose pasted in the back of the book.

e. Some persistence has been required, but only 3 books have been lost of the 800 lent out in a year.

3. Journals are easily mislaid forever if they circulate, but their utility is diminished if they simply sit on shelves. One workable compromise is to photocopy the table of contents of all journals received and circulate copies to all staff/satellite offices/clinics/other appropriate locations. Individuals can then request copies of articles they wish to read.

F. Management of film collections

1. Scheduling of film loans/rentals: a large film collection and a large geographic area in which they circulate mean a more complex calendar and scheduling system:

a. allow enough time for transit via the mail

b. encourage pick-ups, rather than mail

c. set up a notebook or card index system, in which enough space is allowed to record the details about the travels of each film individually.

2. If a rental fee is charged, understand the purchase order and billing procedures of the borrower, especially if a school system.

3. Determine criteria , if any, for borrowers (e.g., can students borrow films for use in class without teacher authorization to you?)

4. Care and maintenance of films: a small library, lacking technical expertise, will usually have to arrange with another organization (nearby college, etc.) to have films cleaned and inspected periodically. However, the library should have a simple splicer and equipment to repair torn sprocket holes before they get worse.

G. Acquisition of new materials

1. Sources:

a. Get on mailing lists for acquisitions lists of other population/family planning libraries.

b. Get on mailing lists of book publishers and film distributors (most will send films for free preview if the request is made "with intent to purchase").

c. Get on the mailing list for the McCormick Library's Current Literature in Family Planning, issued monthly.

d. Scan books received, books reviewed, and advertisements in journals.

e. The Bibliography of Family Planning and Population (published by Simon Population Trust, Cambridge, England) is expensive ($18/annually, scheduled to go up) but is an excellent source of papers and articles.

2. Mechanics of ordering:

a. Maintain a card file of books on order, arranged alphabetically by author. Cards for vertical file items on order should also be kept.

b. Similar card files can be kept for:

(1) Material to order (if ordering is done once a month, for example);

(2) Possibilities that require more information or consultation before order is placed;

(3) Material that has arrived (useful if annotated lists of new material are circulated; annotations can be written on the order card and the card transferred to "arrived" section).

c. Ordering several books at once through a library book distributor eliminates a lot of paperwork and often saves money, as these firms frequently give discounts from 5% to 33%, depending on the book. However, it takes between 6 weeks and 3 months to receive books ordered this way. Ordering directly from the publisher is faster but usually more costly.

d. University, medical society or health department libraries will often be able to provide photocopies of articles for a small charge.

H. Scope of collection

1. Should it include articles from popular magazines?

2. Should it include academic journals on medical and/or demographic aspects?

3. Should books be aimed at general readers or serious researchers?

4. Do most people want to take things out (in which case books should be emphasized) or do they have time to do research in the library?

5. Answers depend on what segment of the public the library seeks to serve!

I. Pamphlet and handout material

1. Sources:
   a. Planned Parenthood-World Population, "List of Publications"
   b. Carolina Population Center publications
   c. Others

2. Function of handouts in each information center will determine type, cost, etc., of those available. What is the purpose of providing this form of information in your library?

3. Develop pamphlets of your own if existing ones do not serve your needs.

II. PROMOTING THE POPULATION/FAMILY PLANNING LIBRARY AND INFORMATION CENTER IN THE COMMUNITY AND MEETING COMMUNITY INFORMATION NEEDS

A. Identify your "public"

1. A single facility will have a difficult task if it attempts to provide complete information services for everyone from physicians to casual readers.

2. Decide realistically what groups most need and conveniently can make use of your facilities, based on:

a. your proximity to universities, colleges, medical and nursing schools;

b. the extent of similar collections in college, university, medical society and public libraries (consider also who accessible similar material might be in a large university library - if it is always out or at the bindery, or scattered over several locations, your collection of the same material might serve a very valuable purpose, especially to students in a hurry);

c. the relationship of the library's parent organization with local high schools and church groups;

d. geographic considerations: how spread out is your territory? how convenient is it for people to get to your library? is there public transportation? (This has a great deal to do with use of the facility by high school students.)

e. types of relevant professional groups and associations in your area.

3. Keep records of who uses what in your library and adapt your collection, hours, etc., accordingly:

a. the number of books borrowed;
b. the number of films borrowed;
c. the number of persons using the library, types of information they sought, and their status (student, nurse, etc.)
d. the number of telephone requests, by subject.

B. Groups to make contact with:

1. public librarians
2. high school librarians
3. junior college, college and university librarians
4. welfare departments
5. health departments
6. social service agencies
7. county medical societies
8. teachers of relevant courses at high schools and colleges (consult course catalogs and/or list of teachers requesting speakers from the local Planned Parenthood affiliate).
9. local Planned Parenthood or other family planning agencies
10. hospital outpatient and gynecology departments
11. nursing school deans
12. state or local library associations
13. local chapter of Zero Population Growth
14. local group working with unmarried parents
15. state legislature (if appropriately located), in order to provide information its members need to act on relevant legislation.

C. Kinds of contacts useful in promoting the library:

1. Newsletter, acquisitions list or other form of periodic mailing to keep your library and its services before the eyes of the public. The Population Resource Center uses a statewide mailing list of 800 names, composed generally of persons and groups enumerated above. "From the Population Resource Center" is a quarterly, annotated list of selected new materials in specific fields (population, birth control, sex education, etc.), with repeated invitations to borrow books, even by mail (see D3, below).

2. Colorful posters announcing the existence of the library, to display in local schools, libraries, etc.

3. Series of meetings or open-houses in your library for other librarians, teachers, etc. to acquaint them with your facility and solicit their cooperation in referring patrons to you.

4. Announcements appearing in newsletters and other publications of relevant professional associations and related groups.

5. Information on working relationships with personnel in local family planning clinics.

D. Services the library can render its readers and the community:

1. Prepare bibliographies on given subjects.

2. Photocopy library material (at nominal charge, if appropriate) for persons visiting the library and for persons who cannot come in. Attention to this service will distinguish your library from a similar collection at a public library. Few public libraries, but most specialized libraries, can respond to a reader's telephoned request for "material on the psychiatric consequences of abortion," for example, by photocopying journal articles and mailing them out.

3. Mail books on loan to readers who cannot come in; they may request a specific title or ask the librarian to select a book appropriate to their needs. Most public libraries do not do this.

4. Develop pamphlet and handout materials to fill demonstrated gaps in the literature. "The Planned Parenthood Story," a brief explanation of Planned Parenthood's goals and programs, nationally and in Minnesota, and "Population Facts for Minnesotans" were written by the Population Resource Center to respond to frequent requests from high school and college students.

5. Provide teachers with material to prepare units on relevant subjects. This can be curricula from other schools, material for teacher's background reading, material for classroom use, and films.

6. Develop special educational programs on relevant subjects, designed to make learning a difficult subject easier and to encourage the use of library materials. The Population Resource Center has prepared a program on population and birth control information for high school students; it seems to have had a positive impact (to a degree not anticipated by staff or teachers) on those students who have participated to date.

7. Provide research assistance to persons coming to the library. The specialized library's arrangement of materials and emphasis on journal and vertical file items is unfamiliar to most people; the staff can save a reader much time and often help a less sophisticated student define a manageable topic by guiding him to specific sources.

8. Respond to telephone requests for mailing of library materials, specific facts or statistics, or general information.

9. Assist other professional and community groups in planning programs for which printed or audio-visual resources are required. (Keeping a file of comments on all films previewed and an annotated list of all films in the library's collection is extremely useful.)

FAMILY PLANNING INFORMATION CENTERS: NATIONAL CENTER FOR FAMILY PLANNING SERVICES

Faye Richardson

The mission of the National Center for Family Planning Services (NCFPS) is to provide family planning by 1975 to all persons who want it but cannot afford or do not have access to it.

In line with this goal, the Division of Information and Education of the NCFPS is required to develop and make readily available information including educational materials on family planning to all persons desiring such information or materials. Our emphasis is moving toward education with the production of materials for specific groups. As you know, our services are not for researchers, but rather for the consumers and the program people who provide family planning services.

Specifically, we seek to serve: the general public; potential service providers--the medical community and community organizations; consumers and potential consumers of services--estimated at 6.2 million by 1975 and now numbering approximately 2.3 million; and our staff and present service providers--approximately 350 grantees, and more than 500 clinic locations.

The general public needs to know. General acceptance of a program is essential for its success. Potential service providers are needed. Additional medical and allied manpower is necessary to assure serving all women in need. Private physicians need to know: that family planning is a subject which can and should be raised when advising patients; that patients are often shy about raising the subject of family planning with their doctors; and that family planning is a preventive health measure. Further, consumers and potential consumers of services have the right to know about the availability of services, the nature of the services offered, their rights as patients, and the right to education concerning the services offered by the project. Finally, service providers need guidelines and materials to enrich their programs and fill gaps in community and consumer education.

For the General Public--Continuing Activities and Future Plans

The general public comes to us. We respond to approximately 500-600 public inquiries each month, ranging from students writing term papers to program directors seeking technical information, to questions for which no information is available. We respond to some inquiries with publications, to some letters, and to some verbally. We now have in production several pieces for use in response to inquiries: a pamphlet describing the program of the Center; a brochure on what family planning means to the community; a piece addressed to the parent of a teenager; and posters to make known the location of family planning services, and to encourage discussion of family planning with the private physician.

A multi-media campaign will be launched in the coming year which will include TV and radio spot announcements, and pamphlets to respond to contacts made through the media. A handbook to aid local family planning projects in the effective use of the spots, and in handling inquiries generated by the messages, will also be made available.

For Potential Service Providers

During the past year the Center has sponsored the pregnancy prevention component of a series of conferences on Early Childbearing and Childrearing put on by the Child Welfare League of America. There will be 12 of these conferences for professionals working with young people over a 22-month period...each in a different section of the country. The I & E Division has prepared several hundred packets of materials for each conference, developed bibliographies, and made available reprints on the legality of birth control services in the various States.

Also during the past year, a conference was held to promote family planning in health care settings. A collection of hardware and software was assembled and participants shared various patient education techniques and strategies.

In order to share family planning information with medical students, interns, pharmacy students, and practicing pharmacists, a Medical Reprints Issue of Family Planning Digest will be distributed. Also to encourage professional interest in family planning is a small poster designed for doctors' waiting rooms to "break the ice" in discussing family planning with private patients.

Consumer and Potential Consumers of Services

All the media I have mentioned--the TV and radio spots, posters, pamphlets--are, of course, meant for consumers. Certain groups, however, have not availed themselves of family planning services for a variety of reasons. During the past year, we have funded a series of regional conferences to explore hindrances to services or special problems of minority communities. Packets of materials have been prepared for the 300-400 participants at each workshop.

In the coming year we will look further into other minority concerns. An educational model will be developed for Spanish-speaking communities together with educational materials. A workshop will study and develop educational materials for the American Indian. And another minority--the mentally retarded--will be the concern of a workshop series.

Service Providers

Our reference room at the Center has approximately 100 books, a few journals, several vertical files of articles, reports, newspaper clippings, and other materials. These resources are used primarily by the professional staff, students, potential contractors, contractors, and as back-up materials for speeches or answers to inquiries. In the same building with the NCFPS are: the HSMHA Library, which has quite a large collection of books, journals,

etc.; the FDA Library; and the NIMH Library. All have complete library services such as inter-library loan, literature searches, etc. We at the Center have no real need for anything more than our reference collection of specialized pieces and books. The Planned Parenthood-World Population classification system is used both for books and for the vertical files.

Family Planning Digest, the bimonthly publication prepared under contract for NCFPS by the Center for Family Planning Program Development of Planned Parenthood, is becoming increasingly popular. It is designed for both professional and non-professional persons working at the program level.

Another popular project conducted during the past year was the materials exchange. Briefly, the clinics reporting in to the national reporting system were contacted for locally-produced materials. From among the many excellent pieces we received, a panel selected 17 pieces. Brief write-ups were prepared on the development and use of each; these were included in the packet which was mailed back to those who participated in the project.

Planned for the coming year is a series of communications workshops for several regions. These will consider the individual problems of local service providers and attempt to solve these problems by sharing experiences and technical assistance.

And, finally...also for the service provider...is the in-house newsletter that goes to our staff and clinics. It is an example of one way of meeting an information need that may be adaptable in other situations. Family Planning Memorandum - News Notes and Acquisitions was born of necessity and, like Topsy, "just grew." The frustration of routing current information to those on the staff who need it is a familiar feeling to librarians and information people. An acquisitions list is often the solution. The original Family Planning Memorandum was just that--an acquisitions list. A little at a time it grew. Now it includes news of conferences and workshops, a message from the Director, news from Congress, interesting articles from popular magazines, news from the regional offices--family planning news from the front page to the comics.

First it was circulated just to Center staff; now it goes to grantees, clinics, and others who have requested it. How is it prepared? Simply by putting aside interesting items as they come up and then spending several days putting together the bits and pieces. The simplest reproduction is used. It is typed, and at first was xeroxed. With increased circulation, we turned to in-house offset printing. An anecdote or humorous news item is the last page feature. Here's one of the recent ones;

> The London Express reports that a keen ear for the sound of a woman's voice may be as good as a contraceptive in preventing a pregnancy, according to research done by a scientist at Exeter University. The scientist says that women's voices change at the time of ovulation.

When a woman sings a note in the period just before ovulation she is likely to sing slightly flat. As soon as ovulation occurs, she tends to sing the note slightly sharp. The magazine New Scientist, commenting on the research, says that the discovery could have remarkable effect on Catholic couples with perfect pitch.

The question is, "Does a sharp ear for a flat note aid rhythm?" - or, "Is this a News Note you could do without?"

Workshop on

SCIENTIFIC AND TECHNICAL INFORMATION CENTERS

Helen Kolbe
Population Information Program
The George Washington University

Melvin Weinstock
Institute for Scientific Information

SCIENTIFIC AND TECHNICAL INFORMATION CENTERS:

SPECIAL LIBRARIES, INFORMATION CENTERS, AND INFORMATION ANALYSIS CENTERS

Helen K. Kolbe

Introduction

In the history of libraries and special libraries, the terms "information center" and "information analysis center" are relatively new. These terms are part of the information explosion phenomenon--the proliferation of scientific and technical information that threatens to overwhelm not only the scientists and engineers who use it but also the libraries that handle it. There is a continuing debate among professionals as to the differences between special libraries, information centers, and information analysis centers.

History

Libraries are a part of the history of recorded civilization but special libraries are a recent development dating from the late 19th century. The privately supported John Crerar Library in Chicago, which is probably the world's leading non-academic special library in the pure and applied sciences, was founded in 1895. This library has the further distinction of providing the only centralized source in the United States for the collection and distribution of translations of scientific articles. The National Agricultural Library, the world's largest specialized agricultural library, was formed by consolidating the collections of a number of bureaus with roots in the 19th century. The National Library of Medicine, established in 1836, gradually attained the status of a special research collection under the direction of John Shaw Billings, librarian from 1864 to 1895. By the 1920's this library and the Central Medical Library of Moscow had become the world's two largest medical libraries.[1] In 1929, with the establishment of the Population Reference Bureau, one of the earliest population collections in the United States was begun. Soon after, in 1936, Princeton University's Office of Population Research Library was established.

Twentieth century industrialization and government emphasis on scientific research led to the establishment of thousands of smaller special libraries throughout North America and Europe. Since the end of World War II these special libraries, deluged by rapidly increasing quantities of printed materials, have faced problems for which they had no precedents--increasing cost of space, shortages of trained personnel, increasing salary costs, and the pressing need for more rapid access to materials to meet the demands of the scientific community. In responding to this challenge special libraries began to develop refined techniques of documentation and to adapt technology, originally designed for other purposes, to specialized library operations.

This evolving technology was applied with considerable success, especially in three areas: (1) storage, (2) access, and (3) copying and transmission.

The traditional unit for storage had been the printed book. Microforms and computer storage devices have become successful, though not universal, substitutes. Conventional access to collections had been by indexes, card catalogs and book catalogs. Mechanical sorting devices, such as edge-notched cards and light-coincidence cards, and on-line computer retrieval via remote terminals, have provided new access techniques. Historically, copying and transmission had been accomplished by note-taking and by the lending of documents. Now, photocopying devices, specially designed cameras, high-speed facsimile transmission, and time-sharing computer networks have opened new avenues for copying and transmitting material.

The goal of applying new technology to library operations is to make the appropriate document available in appropriate form, with appropriate speed, to the appropriate user. However, even as recently as 1960, this goal was still elusive. The problems were expanding. Effective utilization of scientific and technical information was becoming a matter of concern to the federal government. On May 27, 1963, Representative Roman C. Pucinski of Illinois, Chairman of the Ad Hoc Subcommittee on Research Data Processing and Information Retrieval, told a Congressional subcommittee:

> The tremendous amount of written material pouring from over 100,000 technical journals is but one of many sources which make it physically impossible for scientists to keep current in their fields. The result is wasteful duplication of research estimated to be up to 50 per cent of our current $15 billion effort in research and development. . . . The tremendous technological explosion which is sweeping the world makes it imperative that this civilization develop more efficient ways of grasping the full meaning of man's intellectual discoveries. . . . and yet it is painfully apparent that the human capacity to absorb knowledge is minisculе in comparison with the fantastic amount of information available . . . for example, the average person reading 12 hours a day, for 50 years, can, at most, read about 16-18,000 technical books in his lifetime. We have about 30 million books in the world today [1963].[2]

The subcommittee recognized that information needs were not being effectively met by existing organizations and suggested a legislative solution. H.R. 1946 was introduced by Congressman Pucinski on January 17, 1963. This bill proposed the establishment of a centralized National Research Data Processing and Information Retrieval Center. Congress did not agree that this was the solution. The bill was rejected.

In the same year, Dr. Alvin Weinberg, Chairman of the Panel on Scientific Information, took a different approach to the problem. In his now famous report, *Science, Government, and Information*, issued by President Kennedy's Science Advisory Committee, he pointed out:

> We believe that the specialized information center, backed by large central depositories, might well become a dominant means

for the transfer of technical information. It therefore behooves the technical community, at this early stage in the proliferation of specialized centers, to learn what makes a good specialized center, and to plan new centers accordingly. Specialized information centers, to be fully effective, must be operated in the closest possible contact with scientists and engineers in the field. The activities of the most successful centers are an intrinsic part of science and technology. The centers not only disseminate and retrieve information; they create new information . . . the Nuclear Data Center that collects and distributes information on the static properties of nuclei contributed notably, for example, to the development of the shell model of the nucleus, one of the major theoretical underpinnings of modern nuclear physics. In short, knowledgeable scientific interpreters who can collect relevant data, review a field, and distill information in a manner that goes to the heart of a technical situation, are more help to the over-burdened specialist than is a mere pile of relevant documents.[3]

At the time of the Weinberg report--only 17 years after the John Crerar Library organized a Research Information Service in recognition of the need for a specialized type of center offering various kinds of information services to industry--there were already 400 information centers in the United States.[4] In July 1964, the Department of Defense, acting on Dr. Weinberg's recommendation, issued instructions for creating, operating, and administering Centers for Analysis of Scientific and Technical Information within the framework of the DoD Scientific and Technical Information Program. By 1966 the DoD had established 22 such centers. The Atomic Energy Commission was operating a total of 14 information analysis centers, 12 of which were already in existence at the time of the Weinberg report.[5]

Definitions

The transition from special library to information center to information analysis center represents a continuum rather than a series of sharply delineated stages. Even today definitions are neither clear-cut nor universally understood. For our purposes, we can, perhaps, best define them by identifying the functions most frequently performed by each.

A special library maintains a specialized collection designed to serve a specialized clientele. Special libraries are usually associated with industrial organizations, academic institutions, professional associations, research institutes, public libraries, government agencies, hospitals, and similar parent organizations. The broad functions of a special library have been outlined by Lucille Strauss in her book, *Scientific and Technical Libraries: Their Organization and Administration.*[6] Among these functions she includes:

1. Development of a collection of books, periodicals, and other publications;
2. Maintenance of special subject references, files, and indexes;

3. Dissemination of currently published information by means of personal notifications, preparation and distribution of library bulletins, and provision of special service publications;
4. Circulation of books and routing of periodicals;
5. Filing and indexing of internal reports and technical correspondence;
6. Maintenance of reference services;
7. Compilation of bibliographies and organization of reports;
8. Editorial assistance with publications;
9. Translation of foreign language publications; and
10. Personalized service of various types.

An information center performs many of the functions of a special library but differs in the kinds of services it provides. Information centers frequently prepare bibliographies, indexes, and abstracts, as do special libraries, but, in addition, they may also provide data in response to queries instead of providing the surrogates in the form of bibliographic information or actual documents. Retrieval of documents is not the same as retrieval of information. A technical specialist usually needs the information contained in the document, not necessarily the document itself. Thus, retrieval of information as contrasted with retrieval of documents is one of the services that distinguish an information center from most specialized libraries. Implicit in this kind of service is the ability to evaluate and interpret information. This function requires special staff qualifications. Personnel must have a working knowledge of the subject matter, as well as a knowledge of the fundamentals of library science. In many cases, librarians find themselves becoming information specialists, and, in other cases, information specialists find themselves becoming librarians.

Information centers can be specialized in various ways. Allen Kent, in his book *Specialized Information Centers*,[7] has outlined some of them:

1. By subject field covered, e.g., chemistry, physics, electronics; this variable is subject to many spectra of interpretations, not only with regard to subject field covered but also with regard to scope of coverage of the subject field; thus a "special information center" may cover chemistry or organic chemistry, or organic chemical compounds, or physical properties of organic chemical compounds, or thermophysical properties of organic chemical compounds, etc.

2. By type of source material, e.g., patents, company reports, government reports, dissertations, published technical papers, newspapers, etc.

3. By number of people served, e.g., individual scientists, research group, company, government agency, country, etc.

4. By geographic origin or location of: (a) source material, (b) clientele.

5. By type of service provided, e.g., current awareness searches, retrospective searches.

This illustrates the great variety of differences that exist among information centers.

Information analysis centers were defined by G. S. Simpson in 1962[8] and by E. L. Brady in 1967.[9] In combining their definitions, we find that an information analysis center exists for the purpose of preparing authoritative, timely, and specialized reports of an evaluative, analytical, monographic, or state-of-the-art type. In addition to selecting, acquiring, storing, retrieving, evaluating, and analyzing, the center must synthesize a body of information and repackage it in the form that will be most useful to the clientele it serves. The staffing requirements and mission orientation of an information analysis center may be similar to those of an information center, but, in addition, it must be prepared to create and market new products.

To summarize, we might say that in a special library the patron retrieves information for himself; in an information center, the center retrieves information for the patron; and in an information analysis center, the center synthesizes information for the patron.

As stated earlier, these distinctions are neither universally understood nor universally accepted. A review of the recent literature reveals a continuing debate. Edward Strable[10] brings the debate into focus in an editorial in the November 1972 issue of *Special Libraries*. He reviews four recent articles that are representative of the controversy: (1) Eugene Jackson,[11] writing in the May-June 1971 issue of *Special Libraries*, points out what he considers to be some clear-cut differences between special libraries and information analysis centers. He summarizes by saying that special libraries operate *with* information, and information analysis centers operate *on* information. (2) Judith Douville,[12] writing in the May-June 1972 issue of the *Journal of the American Society for Information Science*, presents an interesting study of the unique relationships that do or could exist between the traditional special or company library and the modern technical information center. She pointedly disagrees with those who believe that special libraries will either disappear with the increase in numbers of information centers or will be absorbed by them. She feels that a mutually beneficial symbiotic relationship can exist. Centers should draw upon the collections of material available in libraries that may not always be, and probably should not be, duplicated by the centers. Libraries should in turn draw upon the specialized personnel and resources of centers for answers to specific requests for specialized information or data. Such a relationship would maximize the use of the resources of each while avoiding much costly duplication. (3) David Garvin,[13] writing in *Special Libraries*, January 1971, discusses the complementary functions of special libraries and information analysis centers and proposes that the special library can and probably should perform information gathering functions for information analysis centers. Their roles, he believes, are complementary, not competitive. The gathering of information is essential to the work of an information analysis center but it is subordinate to the primary function of analyzing the material. Libraries have the expertise required to acquire, organize, and control material. Information analysis centers have the expertise to evaluate, analyze, and reorganize information authoritatively.

He proposes that information analysis centers should rely on special libraries to gather information, and special libraries should use information analysis centers as an extension of the resources of the library; first, by using the output of the centers, such as handbooks and critical monographs, and second, as referral resources when the former fails to supply adequate information. (4) In the July-August 1972 issue of *American Libraries*, Bill Woods[14] reviews two decades of special librarianship and observes that information centers, information analysis centers, and information dissemination centers and systems may replace special libraries unless there is an aggressive attempt by special librarians to redefine their role in information activities.

In a reply to Strable's editorial, Samuel Sass[15] takes issue with what he calls the "Great Library/Information Center Debate." In a letter appearing in the February 1973 issue of *Special Libraries*, he insists that special libraries have always performed those functions now attributed to information centers. In his opinion the controversy came about chiefly because the word "library" is in current disfavor in a hardware-oriented world.

The dichotomy *may* exist more in the minds of the professionals than in actual or potential performance. Everyone who examines the operations of special libraries, information centers, and information analysis centers will find considerable overlap in functions. "Whether library or center, all designate an interest in the literature, its generation, publication, dissemination. The generality may help to explain why some institutions such as the Library of Congress, the National Agricultural Library and the National Library of Medicine, etc., find that placing an information center totally within the established structure was not as difficult as previously imagined."[16] Whether they are allies, competitors, or forms of replacement is still a matter of debate and the debate is certain to continue for some time to come.

Conclusion

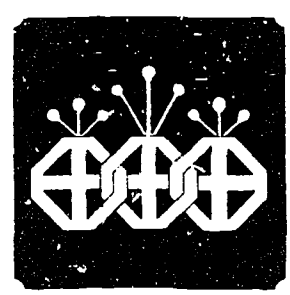
Within the Association of Population/Family Planning Libraries and Information Centers (APLIC) we have all three kinds of organizations represented. Regardless of organizational names, some function as special libraries, some as information centers, and some as information analysis centers. For example, the Population Information Program at The George Washington University, is an information analysis center. It collects, analyzes, evaluates, and synthesizes information in the form of a series of authoritative reports on new developments in contraceptive technology. The reports are prepared for a special clientele in the less developed countries. It is specialized both by subject matter and by geographic location of clientele.

Today, there are approximately 37 special libraries, information centers, and information analysis centers in the United States, and many more internationally, that are actively involved in the collection and dissemination of information on population and family planning. Each has a

different scope and different objectives, but all are related and some areas of interest overlap. Each operates as an independent system and also as a component of a loosely defined informal network in the manner described by Melvin Weinstock[17] in the May-June 1967 issue of *Special Libraries*.

APLIC serves as the focal point, a kind of umbrella organization to reinforce the communication lines in the informal network. It facilitates the exchange of ideas and information through meetings, publications, and projects. Another appropriate area of concern for APLIC may be the strengthening of the informal network by engaging in cooperative ventures in information storage and retrieval. Such a formal network could then provide nationwide, and indeed worldwide, comprehensive rapid access to population/family planning information. The Population Information Program is presently establishing a computer-based system with network communication potential which can become the nucleus of a formal world-wide information network.

In conclusion, let me leave you with this thought. I have talked about information and systems devised to handle information. Information handling is, of course, accomplished by means of systems, but systems must be based on people rather than on techniques or machines. It is the human element that makes it all work.



References

1. Thompson, L. S. Libraries: modern history since 1600. In: Encyclopedia Americana, Vol. 17. New York, Americana Corporation, 1962. p. 361.

2. Pucinski, R. C. Opening statement at the first hearing on H.R. 1946 held May 27, 1963, Washington, D.C. Cited in: Kent, A. Specialized information centers. Washington, D.C., Spartan Books, 1964. p. 4.

3. Weinberg, A. M. Science, government, and information. A report of the President's Science Advisory Committee. Washington, D.C., Government Printing Office, January 10, 1963. p. 33.

4. McGowan, J. The library and the technical information center. In: Elias, A. W., ed. TICA 2. Proceedings of the second conference on technical information center administration, St. David's, Pennsylvania, June 14-17, 1965. Washington, D.C., Spartan Books, 1965. p. 59.

5. AEC and DoD information analysis centers. Special Libraries 57(1): 21-34. January 1966.

6. Strauss, L. J., Strieby, I. M., and Brown, A. L. Scientific and technical libraries: their organization and administration. New York, Interscience Publishers, 1964. p. 15.

7. Kent, A. Specialized information centers. Washington, D.C., Spartan Books, 1964. p. 21.

8. Simpson, G. S. American Documentation 13:43. 1962. Cited in: Garvin, D. The information analysis center and the library. Special Libraries, January 1971, p. 18.

9. Brady, E. L. Proceedings of the Forum of Federally Supported Information Analysis Centers. COSATI, Washington, D.C., Nov. 7-8, 1967. (PB 177 051) Cited in: Garvin, D., ibid., p. 18.

10. Strable, E. G. Dear SLA members: let's talk together some more. Special Libraries 63(11): 7A. November 1972.

11. Jackson, E. B. Toward information centers. Special Libraries 62(5/6): 238-241. May-June 1971.

12. Douville, J. A. Technical information centers: specialized services to science and technology. An overview. Journal of the American Society for Information Science 23(3): 176-184. May-June 1972.

13. Garvin, D. The information analysis center and the library. Special Libraries 62(1): 17-23. January 1971.

14. Woods, B. M. Two decisive decades: the special library concept of service. American Libraries 3(7): 759-768. July-August 1972.

15. Sass, S. The great library/information center debate. [Letter to the editor] Special Libraries 64(2): 6A-7A. February 1973.

16. Painter, A. F. The role of the library in relation to other information activities: a state-of-the-art review. TISA Project Report No. 23. Bloomington, Indiana, Indiana University Graduate Library School, August 1968. p. 26.

17. Weinstock, M. Network concepts in scientific and technical libraries. Special Libraries 58(5): 328-334. May-June 1967.

Selected Additional Citations on Scientific and Technical Information Centers

1. Elias, A. W., ed. Technical information center administration. Proceedings of the conference held at Drexel Institute of Technology, Philadelphia, Pa., June 15-17, 1964. (Drexel Information Science Series, Vol. 1.) Washington, D.C., Spartan Books, 1964. 171 p.

2. Elias, A. W., ed. TICA 2. Proceedings of the second conference on technical information center administration held at St. David's, Pennsylvania, June 14-17, 1965. (Drexel Information Science Series, Vol. 2.) Washington, D.C., Spartan Books, 1965. 169 p.

3. Elias, A. W., ed. TICA 3. Proceedings of the third conference on technical information center administration held at Philadelphia, Pa., August 29-September 1, 1966. (Drexel Information Science Series, Vol. 4.) Washington, D.C., Spartan Books, 1967. 135 p.

4. Patashnik, S., comp. Operational aspects of information centers: a preliminary bibliography. Washington, D.C., Biological Sciences Communication Project, March 1967. (Covers the years 1958 through 1967. Available from: Biological Sciences Communication Project, The George Washington University, 2001 S Street, N.W., Washington, D.C. 20009.)

5. Shilling, C. W. Requirements for a scientific mission-oriented information center. American Documentation 14(1): 49-53. January 1963.

SCIENTIFIC AND TECHNICAL INFORMATION CENTERS:

INFORMATION AND INFORMATION SYSTEMS

Melvin Weinstock

reported by Nancy Lambert and Susan Kingsley

Mr. Weinstock began by defining information and information centers. Information is the meaning ascribed to symbols; it is not the physical objects on which these symbols are stored. The librarian is concerned, not with "facts," but with bibliographic entities. Information systems provide what is asked for, whether or not it is "true." An information system is a file of documents and information items, an index to that file, a way of producing and searching the index, and a way of displaying the results of that search. This definition is subject-independent and machine-independent.

Different kinds of information systems are actually different ways to manipulate indexes faster and to do more complex types of searching than would be possible manually. Five kinds of mechanized information systems can be distinguished in terms of their hardware: (1) Uniterm systems; (2) Edge-notched card systems; (3) Internally punched cards, including optical coincidence cards and Hollerith cards; (4) Information stored on computer tapes and discs; and (5) Micrograph searching systems. The last two can be used in on-line systems and can serve multiple users.

The most common mechanized information system is #4, the computer-based system. This system can do reference searches of data bases on request, search on specific topics to produce selective bibliographies, or do a combination of the two (the most frequent demand). Both current awareness services and retrospective searches of existing files can be done. Some current awareness services are accession lists, Selective Dissemination of Information (SDI) systems through individual interest profiles, and on-line retrieval of current citations of special interest.

There was some discussion of manual vs. mechanized reference services. It was emphasized that manual tools are still needed. Computer systems are unlikely ever to be able to serve a general question-answering function, because the machines are limited to character-by-character matching with stored material. Many reference functions are much more expensive and even slower by computer than they are manually.

Mr. Weinstock described the Institute for Scientific Information's SDI system. The user has to create his own interest profile, which amounts to defining his problem linguistically. This has sometimes proved difficult; and ISI has created standard user profiles to which scientists can fit their own interests. The same thing is being done now in the social sciences.

Workshop on

THESAURUS DEVELOPMENT AND USAGE

Kathryn H. Speert
International Institute for the Study
of Human Reproduction
Columbia University

Stanley Jablonski
National Library of Medicine

Caroline Lucas
Technical Information Service
Carolina Population Center

Jo Brooks
Institute for Sex Research
Indiana University

THESAURUS DEVELOPMENT AND USAGE

reported by Stanley L. Helgeson

The first portion of the workshop was devoted to descriptions of thesaurus development and usage. Two major considerations underlying thesaurus development were noted. First, a thesaurus is necessary, especially if computer searching is anticipated. Second, the time, cost, and effort required to develop a thesaurus are usually underestimated.

Stanley Jablonski, of the National Library of Medicine, described several of the problems and considerations involved in his work in developing a microthesaurus as an extension of MeSH. A primary consideration is whether computer or manual searching is to be used. For computer searching, thesaurus development is needed in advance of indexing. For manual searching the thesaurus can be developed as the literature is indexed. The thesaurus will be influenced by the size of the data base and by the specialization of the documents to be indexed.

In beginning work on a thesaurus, sources such as existing thesauri and bibliographies should be reviewed to provide an indication of the necessary framework. Both the usage and the frequency of terms should be considered to identify terms for the thesaurus. Whenever possible, development should begin with an existing structure. In this way Mr. Jablonski began with the MeSH thesaurus and developed a microthesaurus as an extension and expansion of MeSH to meet the needs of his indexing. Such a thesaurus thus becomes a specialized section of the MeSH framework.

Kathryn Speert, of the International Institute for the Study of Human Reproduction, described her work in thesaurus development. MeSH was again the basic framework and specialization resulted from the fitting of new terms into the existing structure. New terms were generated as the indexing of the literature dictated. The result is a specialized thesaurus which is compatible with MeSH

For ease in manual searching, a card file was established with documents listed by accession number for each descriptor in the thesaurus. By setting the descriptor card up with ten columns, one for each of the terminal digits in the accession number, rapid searching with coordinated terms is possible. This also permits easy checking of the frequency of term usage. The upper limit for such a file is considered to be 10,000 documents. A collection larger than this creates a file too bulky to be easily searched. However, it appears likely that a collection exceeding this limit would justify the need for computer storage and retrieval capabilities.

Caroline Lucas, of the Carolina Population Center, noted that documents at the Center were such that broad coverage was needed, requiring the development of a special thesaurus. Again, the basic assumption was made that an

existing structure be used whenever possible. Because the thesaurus in this instance is required to include basic social, economic, and demographic data, several different views with respect to term usage are apparent. It follows then that careful attention to defining terms as they are included is needed to provide for clarity of thesaurus structure. There is also a need for recording the frequency of term usage to determine the indexing value of each term. A basic problem is the conflict between classification and thesaurus development as documents come in. For input purposes, a set of subject headings with a listing of accession numbers will suffice. For retrieval purposes, however, more specific terminology is needed.

Jo Brooks, of the Sex Research Institute, reported on thesaurus development at the Institute. Because the collection is so broad, covering nearly all fields, no existing thesaurus was satisfactory. Development is proceeding by definition of terms with scopes of usage and interrelationships within the hierarchical structure being established. Because only manual searching is possible, a large number of pre-coordinated terms are used. The hierarchy of the thesaurus will permit computer searching at some time in the future.

Following the presentations, participants discussed various aspects of thesaurus development and usage, and problems related to retrieval for answering questions. While the use of a listing of initial terms seemed feasible, it appeared that these terms should be included in the thesaurus as usage dictated. Input of these new terms should include definitions and scope limitations to fit them properly into the structure. The need for updating the thesaurus by purging or substituting terms was noted. With smaller collections this can be accomplished rather readily; with larger collections the task is much more difficult and may, in some cases, be virtually impossible. Clearly the input of terms should be undertaken with some care.

In retrieving information, considerable time and effort can be saved by establishing a search strategy. While small collections can be searched relatively fast on a term-by-term basis, larger collections require that the searcher keep the hierarchical structure in mind for efficient retrieval. Since information retrieval increasingly depends on the structure of the thesaurus, shelving of documents is likely to be increasingly on an accession number basis. User browsing will, in many cases, become limited to browsing the files rather than the stacks.

Workshop on

INTRODUCTION TO COMPUTER USAGE

Carl Gray
Bureau of the Census

INTRODUCTION TO COMPUTER USAGE

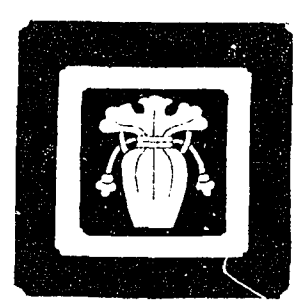
Carl Gray

Computers, sometimes defined as total or complete information processing machines, are characterized by accuracy, capacity, speed, and versatility - and by the fact that their programs, or processing schemes, are stored internally. However since there is such a wide variety of these devices not all computers possess all of these qualities, and other devices, which are not computers possess all of these qualities. Therefore the term "computer" is used here in its "typical" sense.

Over the last 20 years or so since the computer has been a fact internal processing speeds have begun to approach the speed of light. Capacity, or internal storage, has increased to the extent that it is even conceivable to store all "knowledge" in one computer. Although overstated the point is that storage capacities are large and will become immense in the near future.

Computer versatility is not as broad a concept as one might hope for. The inherent ability of a computer to judge or interpret (conceptualize, classify, recognize patterns, etc.) is probably not up to the level of the earthworm.

While "knowledge" is finite, its classifications, or patterns of organization, may be infinite. Furthermore languages are used to describe these patterns and languages are dynamic. There it is only the librarian who can classify and reclassify information in our changing environment; the machine can only lend a hand.



Workshop on

COMMUNICATION AND INFORMATION SERVICES

William O. Sweeney
The Ford Foundation

Bates Buckner
Technical Information Service
Carolina Population Center

Sumiye Konoshima
Communication Institute
East-West Center

Karen Wilhelm
The Ford Foundation

COMMUNICATION AND INFORMATION SERVICES

reported by Karen Wilhelm

APLIC members are involved in various capacities in the process of providing population information, either written or oral. They are also active users of population information. As providers, APLIC members, as well as other information specialists in the population field, are faced with the persistent problem of getting the right information to the right audiences. As users of population information, APLIC members need to know what organizations provide the type of information they require and how to obtain this information in a useable form.

These same concerns, which are far more acute in the developing world where access is limited, were the subject of an informal meeting of a group of population information disseminators in New York in April 1973. The intent of this APLIC workshop was to share with APLIC members the results of the New York meeting and to encourage suggestions on and participation in the work of the disseminators' group.

William Sweeney opened the meeting by stating that discussion would focus on the possible development of an international handbook of agencies disseminating population information and the role this handbook could play in promoting linkages among the disseminators and users of population information. Mr. Sweeney then read the following paragraphs from a memorandem prepared for the APLIC workshop by Karen Wilhelm, describing the thought behind the handbook and its possible use:

> At a recent meeting of the informally designated Committee on the Dissemination of Population Information in New York, two important issues were identified as being central in solving the persistent problem of getting the right population/family planning information from the disseminators to the right audiences. (1) We need to know who the audiences are, what they want, and how they want their materials presented. (2) We also need to know what organizations presently disseminate population and family planning information to any substantial degree and what are the subject areas in which a given organization disseminates information. When this information has systematically been gathered, we can begin to talk logically about encouraging and developing linkages among the disseminating agencies and between the disseminating agencies and the audiences for population information.
>
> The development of a handbook, listing and describing the existing dissemination agencies and systems in the world, was suggested as a practical first step in studying the possible linkages between these agencies. At the same time, the handbook could be used as a guide for audiences in answering questions on their information needs. If, for example, the handbook were to accompany a well-designed questionnaire,

recipients could determine from the handbook how well their information need can be served by the existing dissemination agencies and inform us on the gaps in current resources. As a first step in thinking about a handbook, I have compiled a list of agencies (Appendix I), primarily from the International Directory of Population Information and Library Resources, which in my estimation have a substantial resource of population/family planning information and disseminate this information to a wide international audience.

Discussion then turned specifically to the two information issues described in Ms. Wilhelm's memorandum:

1. Identifying what organizations presently disseminate population/family planning information:

Ms. Wilhelm reviewed how she constructed the preliminary listing of handbook entries and the criteria for inclusion (see Appendix I). Later in the workshop discussion, the following suggestions were made on the contents of the handbook:

- The handbook is largely Western, with a UN component, and should include more institutions from the developing countries. Mr. Sweeney commented that although the draft listing was missing several obvious institutions, such as the Indian Institute for Mass Communications, we do not really know of other resource bases that have the capacity to collect and disseminate.

- A listing of highly specialized agencies, in such areas as social work and sex counseling, should be included.

Ms. Wilhelm reviewed with the workshop participants a possible list of topics for inclusion in a handbook questionnaire (Appendix II) for the disseminating agencies.

At this point Mr. Sweeney indicated that an end result of the handbook project might be the formation of some kind of agency, probably a small office, that would serve as a reference point for programs looking for certain kinds of information. He emphasized that this would not be a clearinghouse. The agency would never attempt to provide hard data but would refer requestors or make contact with the specific agencies capable of supplying the hard data. The aim would be to develop a more sophisticated ways of linking disseminators with program people.

Mr. Sweeney raised the question of the location of the proposed reference agency. Since the International Directory has become increasingly better known,would the Carolina Population Center house the Agency? Bates Buckner stated that the Carolina Population Center was working on a second edition of the International Directory and that they were particularly interested in expanding the section on information services. The East-West Communication Institute (EWIC) is another excellent possibility. The EWIC has already established an extensive data base in information, education, and communication, and would have the expertise to operate the reference agency. Should this

project be handled by a U. S. agency or would it be better to place it in a developing country? The appropriate location of the agency should be an essential consideration as serious discussion ensues on the development of the handbook.

2. Who are the audiences, what do they want, and how do they want their materials presented?

In a five-week trip to Asia, Sumiye Konoshima sought first-hand to determine the answers to these important questions from requestors of the materials in information, education, and communication (IEC) provided by the East-West Communication Institute (EWCI). Specifically, she wanted to access (1) the type of people using the EWCI materials, (2) how they were using the materials, and (3) the potential for having these materials disseminated further.

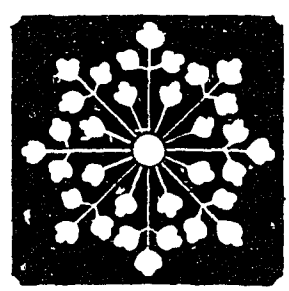
The principal users of the EWCI materials were professionals responsible for IEC activities in action programs, research institutes, international agencies, and training institutes. More specifically, they were

- people organizing seminars and workshops
- faculty doing research and teaching courses
- graduate students working on specific communications research projects
- technical staff planning communications programs
- trainers using materials as illustrations in training programs.

In her interviews Ms. Konoshima tried to elicit suggestions on how the EWCI materials and services could be improved. She summarized these suggestions as follows:

- Summarize and condense lengthy technical and research reports (e.g. for the busy administrator).
- Interpret technical, specialized reports, using simplified language understandable to the non-specialist (e.g. for field training).
- Translate selected documents into local languages to increase potential use by broader spectrum of program staff.
- Find data on audio-visual materials which can be used as prototypes for developing program materials.
- Prepare annotated lists of documents and bibliographies of available materials on special subjects.
- Training people in how to acquire, organize, process, and disseminate the appropriate information and materials to the appropriate countries.

To summarize the workshop discussion, it was evident that there is a real need to link present disseminators of population information with program people. Whether the proposed linking agency should be built into an existing organization or be a separate entity, whether it should be U.S.-based or based in a developing country, are questions that still require considerable thought. The answers will revolve around who the users of the agency's services will be and what types of information they will want in terms of an agency's capacities to provide the information.



APPENDIX I

Resource Bases for Population and Family Planning Information

Sources: + International Directory of Population Information and Library Resources

East-West Communication Ins' tute, Information, Education Communication in Population. International Assistance.

0 Other Sources

Attached are descriptions of the information dissemination activities of most of the agencies in the following list. The sources of these descriptions are indicated by the above symbols.

Criteria for Inclusion:

A) Agencies having a substantial resource base of population and family planning information and a sophisticated dissemination system (automated or not) providing information to a wide international audience.*

B) Sophisticated, established information systems into which population/family planning information could logically be entered.

* * * * * * *

A) Agencies having a substantial resource base of population and family planning information and a sophisticated dissemination system providing this information to a wide international audience.

0 1. United Nations system
+ a) United Nations Department of Economic and Social Affairs
b) Centre for Economic and Social Information (CESI)
+ c) United Nations Economic Commission for Africa (ECA)
+ # d) Economic Commission for Asia and the Far East (ECAFE), Clearing House and Information Section, Population Division
+ e) World Health Organization, Geneva (WHO)
+ i. WHO Regional Office for Southeast Asia
+ ii. WHO Regional Office for Europe

* Many agencies listed in the Directory have substantial collections of important population information but because they have not yet developed the capacity to disseminate to wide audiences, they are not included in the listing at this stage.

+ # f) United Nations Educational, Scientific, and Cultural Organization (UNESCO)
g) International Labor Organization (ILO)
0 h) Food and Agriculture Organization (FAO)
i) United Nations Children's Fund (UNICEF)

+ 2. International Planned Parenthood Federation, London, and Regional Offices
+ a) Planned Parenthood-World Population, New York
+ i. Center for Family Planning Program Development, semi-autonomous technical assistance division of PP-WP
+ ii. PP-WP Washington Office
+ b) IPPF Africa Region Office, Nairobi
+ c) IPPF Western Hemisphere Region, Inc., New York
+ d) IPPF Western Pacific Region, Japan
+ e) IPPF Southeast Asia & Oceania Region, Kuala Lumpur, Malaysia
f) Europe and Near East Region. London
g) Indian Ocean Region, Pakistan

3. East-West Center
+ 0 a) East-West Communication Institute
+ b) East-West Population Institute

+ 4. Pan American Health Organization (PAHO)
a) PAHO, Regional Library of Medicine, Sao Paulo, Brazil

+ # 5. Population Reference Bureau, Washington
+ a) PRB, International Population Programs, Bogota, Colombia

+ 6. The Simon Population Trust, Cambridge, England

+ 7. Reproduction Research Information Service, LTD., Cambridge, England

8. U.S. Department of Health, Education, and Welfare
+ a) Center for Disease Control, Epidemiology Program, Family Planning Education Activity
+ b) Center for Population Research, National Institute of Child Health and Human Development, National Institutes of Health (NIH)
+ c) National Center for Family Planning Services, Health Services and Mental Health Administration (HSMHA)
+ d) National Center for Health Statistics, Health Services and Mental Health Administration (HSMHA)

+ 9. California Institute of Technology, Caltech Population Program

+ 10. The Population Council

+ 11. Association for Population/Family Planning Libraries and Information Centers, Inc. (APLIC)

+ 12. Carolina Population Center, University of North Carolina at Chapel Hill

+ # 13. Population Crisis Committee

+ 14. U.S. Department of Commerce, Social and Economic Statistics Administration

+ 15. Organization for Economic Cooperation and Development (OECD)

+ 16. Karolinska Institute, Biomedical Documentation Center

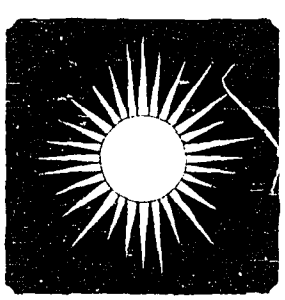
0 17. Population Information Program, George Washington University

B) Sophisticated, established information systems into which population/family planning information could logically be entered.

+ 1. ERIC Information Analysis Center for Science, Mathematics and Environmental Education.

+ a) Education Research Information Center (ERIC), Clearinghouse for Social Studies/Social Science Education (ERIC/CHESS)

2. United States National Library of Medicine, Medical Literature Automated Retrieval System (MEDLARS)



APPENDIX II

POSSIBLE TOPICS FOR INCLUSION IN HANDBOOK

1) Name of Organization

2) Address

3) Name of information office/component

4) Name and title of head of information office/component

5) No. of full-time and part-time employees in information office/component

6) Description of organization, tying in population information activities

7) Audience(s) for information disseminated

8) Countries (regions) to which information disseminated

9) Sources of material disseminated

   a) Own publications

   b) Publication from other organizations

10) If own publications disseminated,

   a) list regular publications and describe briefly other publications produced

   b) indicate whether unsolicited manuscripts accepted for consideration

11) List general subject areas of materials disseminated

12) Describe dissemination schedule

13) Indicate how, if at all, requests for information from individuals or organizations outside regular audience(s) are handled.

Workshop on

REFERENCE SOURCES AND COMPUTERIZED BIBLIOGRAPHIC RETRIEVAL

Barbara Glouchevitch
Population Index
Princeton University

Irene Goddard
Caltech Population Program

Charlotte Kenton
National Library of Medicine

69/70

REFERENCE SOURCES AND COMPUTERIZED BIBLIOGRAPHIC RETRIEVAL:

POPULATION INDEX

reported by Barbara Glouchevitch

The workshop on reference sources and computerized bibliographic retrieval began with a description of the operation of one particular reference source that is not at present computerized, *Population Index*. An explanation of its coverage and classification of materials was given, as well as some insights into its methods of access to information sources and its methods of bibliographic control. It was pointed out that the *Index* reflects in large part the interests of the Office of Population Research at Princeton University, concentrating on scientific studies in demography and dwelling only on some of the broader aspects of family planning. A list was provided giving the subject classification system of the Bibliography Section of the *Index*, including the descriptive headnotes for each subject category and some additional notes describing material that is considered to be of only marginal interest (Appendix A). It was pointed out that these statements are guidelines at best, and an item-by-item check of the *Index* would undoubtedly reveal cases where they were not followed, particularly with regard to geographical areas from which little is heard. The workshop participants were reminded that *Population Index* attempts to cover world literature on population in the major western languages and whatever material in other languages can be accomodated given the restrictions of staff, time, and funds.

The discussion then turned to the several kinds of publications indexed and the problems posed by each. These are divided into: serials, including bibliographies and primary journals; irregular serials and serial monographs; official publications containing primary statistical data, which fall into various publication categories; and individual monographs or books.

The wide variety of bibliographies consulted was described and the observation made that while it might be easier to work only with well-organized and thoroughly reliable compilations, the hastily assembled, sometimes incomplete, library acquisitions lists frequently turn up valuable information as well. A list of bibliographies, often the definitive ones in an area related to population studies, is given in the headnotes to the appropriate broad subject areas in each issue of the *Index*. Bibliographies are frequently used as a take-off point for further searching by the *Index* staff.

Primary journals consulted are also listed in the annual cumulative issue. It was mentioned that such a list must not be allowed to stagnate but should be constantly reviewed for timeliness and overall contribution to the field. Individual studies are cited from these journals and those

which contain bibliographic or review sections provide additional material for citations.

Irregular serials and serial monographs come to the *Index* from a number of sources. Certain series are routinely received and cited, others are routinely received and selectively cited, and others simply noted from secondary sources. The difficulty of keeping track of appropriate material in a series whose coverage is not primarily the field of population was noted. A list was provided giving the principal series covered by *Population Index* (Appendix B).

Official publications containing primary statistical data were described and the problems of bibliographic control detailed, particularly for censuses. Related to this type of publication are the various publications beginning to emerge in connection with the continuing sample surveys or inquiries now being conducted in many Third World countries. It was noted that these publications tend to appear in the form of irregular series at present but that we might be on the lookout for more formal series (annual, quarterly, etc.) and possibly for some large retrospective studies in the near future.

A large proportion of the book materials cited by the *Index* are edited collections of studies by individual authors. The *Index* attempts to provide detailed breakdowns whenever possible for publications of this sort. Conference or symposium papers make up another important group of monographs and the difficulties of tracking down this sort of publication were mentioned.

Grateful acknowledgement was made to all the libraries that cooperate with *Population Index* in its search for appropriate material for citation in the Bibliography and in its efforts to describe the material accurately. The hope was expressed that this type of cooperation in the field would continue and expand.

* * * * * * *

The first question from a workshop participant concerned the time-lag from the publication date of a book or article to the date of citation in the *Index*. The speaker mentioned the recent successful efforts of the *Index* to improve its scheduling and its hope that, with its quarterly publication schedule, domestic material at least would be cited within three months of receipt.

Another question concerned the selection of "appropriate" material for citation and the speaker answered that the *Index* was guided in this area by past practice and the advice of the staff of the Office of Population Research.

Another participant criticized the lack of second authors in the 1935-1968 cumulation of the Bibliography of *Population Index* published by G. K. Hall. She expressed the hope that this would be rectified in any future supplements. The speaker emphasized the possibility that such a supplement

would be produced by computer and could easily provide such information.

A fourth question related to the fact that the *Index* does not cite unpublished material. The need for quick access to some of this data was noted; however, other participants pointed out the difficulties involved in describing and obtaining such material.

Appendix A

POPULATION INDEX: BIBLIOGRAPHY SECTION

Population Index attempts to cover the central core of demographic literature in Western languages. Within the scheme of topics under which the bibliography is organized, a number of topics with particularly voluminous publications that are adequately indexed in special bibliographies are lightly covered. These topics include: local history, spatial theory, urban studies, epidemiology, morbidity, therapeutic programs, physiology of reproduction and fertility control, administrative procedure, labor force and manpower studies, conservation of resources, economic planning, human genetics, professional and individual ethics, opinion research, and various proposals for social change. The bibliography headnotes in the topical sections are to indicate the nature of these exclusions and the bibliographies that provide the wider coverage.

In addition to exclusions on the criterion of topic, selection favors substantive studies of primary data by analytical methods. This means that works consisting primarily of routine statistics, summary notes, compilations of secondary source material, problem-oriented discussions, normative studies, and popularizations are, as a rule, not recorded. A further exclusion reduces the number of studies of limited scale, whether numerical or geographical, to those in which the connection with larger problems is made explicit. In the case of official statistics, those serial publications that appear d in the checklist in Vol. 34, No. 4, of *Population Index* (pp. 481-512) are noted in this bibliography only when they contain some special feature.

Subject Classification

A. GENERAL POPULATION STUDIES AND THEORY

This division contains references to works of comprehensive scope. Discussions that are limited to well-defined problems of demography are cited in the first instance under the relevant topic and are represented here by cross-references.

A. 1 General

This section includes: surveys of the present status of demography, and its principal branches, and the historical development of these studies; critiques of the contributions of individual demographers, past and present; activities of research institutions in demography; serial monographs, analytical studies of demography, and book-length regional analyses.

Of marginal interest: reprints of classics unless with new evaluation; polemical works.

A. 2 Theory

This section includes discussions of the main tenets of population and related theory.

Of marginal interest: discussions of broader aspects of theory, not specifically demographic; applications of theory.

A. 3 *Interrelations with Other Disciplines*

This section includes: interdisciplinary studies of demographic problems; studies of the interaction of demography with other disciplines.

Of marginal interest: works belonging primarily to other disciplines.

A. 4 Textbooks and Teaching Programs

This section includes: demographic textbooks and teaching aids; the organization and coverage of training programs.

Of marginal interest: books of readings; translations of texts already cited; reports on specific training workshops and study groups.

B. REGIONAL POPULATION STUDIES

The studies referred to in this division differ from the regional studies in A by being less comprehensive. The size of the region under consideration, however, may be large or small.

B. 1 Historical Studies

This section includes: studies dealing with the demographic events of any chosen period from the early historical to the modern (here defined as beginning about 1900 or 1914); comprehensive surveys; studies of primary data; notes on sources, methods, and the state of research.

Of marginal interest: archeology and pre-history; oral history.

B. 2 Regional Demography

This section includes studies centering on the structure of population and on the components and rates of growth in the modern period.

Of marginal interest: most compilations from secondary sources.

B. 3 Surveys Containing Demographic Material

This section includes selected reports and studies in which the demographic interest is subsidiary.

C. SPATIAL DISTRIBUTION

The works referred to in this division differ from those in B in the greater emphasis on locational patterns and their interpretation.

C. 1 General Spatial Distribution

This section includes studies in which rural and urban populations are considered together.

> Of marginal interest: general spatial theory, unless demographic aspects are made explicit; broad studies of urbanization; maps unaccompanied by textual analysis.

C. 2 Urban Patterns

This section includes studies of urban populations, including those of metropolitan areas and suburban zones.

> Of marginal interest: studies of individual cities and metropolitan areas unless there is a strong emphasis on patterns.

C. 3 Rural Patterns

D. TRENDS IN POPULATION SIZE

The studies listed in this division are concerned primarily with changes in population size and the bases of their estimation.

D. 1 Past Trends

This section includes studies of observed data on population growth and its components.

> Of marginal interest: population explosions; trends in areas below the regional level.

D. 2 Estimates

This section includes studies of intercensal and other estimates based on current data.

> Of marginal interest: tabular series.

D. 3 Projections and Predictions

This section includes studies of future trends of short or long range.

> Of marginal interest: preliminary estimates; tabular series; labor force projections.

E. MORTALITY

The studies cited in this division treat quantitative data more or less analytically. The main references to crude data are in the Vital Statistics items in Division S: Official Statistical Publications.

E. 1 General Mortality

This section includes studies of overall mortality and comparisons of several types of mortality.

> Of marginal interest: studies of hospital records unless some special feature on incidence; diagnostic and clinical studies; psychological studies.

E. 2 Prenatal and Perinatal Mortality

This section includes studies dealing primarily with fetal and early infant mortality, except that those dealing with pregnancy wastage are classified under F.3: Sterility and Other Pathology, and those dealing with induced abortions are classified under F.4.5: Induced Abortion.

E. 3 Infant Mortality

This section includes studies of mortality under one year and its components.

E. 4 Mortality at Other Ages

This section includes studies of age-specific mortality and of mortality in special groups, defined by age.

E. 5 Life Tables

E. 6 Mortality by Social and Economic Groups

E. 7 Mortality by Cause

The effort is made to select from the massive literature on causes of death those items of demographic relevance. Studies of morbidity are included here only if they relate specifically to mortality, and similarly, public health measures, only if their effectiveness is so relatable.

F. FERTILITY AND NATURAL INCREASE

As in the case of mortality, the studies cited in this division treat quantitative data analytically, and most citations to crude data are in Division S: Official Statistical Publications.

F. 1 General Fertility

This section includes analyses of birth data and reproduction rates, and studies of fertility and its concomitants.

F. 2 Differential Fertility

F. 3 Sterility and Other Pathology

This section includes studies of spontaneous abortion, prematurity, and other relevant pathologies of pregnancy.

F. 4 Fertility Controls

Studies of fertility controls, excluding legally and illegally induced abortions, are cited under the topics F.4.1--F.4.4: Action Programs; Clinical Studies; Use-Effectiveness Studies; Socioeconomic and Other Interrelations. Studies of induced abortion are cited in the section F.4.5: Induced Abortion, with cross references, if applicable, to one or more of the other topics in section F.4. Studies of spontaneous abortion are cited under F.3: Sterility and Other Pathology.

F.4.1 Action Programs

Of marginal interest: administrative surveys; population education.

F.4.2 Clinical Studies

F.4.3 Use-Effectiveness Studies

F.4.4 Socioeconomic and Other Interrelations

F.4.5 Induced Abortion

F. 5 Natural Increase

F. 6 Illegitimacy

G. MARRIAGE, DIVORCE, AND THE FAMILY

The studies cited in this division are selected primarily on the basis of their quantitative analysis of aspects that influence fertility.

G. 1 Marriage and Divorce

This section includes studies of trends in marriage and divorce, nuptiality, duration of marriage, demographic characteristics of marriage partners, and the like.

Of marginal interest: kinship studies.

G. 2 The Family

This section includes studies of family composition and size, and factors influencing them.

Of marginal interest: anthropological studies unless including a census or numerically significant demographic data.

H. INTERNATIONAL MIGRATION

H. 1 General

Of marginal interest: cultural assimilation of immigrants.

H. 2 Settlement and Resettlement

Of marginal interest: "engineering" studies.

H. 3 Temporary Movements

H. 4 Refugees

I. INTERNAL MIGRATION

I. 1 General

This section includes studies of temporary movements.

Of marginal interest: studies of adjustment; serial statistics.

I. 2 Rural-Urban

I. 3 Settlement and Resettlement

J. CHARACTERISTICS

The references in this division are primarily to descriptive studies. If material is tabular only, it is under S: Official Statistical Publications, and if it is mainly analytical, it is under K: Demographic and Economic Interrelations or L: Other Interrelations.

J. 1 Demographic Characteristics

This section includes studies of populations according to age, sex, residence, and civil status.

Of marginal interest: household surveys unless linked to census data.

J. 2 Biological Characteristics

Of marginal interest: anthropometric studies; most blood-group studies; height/weight studies.

J. 3 Psychological Characteristics

J. 4 Economic Characteristics

This section includes studies of the labor force (employment status, occupation and industry) and of income and wealth (including housing) and productivity, if allocated according to demographic groups.

Of marginal interest: labor-force and employment statistics; studies of manpower in relation to economic planning; studies of income distribution within economic groups, e.g. the poor.

J. 5 Social Characteristics

This section includes studies of populations according to literacy and educational attainment, religious affiliation, and the like.

J. 6 Ethnic Characteristics

This section includes studies of population according to classifications on the basis of color, language, and national origin.

K. DEMOGRAPHIC AND ECONOMIC INTERRELATIONS

In this division are included references to studies in which at least one demographic variable (sex, age, fertility, mortality, nuptiality, location, population size) is related to at least one economic variable.

K. 1 General

K. 2 Demographic Factors and Resources

Of marginal interest: studies of nutrition and food supply; projections of demand and supply of agricultural products.

K. 3 Economic Growth

Of marginal interest: summaries of economic plans and discussions of priorities; summaries of published statistics in relation to planning targets.

K. 4 Labor Force Participation

K. 5 Occupation and Industry

Of marginal interest: studies of occupational mobility except when considered in relation to transition or other demographic theory; discussions of manpower policy; studies of individual industries.

K. 6 Business Fluctuations

K. 7 Economic Dependency

L. OTHER INTERRELATIONS

In this division the citations are to studies in which at least one demographic variable is related to at least one other variable.

L. 1 Demographic and Social Factors

L. 2 Demographic and Political Factors

L. 3 Demographic Factors and Health

Of marginal interest: studies of particular diseases; studies of health manpower.

L. 4 Demographic Factors and Human Genetics

Of marginal interest: twin studies; studies of specific traits and specific small groups.

L. 5 Demographic and Other Factors

M. POLICIES

In this division citations are made only to items, whether studies or documentary statements, relating to governmental policy as affecting population.

Of marginal interest: normative studies.

M. 1 General Population Policy

This section includes items relating primarily to national policies.

M. 2 Measures Affecting Fertility

This section includes items on family allowances, pregnancy and maternity benefits, infant welfare, and government regulation of fertility controls. Also formulations of governmental policy on fertility.

M. 3 Policy on Internal Redistribution

This section includes items relating to policy on settlement and resettlement, and on industrial location and regional planning that directly affects the redistribution of the population.

Of marginal interest: most regional planning studies.

M. 4 Policy on International Migration

This section includes items relating to emigration and immigration.

M. 5 Policy on Quality

This section includes discussions of ethnic and racial restrictions, marriage laws including medical and health requirements, laws on sterilization, and data on education and retraining as they relate to general characteristics of the population.

N. METHODS OF RESEARCH AND ANALYSIS

The studies cited in this division are primarily devoted to method or they employ and explain some especially interesting technique.

Of marginal interest: broad statistical methods; manpower projections; measurement of unemployment; budget and income studies.

O. ORGANIZATION AND ADMINISTRATION

In this division citations are given to publications dealing with the production of the basic data of population research.

O. 1 Registration of Vital Statistics

This section includes studies of organization and operation at local and national levels, of international comparability, and of special problems.

Of marginal interest: definition of particular causes of death.

O. 2 Population Censuses and Registers

As above.

O. 3 Other Data Collecting and Processing

This section includes studies of types of periodic and special surveys relevant to population studies.

Of marginal interest: labor force surveys.

O. 4 General Aspects

Of marginal interest: general reports on statistical activities.

P. PROFESSIONAL MEETINGS AND CONFERENCES

Proceedings of professional meetings of demographic concern are cited in this division, except that, whenever possible, proceedings are entered under the topic discussed and cross-referenced here.

Of marginal interest: summary reports of conferences.

Q. BIBLIOGRAPHIES

R. NEW PERIODICALS

S. OFFICIAL STATISTICAL PUBLICATIONS

The publications listed in this division are classified by country, under broad geographical areas. Under the country the entries are arranged in the order of four topics: 1. Census Data; 2. Vital Statistics; 3. Yearbooks; 4. Other Primary Data. Cross references indicate publications of official statistics that are in the topical sections of the bibliography because they also contain a large proportion of derived data or analysis.

Of marginal interest: monthly, quarterly, and provisional annual reports; publications of governmental units below the national level unless part of a national series.

Appendix B

Irregular Serials and Serial Monographs
Routinely Indexed by *Population Index*

Argentina. Departamento de Estadísticas y de Salud. *Estadísticas Vitales y de Salud. Serie 2* (Evaluación de Datos y Métodos de Investigación). Buenos Aires.

_____. *Ibid. Serie 5* (Estadísticas Vitales). Buenos Aires.

Chulalongkorn University. Institute of Population Studies. *Research Report Series*. Bangkok.

East-West Center. Population Institute. *Working Papers*. Honolulu.

France. Institut National de la Statistique et des Etudes Economiques. *Les Collections de l'I.N.S.E.E. Serie D* (Démographie et Emploi). Paris.

Hawaii. [State] Department of Planning and Economic Development. *Statistical Reports*. Honolulu.

Honduras. Dirección General de Estadística; [and] United Nations. Centro Latinoamericano de Demografía [CELADE]. *Boletín Informativo de la Encuesta Demográfica Nacional de Honduras (EDENH)*. English ed. San José.

Hungary. Kozponti Statisztikai Hivatal, Népességtudományi Kutató Csoport; [and] Magyar Tudományos Akadémia, Demográfiai Bizottsága. *Népességtudományi Kutató Csoport Kozleményei* [*Publications of the Demographic Research Institute*]. Budapest.

India. Office of the Registrar General, Vital Statistics Division. *Sample Registration of Births and Deaths in India*. New Delhi.

Israel. Central Bureau of Statistics. *Special Series*. Jerusalem.

Liberia. Ministry of Planning and Economic Affairs. *Demographic Annual of the Population Growth Survey, [year]*. Monrovia.

Population Council. *Country Profiles*. New York.

_____. *Reports on Population/Family Planning*. New York.

Sweden. Statistiska Centralbyran. *Monografiserie i anslutning till folk- och bostadsrakningen i Sverige 1960 utgiven av Statistiska Centralbyran och Bostadsstyrelsen* [*Monographs in connection with the 1960 census of population and housing in Sweden published by the National Central Bureau of Statistics and the National Housing Board*]. [Stockholm].

_____. *Statistiska Meddelanden* [*Statistical Reports*]. *Series Be*. Stockholm.

United Nations. Centro Latinoamericano de Demografía [CELADE]. *Publicaciones, Serie A* (Informes sobre investigaciones realizados por el CELADE). Santiago.

_____. *Ibid. Series I* (Recopilación de trabajos sobre países). Santiago.

_____. *Ibid. Series AS*. San José.

United Nations. Department of Economic and Social Affairs. *Population Studies*. New York.

U. S. Bureau of Labor Statistics. *Special Labor Force Reports*. Washington.

U. S. Bureau of the Census. *Current Population Reports, Series P-20* (Population Characteristics). Washington.

_____. *Ibid. Series P-23* (Special Studies). Washington.

_____. *Ibid. Series P-25* (Population Estimates and Projections). Washington.

_____. *Ibid. Series P-26* (Federal-State Cooperative Program for Population Estimates). Washington.

_____. *Ibid. Series P-60* (Consumer Income). Washington.

_____. *Ibid. Series P-65* (Consumer Buying Indicators). Washington.

_____. *Technical Papers*. Washington.

_____. *Working Papers*. Washington.

U. S. National Center for Health Statistics. *Monthly Vital Statistics Report*. Washington.

_____. *Vital and Health Statistics. Series 2* (Data Evaluation and Methods Research). Washington.

_____. *Ibid. Series 3* (Analytical Studies). Washington.

_____. *Ibid. Series 4* (Documents and Committee Reports). Washington.

_____. *Ibid. Series 20* (Data from the National Vital Statistics System). Washington.

_____. *Ibid. Series 21* (Data on Natality, Marriage, and Divorce). Washington.

_____. *Ibid. Series 22* (Data from the National Vital Statistics System). Washington.

U. S. Social and Economic Statistics Administration. Bureau of Economic Analysis. *International Population Reports. Series P-91* (Estimates and Projections). Washington.

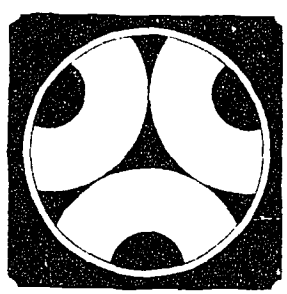
_____. *Ibid. Series P-95* (Economic Activity). Washington.

University of Michigan. Population Studies Center; [and] Taiwan Committee on Family Planning. *Taiwan Population Studies. Working Papers.* Ann Arbor.

University of North Carolina. International Program of Laboratories for Population Statistics. *Laboratories for Population Statistics: Scientific Series.* Chapel Hill.

University of North Carolina. Carolina Population Center. *Monographs.* Chapel Hill.

Venezuela. Departamento de Demografía y Epidemología. *Informe[s] Especial[es].* Caracas.



REFERENCE SOURCES AND COMPUTERIZED BIBLIOGRAPHIC RETRIEVAL:

Caltech Population Program

reported by Irene Goddard

The Caltech Population Program (CPP) is only three years old. At the outset it was decided to create a small library of population-related materials that would serve the needs of a group of researchers associated with the program at the California Institute of Technology, as well as 15 to 20 people "in the field." The latter are the American Universities Field Staff (AUFS) scholars, with backgrounds in various social sciences, each specializing and living in a particular area of the world.

Since the AUFS writers, whose population reports the Caltech Population Program sponsors, constitute a very important part of the program it was necessary to design an information system that would keep them up-to-date on population literature. Irene Goddard was charged with the task of developing such a system.

At the beginning of 1971 the CPP library had started acquiring some books, which were being catalogued according to the Library of Congress system, and had subscriptions to some 30 population-related periodicals. Dr. Harrison Brown, the Director of the Program, had also donated to the library some 300 reprints.

As a first step in keeping those in the field informed, tables of contents of journals were xeroxed and air mailed to them and copies of articles that they requested were then sent. It seemed important, however, to develop a fast way of informing them of the library's reprint acquisitions as well. It was decided to resort to the computer in order to produce multiple copies of acquisitions lists and subject and author indices, which would also serve the home library in lieu of a card cross-reference file.

While there were a number of computer programs available that would have been useful, provided one had a computer to search the files for retrieval, the challenge was to find or devise one that would produce a computerized index which would lend itself to the "eyeball" method of searching.

By sheer serendipitous coincidence Fritz Bartlett, a graduate student in physics at Caltech, had just a few months earlier written a program as an exercise in the then quite new computer language PL-1 which, with some further development, could serve the needs of CPP.

This computer program, called BINDEX, has been expanded and modified, and is used to produce the reprint index.

The procedure for processing reprints and pamphlets is extremely simple and fast. One month's accumulation of some 250 reprints takes about one week to process. First a card is typed up for each reprint. After scanning the article, it is decided which words in the title may serve as suitable keywords and additional keywords or phrases are jotted down on the card. Then each item is assigned an acquisition number, and the contents of the card (title, author, document description and number, as well as the additional keywords) are keypunched onto Hollerith (IBM) cards and fed into an IBM 370/155 computer, after adding a few control cards. The result is a computerized index, consisting of three parts: (1) a bibliographic index, listing all the bibliographic data for each item as well as its acquisition number; (2) a keyword index, listing in alphabetical order all keywords, each followed by a block of titles of all articles in which that keyword appears; and (3) an author index, in which all first and joint authors appear as individual entries, followed by the titles of the articles they have written. Cross-reference numbers permit the user to browse through the keyword or author index and then refer to the bibliographic index for a complete citation. The reprints in the CPP library are stored by their acquisition numbers. Thus a user needs only to send in the list of these numbers when requesting copies of reprints. The monthly index is sent to the AUFS workers and some 40 population libraries and research groups in the United States and abroad who, in return, send their acquisitions lists and other materials to the CPP. At the end of the year a cumulative yearly index is prepared with very little additional effort, since throughout the year the contents of monthly indexes are added to a magnetic tape and the computer does all the necessary sorting.

Another cumulative index which includes all of the reprints and pamphlets in the CPP library is also prepared each month by the same method. Thus the on-campus users, instead of looking through several volumes, can find out at a glance what the library has on a given subject.

The costs of computer processing are probably lower than most non-computer-users would expect: it costs 1.1 to 1.2 cents per bibliographic item to produce a single copy of the index, and additional copies cost even less--approximately 2 cents per page, which compares rather favorably with other copying methods since no manual handling is involved.

At present the index contains close to 6,000 bibliographic items, some 24,000 keyword entries, and about 8,000 author entries.

The BINDEX computer program has provisions for inserting new items and deleting, correcting, or replacing old ones. It will also produce on demand a list of all keywords used and their frequencies, which is very useful to the indexer and also could serve as a basis for a more formal thesaurus.

It is also possible to get a list of only those articles which are denoted by the keywords that the user selects.

The latest development, still being perfected, is a more complex logical search capability, which will permit more sophisticated searching of the index by computer.

The BINDEX program is owned by the California Institute of Technology but is available to other non-profit institutions. The computer used at Caltech is an IBM 370/155 but any of the 360 or 370 series with a 360 operating system would do the job. The only two requirements are a 200K memory and a PL-1 compiler, since the BINDEX is written almost entirely in PL-1, with a few central routines coded in the assembly language.

Due to lack of time only a few questions were asked, concerning costs, preparation time and multiple author entries. The answers to these have been incorporated in this summary. The only question not related to the above material concerned acquisitions of preprints and unpublished reports. The policy of the CPP library is to include them in the index if their quality and contents warrant it. If they are formally published later on, they are replaced by the formal version and an appropriate change is made in the cumulated index, which, given the editing facility of BINDEX, is a relatively simple procedure.

Appendix A

The Caltech Population Program
Division of Humanities and Social Sciences
California Institute of Technology
Pasadena, California 91109

The Caltech Population Program was established in the Division of Humanities and Social Sciences, California Institute of Technology, in 1970 under the leadership of Professor Harrison Brown, Director of the Program, and Alan Sweezy, Professor of Economics and Associate Director of the Program.

The program has concerned itself principally with the relationships connecting demographic change, technology and economic development in the developing areas of the world. A major effort, under a grant from the Agency for International Development, Department of State, has been to stimulate, coordinate, and critically review research by Associates of the American Universities Field Staff on population-related topics. The American Universities Field Staff reports are purchased by the program for distribution to an extensive international mailing list.

The Caltech Population Program holds an annual conference on a theme of current interest in the population field. These conferences are attended by the Caltech Population Program Advisory Committee, the Caltech Population Program staff, the American Universities Field Staff Officers and Associates, and outside experts in the field. The proceedings of these meetings are published in book form. Two books have resulted from the first two conferences held in January of 1970 and 1971:

Are Our Descendants Doomed? Technological Change and Population Growth, edited by Harrison Brown and Edward Hutchings, Jr., Viking, 1970.

Population: Perspective, 1971, edited by Harrison Brown and Alan Sweezy, Freeman, Cooper and Co., 1972.

The proceedings of the third and fourth conferences are now in press. The third conference proceedings, *Population: Perspective, 1972*, Freeman, Cooper and Co., should be available in the very near future.

The Caltech Population Program Information Services, under the direction of Mrs. Irene Goddard, maintains its own research library of books, periodicals on population and economic development, and reprints on population and related subjects. Mrs. Goddard has organized and developed a computerized reprint index for materials contained in the library. The index is sent to the AUFS associates and to 14 foreign and 24 domestic population groups and individuals. The index is updated monthly so that the information on library acquisitions is always current.

The program will host a series of visiting scholars from developing countries who will carry out research related to their countries. The first visiting scholar, Professor Laila El-Hamamsy, Director of the Social Research Center, The American University in Cairo, Egypt arrived in April 1973. A number of profile reports, the first of which will be about Egypt, will be published under this program. An attempt will be made to analyze the interlocking factors which are involved in changing birth rates and death rates in the areas studied. These studies will be done in collaboration with visiting scholars where possible.

REFERENCE SOURCES AND COMPUTERIZED BIBLIOGRAPHIC RETRIEVAL:

MEDLARS of the National Library of Medicine

reported by Charlotte Kenton

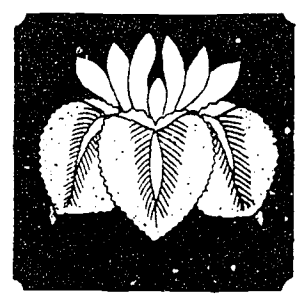
MEDLARS was put into the context of preceding presentations and the experience and needs of the Conference participants by noting the following attributes of the system:

Scope--principally biomedical and allied sciences but with unexpected spinoff in areas of sociology, demography, economics.
Level--technical, designed for the researcher and practitioner in biomedicine and allied professions.
Computer-based--a proliferation of files, with on-line accessibility locally via a telephone call to the TYMSHARE network; coordinated via eleven Regional Medical Libraries.
Database--January 1966 through May 1973, one and one-half million citations to periodical articles from the 2,300 *Index Medicus* journals; monographic material to become computer-accessible shortly.

A brief orientation to the MEDLARS modus operandi from the selection, analysis, and storage of material, through the production and dissemination of publications and individual searches was afforded by discussing each of the following exhibits:

List of journals indexed in *Index Medicus*
Indexed citation form
Medical subject headings
Index Medicus
Cumulated *Index Medicus*
Hints for *Index Medicus* users
Bibliography of medical reviews
Current catalog
MEDLARS I demand search
MEDLARS I literature search--Family Planning Programs LS 72-36
MEDLARS I recurring bibliography--*Population Studies Index of Biomedical Research*
MEDLINE printout
COMPFILE printout
SDILINE printout
CATLINE printout
SERLINE printout
MEDLINE brochure
MEDLINE network participants
MEDLINE sample user/system dialogue

Questions arose on the timeliness of *Index Medicus* contents, evaluation of bibliographic services, comparisons between MEDLARS Demand Searches and MEDLINE printouts, charges for on-line services, accessibility of unpublished research and communications, and duplication of collecting and indexing efforts.



The Questionnaire on the

BIBLIOGRAPHY OF FAMILY PLANNING AND POPULATION

Donn Casey
Simon Population Trust

95/96

ANALYSIS OF THE QUESTIONNAIRE ON THE BIBLIOGRAPHY OF FAMILY PLANNING & POPULATION

Donn Casey

The questionnaire (which is analysed below) was sent to readers who had agreed to fill it in, It was sent in some desperation because after 3 or 4 issues (including 3,000+ items) we were getting only a trickle of requests for photocopies. To a simple person this looked like massive non-use of the Bibliography (BFPP). However, to our relief, the analysis showed that of the 22 readers deeming the BFPP "very useful indeed" (question 1) only 3 had used the photocopying service. Further, the answers to questions 16 and 18 showed that reasonable use was being made of the BFPP by means of unexpectedly efficient local libraries. It seems that the simple person's hypothesis was disproved.

As a result of the feedback the following changes (amongst others) will be made to the BFPP starting with volume 2 (July 1973):

1. The big subject sections will be broken down into smaller ones, e.g., population & fertility; family planning, general; abortion. Possibly others, also.

2. The big blocks of numbers in the geographical index (e.g., USA, UK, India) will be subdivided according to the subject sections covered. Thus it will be possible to tell which block of numbers related to sex education - so, if necessary, you can avoid them!

3. The ANON(ymous) entries in the author index will be analysed out to find the name of the publishing organization or corporate author, e.g., OECD, where there is no named author. OECD would thus appear under "O" in the author index.

4. A "book chapter finder" will appear at the end of the issue. Book chapters will continue to be spread through the BFPP according to subject content but it will be possible to trace all these chapters. A book such as MORRIS N[ed], Psychosomatic Medicine in Obstetrics & Gynecology would appear in the "finder" with a list of chapter numbers under it: 01320, 01327, 01332, 01337, etc.

5. More options will be available for obtaining photocopies. It is likely that it will be permissible to send a check with order, and that invoicing may be possible for established organizations (not individuals).

As a result of the feedback, the following new service will be started, probably about September 1973: a literature searching service (see question 28).

It will be possible for a smallish fee (maybe $3 per 10,000 items searched plus a loading for numbers retrieved) to search our BFPP store on any topic, e.g., the use of foam tablets in Uganda; population policy in Nepal. The store consists of everything in the BFPP to date, and now has nearly 6,000 items. The literature starts about 1971-2. The output will be photocopies of our reference cards which would normally be sent to you to arrive on your desk within 2 weeks of the request's being received here.

A thesaurus of perhaps 600 concept terms and a manual Termatrex-type retrieval system will be used. The thesaurus is half completed and is being made in full awareness of the work of Kathryn Speert (IISHR) and Caroline Lucas (CPC). The indexing for long-term retrieval will also be used for the production of the annual printed subject index to the BFPP, which is due out during the summer of 1973.

We have had long experience with a British version of the Termatrex system. It is called the "feature card" system and is made from paper cards by Carter Parratt Ltd., Orchard Road, Sutton, Surrey, England. It is a tiny fraction of the cost of the Termatrex system. We have over 130,000 documents described on the system using 600 concept terms for the Bibliography of Reproduction which is run by a company working in close contact with the Simon Population Trust.

One weakness of the Simon Population Trust's literature searching service will be that items will be indexed only from information in the titles. This will not invalidate the service, however. The items retrieved will be rather obviously relevant.

It now seems likely that several organizations will start providing literature searching services, mostly computer-based. Already the Carolina Population Center is offering "automated retrieval bibliographies" from its store of over 19,000 citations. This is still experimental (30 Mar 73). Similarly, the Population Information Program, Biological Sciences Communication Project, 2001 S Street, N.W., Washington, D.C. 20009, is planning a cooperative scheme where several data bases will be combined and the output will be available through the Tymeshare network in the U.S.

The IDDD (International Demographic Data Directory, International Statistical Programs Center, Bureau of the Census, Washington, D.C. 20233) is another computerized retrieval system for demographic and family planning citations. Its speciality is actually having much of the data itself in the system. Some 1,000 demographic tables have been fed into the computer. Instead of being given a citation where you can find the data, you might well be given, say, the actual most recent mortality figures for Tobago. The IDDD experts use their judgement about which data is reliable before feeding it into the computer.

It seems no bad thing that there are several systems available. Each will have a different approach and where they don't complement each other they can reinforce each other. Competition improves the service, anyway!

Perhaps one day the Population Index data base may be computerized so that it may more easily be searched.

Editors' note: The editors regret that the Simon Population Trust has announced its decision to discontinue publication of the Bibliography of Family Planning and Population. The last issue is that of November, 1973 (Volume 2, number 3).

QUESTIONNAIRE ON THE BIBLIOGRAPHY OF FAMILY PLANNING AND POPULATION

As of 1 Jan 73 there were about 470 paid subscribers. A small orange questionnaire was sent to all of them asking, amongst other things, if they would answer a longer questionnaire. At the deadline date, 216 replied and 147 agreed to answer the longer questionnaire. As of about 14 Feb 73 about 80 had answered the yellow longer questionnaire, and the following analysis is based on these replies. It represents therefore about 18% of the readers, obviously the keen ones. Eventually 102 replied, but it was not felt worth recalculating all the figures for these. The low response makes many of the conclusions meaningless, but by no means all.

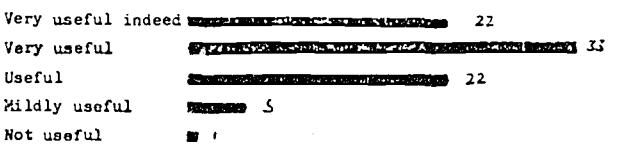
Answers to questions 3, 5, 7, 12, 13, 14, 19, and 31, being free-language, did not lend themselves to histogram analysis, though they are very important.

As a matter of interest, the "missing" questions are:

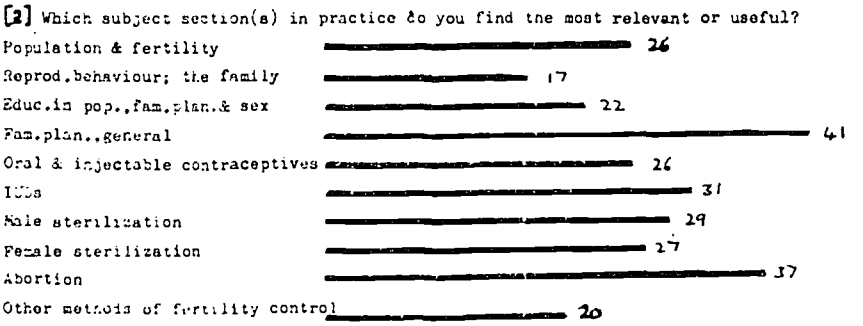
3. Should the subject sections be organized differently or be subdivided? If so, how?
5. Any comment about it [geographical index]
7. Any comment about it [author index]
12. What features do you like about the BFPP especially?
13. What features do you dislike about the BFPP especially?
14. Please list the area(s) in which you feel the BFPP is weak.
19. If you have bought coupons from us but never used them, why is this?
31. Have you any other comments about the BFPP?

All histograms are drawn to the same scale.
The numbers at the end of columns are responses, not percentages.

[1] You've had 3 or perhaps 4 issues now. Do you find the BFPP

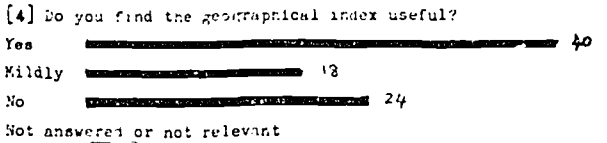


[2] Which subject section(s) in practice do you find the most relevant or useful?

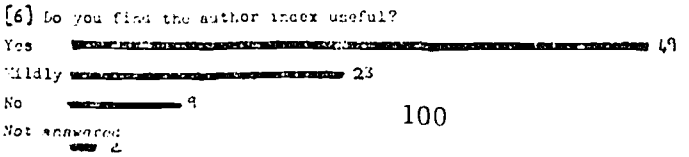


NB: median number of sections marked was 5, i.e. readers' interests are wide.

[4] Do you find the geographical index useful?



[6] Do you find the author index useful?



[8] Do you find our listings of book chapters useful?

Yes 68

Mildly 9

No 4

Not answered 2

[9] Do you find our listings of audio-visual aids useful?

Yes 42

Mildly 25

No 19

Not answered 2

[10] Do you feel we should include more authors' addresses?

Yes 30

Perhaps 25

No 21

Not answered 7

[11] Do you feel we should include census reports?

Yes 16

Perhaps 8

No 56

Not answered 3

[15] How do you use the PPIP? Doubtless you have a mixed strategy, so several boxes could be ticked.

I scan certain sections regularly. 63

I [illegible] "look-up" service.

I use it to see what's in a few top journals, which are accessible. I largely ignore the rest, even if relevant to my work 7

I use the author index to watch what certain key people are writing about. 22

I merely browse through to see "where the action is." Next time I see a colleague in the "action" area I pick his brains. 0

I look for items on my work and track down the originals in what seem to be rewarding cases. 45

I use the geographical index mostly. 10

Other tactics. 11

[16] Roughly how many items (if any) of the nearly 3000 listed in the first 3 issues of the PPIP have you actually made an effort to see or get photo-copied?

0-1	4
2-4	6
5-9	3
10-19	14
20-49	10
50-99	10
100-199	11
200-499	1
500-999	
1000-1999	1
2000-3000	1
Not answered or not relevant	17

[17] Of those (if any) roughly how many have made the slightest difference to your effectiveness or your understanding of your subject?

Of those that answered question 16 the median answer to question 17 was An effect 50% of the items seen.

[18] The use of our photocopying service has been negligible in spite of its comprehensiveness and its use of airmail. Why do you think this is?

It is far too expensive.
16

Buying a block of coupons in advance is too tiresome. Better I send a cheque with order or I get coupons automatically with subscription or you bill me once a year for photocopies.
20

I have an efficient service here which gets me copies from the top journals. The rest I don't really care about.
47

Whenever I've used your service it hasn't worked too well.
1

I prefer to write for free reprints, though only ½ ever arrive.
10

Other comment.
11

[20] Instead of ordering coupons for photocopying when needed would you prefer to be able to order them at the time of renewing your subscription as an optional extra? [They would come with the first issue]

Yes 11

Maybe 12

No 26

Not answered 34

[24] Even if we were not able to produce abstracts for you would you find it helpful if we indicated by stars what we felt were probably the most important items of general interest? [This would not be easy for us to do!]

Yes 23

Perhaps 17

No 37

Not answered 6

[25] Do you feel it important that we include a detailed subject index with each issue?

Yes 27

Perhaps 15

No 33

Not answered 3

[26] Do you feel that material in the RFPP should be very carefully selected, and not just a neutral list of everything we can find?

Yes 20

Perhaps 3

No 56

Not answered 4

[27] Would you find of real value a review article in each issue by an expert on each topic in rotation, e.g. one on IUDs in one issue, one on the pill the next, etc? [This would cost you more]

Yes 25

Maybe 11

No 40

Not answered 4

[28] Would you welcome a literature searching service whereby for £1 ($3) say we searched all issues to date on your special topic and sent you a list of the relevant items within about 14 days, anywhere? You could later ask for photocopies at our usual rates.

Yes 46
Maybe 17
No 16
Not answered 4

[29] Would you welcome "selective dissemination of information" (SDI) - by which you tell us your special interests and every 2 months we send you a list of items relevant only to those interests. It would probably cost £6 per year. As your interests changed, so you'd tell us.

Yes 22
Maybe 25
No 33
Not answered 5

[30] At the moment overseas subscribers get sent the BPPP by air. To places like Australia the cost of this is nearly £4 per year, but the saving in time may be about 2 months. UK subscribers obviously subsidize some of this cost. Would you prefer a system whereby airmail was an optional extra, or to put it another way, is 1-2 months delay really immaterial to you?

Yes 21
Maybe 2
No 33
Not answered 75

[32] It is not in our interests to charge too much for the BPPP, otherwise we'll not attract new customers, or keep old ones. On the other hand it is important that we know how far we can go, especially if we introduce new features such as 24, 25 26 or 27. Can you please tell us honestly which is the highest box you'd stand for [Box = price]? As you know we don't cover our costs at present.

£6 ($18) 4
£7 ($21) 10
£8 ($24) 15
£9 ($27) 3
£10 ($30) 29
£11 ($33) 1
£12 ($36) 6
£13 ($39) 1
£14 ($42) 5
Not answered 9

Panel Discussion on

EVERYTHING YOU'VE ALWAYS WANTED TO KNOW ABOUT SPECIALIZED LIBRARIES AND INFORMATION CENTERS, BUT DIDN'T KNOW WHOM TO ASK

Moderator: Rolf Versteeg
Center for Population Research
NICHD, NIH

Panelists: Frances Jacobson
Population Reference Bureau, Inc.

Kathryn H. Speert
International Institute for the Study of Human Reproduction
Columbia University

Doreen Goyer
Population Research Center
University of Texas at Austin

Dorothy Kaufman
Social and Economic Statistics Administration
Bureau of the Census

Samuel Baum
Bureau of the Census

Bates Buckner
Technical Information Service
Carolina Population Center

EVERYTHING YOU'VE ALWAYS WANTED TO KNOW ABOUT SPECIALIZED LIBRARIES AND INFORMATION CENTERS, BUT DIDN'T KNOW WHOM TO ASK

The chairman, Rolf Versteeg, introduced the session by stating that the members of the panel came from a variety of libraries, each with its special problems, and that the solutions worked out for some of these problems would be discussed. Questions and comments would be allowed for at the end of each panelist's presentation.

Frances Jacobson discussed the catalog card as a teacher's tool in population education programs. School libraries in general are in a dismal state; 40 percent of U. S. elementary schools do not have libraries. There is an especial lack in regard to environmental and population education information, funding, and teacher resources.

The Population Reference Bureau (PRB) acts as a clearinghouse and information source for schools. Since there is much reliance on informal newsletters such as Interchange, PRB has undertaken to organize the contents of these newsletters by subject, type, title (98 categories in all) using a McBee Card Catalog Sort System which has various component descriptive headings for retrieval. These cards allow the user to find out exactly what type of information will be found in the item. The system is useful for answering requests for information since the cards can be duplicated and mailed. This is an information retrieval scheme for the research librarian and responds to an individualized subject approach. The maximum capacity is about 7000 items; the cost to develop subject categories and acquire cards is under $500.

Kathryn Speert described the organization of fugitive or non-book material. One method is the use of vertical files with broad subject headings--good for a small collection. If these files are broken down into narrow subjects it may be difficult to find items which discuss more than one of these. Another method is to arrange the files alphabetically by individual or corporate author and maintain a subject index to these files.

The library of the International Institute for the Study of Human Reproduction (IISHR) uses another method. Documents are arranged by accession number and indexed by as many terms as desired for each document. For each document there are two catalog cards with complete bibliographic information. One card is filed alphabetically by author, the other by accession number. On the latter card appear all index terms assigned to the document. There is a third file of larger cards, each containing one subject, and entered on it the number of each document indexed with that subject. A search combining two or more subjects is a simple matter of post-coordination. The system is inexpensive and effective for collections of fewer than 10,000 documents including collections of individual researchers. A list of subject headings, a thesaurus, should be maintained, or some other

thesaurus can be used. Heavily posted subject cards indicate that a subject is too broad for that collection and should be broken down.

The Population Research Center at the University of Texas was described by Doreen Goyer. It serves those doing research for graduate training in demographic statistics and contains world-wide primary sources. They now have one or more censuses from 196 countries in hard and microfilm form; their aim is to acquire retrospective and current censuses. Their biggest problem appears to be finding out if and when a full census is taken, but there are further difficulties of language, demographic terms, and degree of accuracy. In family planning programs the census results are the primary source of information. However, users have an exaggerated notion of the accuracy of census data.

Dorothy Kaufman's library at the Social and Economic Statistics Administration primarily serves the personnel at the Bureau of the Census. She calls her library a "general specialized library" since the collection is varied, including such topics as manufacturing, foreign trade, housing, and administration.

The Library of Congress classification scheme is the basis for the arrangement of their materials, with countries grouped within the broad subjects. State and local materials are arranged geographically. Most of their material is current, they do not hold material for any length of time, and they do not collect retrospectively. They are putting much of their material on microfiche.

Samuel Baum, also at the Bureau of the Census, is concerned with information activities of the international sector, passing statistical information on to other users.

This section of the Bureau is presently engaged in cataloging and indexing individual census tables; eventually all these indexes will be computerized, resulting in an on-line system for $1200 per year. Plans are being developed to publish in hard copy the most widely used parts of the system. One of their problems is to acquire foreign fugitive material. There is a need for a network to link specialized systems.

The Technical Information Service of the Carolina Population Center (CPC) was described by Bates Buckner as an experimental computer project specializing in library-to-library communication and development.

The new population/family planning library journal Overview and the International Directory of Population Information and Library Resources are part of this effort. CPC is attempting to provide complete sets of catalog cards for starting libraries, not duplicating Library of Congress cards but covering fugitive materials. They also offer traineeships and internships. G. K. Hall is to publish the CPC card catalog in both hard copy and microfiche; the expected date of publication is 1974. The future concern of the Technical Information Service is to develop international networks and linkages, as well as working in cooperation with the United Nations and the International Planned Parenthood Federation.

INFORMATION SOURCES FOR THE 1970s

Chairman: Wilma Winters
Harvard Center for Population Studies

Speakers: Stephen Viederman
The Population Council

Halliman H. Winsborough
Center for Demography and Ecology
University of Wisconsin

Kathleen Everly
Family Planning and Population Information Center
Syracuse University

POPULATION EDUCATION--SCHOOL AND NONSCHOOL: A STATUS REPORT

Stephen Viederman

A headline in the New York *Times* for April 4, 1973, read: "As Birth Rate Drops, So Does Interest in It." For anyone who has followed the ebb and flow of public concern over population matters during the last decade the headline did not come as a surprise. In fact, it was anticipated. And, should present trends continue for any reasonable period of time, and should the birth rate continue to decline, another set of headlines in the morning papers might be soon upon us. "PPG (Positive Population Growth) Calls for Increased Fertility to Offset Population Decline." And so it goes. The long time spans needed to deal meaningfully with population phenomena lead all but the most hardy to lose interest within reasonably short periods of time. Furthermore, lacking in population literacy, the American people are easily confused by demographic phenomena, and particularly lack any sense of the consequences of population change. The population problem is too often assumed to be a problem of explosive growth, of too many births, or so most Americans would suggest. Let the poor and the blacks control their fertility, they would argue, and then things would be well in this country. Other fallacious arguments would be martialled, almost certainly centered around fertility and to a lesser degree mortality. Little mention would probably be made of distribution as part of the population problem. So it goes, and thus the role of the educator.

In the third century BC the Chinese writer Kuan-tzu proposed:

If you are thinking a year ahead, sow seed.
If you are thinking ten years ahead, plant a tree.
If you are thinking one hundred years ahead, educate the people.

Perhaps with the passage of the centuries, as communications have speeded up, the writer's time spans have changed. The message is, however, clear. To deal effectively with long-term problems, education is a potent tool.

Population education is a fairly recent invention, having its beginning in the mid-sixties with Sloan Wayland's work under Population Council auspices. Until recently the term has been synonymous with programs for the formal school system. But in the last year or so, the concept has broadened to include educational programs in the entire range of formal and nonformal educational settings. Primary and secondary schools, universities and teacher training colleges have always been seen as foci of attention for population educators. But now, here and in the rest of the world, attention is also being directed to extension programs (whether in New York State or in India), to community development, to labor education, to literacy programs, and the like. Slowly educators are beginning to look at the educational system as a whole, trying to plan programs for the system, rather than for each of the component parts as if they existed in a vacuum. The audience

includes school children, out-of-school youth, and adults in a variety of settings.

Population education may be defined as the educational process whereby individuals learn: (1) the causes and, most important, the consequences of population phenomena for themselves, their communities, and the environment; and (2) the possible effective means by which the society as a whole and they as individuals can respond to and influence these phenomena in order to enhance the quality of life now and in the future.

The emphasis in this definition is on learning rather than teaching. It assumes that the average individual is more concerned with the consequences of population phenomena as they affect his own life in his family and community than he is with the causes of these phenomena, and the definition focuses on these consequences in order to enhance learning. Lastly, it focuses attention on those things that the individual can do, as an individual and as a member of society, in order to influence population changes for his own benefit and for the benefit of the society. It follows naturally from this definition that in order for learning to be effective population phenomena at either the macro or the micro level must not be seen as isolated phenomena, but rather as part of, affected by and effecting, an integrated developmental process. It is anticipated that as a result of increased awareness both of the consequences of population changes and of the consequences of their own population-related behavior individuals will be able to make better informed, conscious decisions concerning their own behavior, both individually and as members of society.

The Knowledge Base and Planning for Population Education

The content of population education covers a broad range of subject matter, much beyond traditional demography. It includes information on: the population situation (size, growth, migration, distribution, trends); the relationship between population and the quality of life now and in the future (for example, food, health, education. employment, urbanization, the environment, socio-economic development, and family life); possible action programs (both governmental and individual); and human reproduction as a means of implementing one aspect of individual actions (human physiology, human sexuality, family planning, and contraception). Both macro- and micro-level data are included. The exploration of values and attitudes is also seen as an integral part of the learning process.

Since most, although not all, nonschool education is directed to audiences already in the reproductive ages the focus is often on content which might contribute to the acceptance of family planning and contraception, and might stress, for example, the effect of family size on family life, health, etc. Other nonschool programs are directed to elite audiences hoping to obtain their interest in and support for population policies. The focus in these programs might be on the relationship between population change and the quality of life. In all nonschool programs the goals of the program, the socio-cultural characteristics of the society, as well as the life experiences of the participating individuals, help determine the content of the programs. Unfortunately, the knowledge base from which program content

can be developed is weak in many cases. The individual learner is most concerned with the consequences of population changes at the micro-level, whereas most demographic research until recently has been primarily concerned with the determinants of change at the macro-level. Therefore, more social research is urgently needed, for example on the relation of population change to various aspects of family life and to the quality of life.

School programs cover a wide age group. By far the largest proportion of students in schools in the developing world proceed no further than the primary level. But as a result of late first enrollments and considerable repetition of grades, many primary school students are already in or very close to the reproductive ages, although age of first birth varies widely from country to country. The focus of programs directed to these students is usually on the nature of the family and family life, and the impact of population. The smaller group of students who stay in the formal education system through secondary school, and even university, represent a latent elite. They are often the people who will assume positions of leadership in the years ahead. Programs directed to them, therefore, may emphasize more policy-related issues, such as the relationship of population change and the quality of life.

The broad scope of population education content touches in one way or another on most subjects included in the school curriculum. As a result, in most programs population information and analytical skills are being infused into the already existing programs presumably as appropriate to the intellectual and emotional level of the students' development. Evaluation of the effectiveness of this infusion approach, in relation to other approaches such as the development of separate units or courses, is part of the future agenda for the field. Decisions as to what actually should be included in the school program have been based upon: (1) political and cultural circumstances (for example, the acceptability of talking about population or sexual matters); (2) an assessment of the school's ability to deal effectively with certain concepts, particularly those that are personal and potentially sensitive (such as contraception and sexuality); and (3) the goals and objectives of the program.

It is often argued that school programs should focus their attention on the primary level since most children in the developing world receive no further formal education beyond that level, and because these are believed to be formative years in terms of development of population-related attitudes, particularly with regard to fertility. There is an implied assumption that this will be the last or only time that the students can or will be exposed to population-related materials. If this were so it would be unfortunate since it is at the primary level that the knowledge base for population-education programs is weakest. We know little about the nature of population learning, nor is the content of population education sufficiently well developed to prepare materials that are simple without being simple-minded. Furthermore, we do have some indication, at least with reference to literacy and numeracy, that knowledge and skills are lost if children do not continue their education.

Until recently, plans for developing population education programs--

whether school or nonschool--were made independently of one another, as if each of the component parts existed in a vacuum. However, stemming from the growing awareness that learning takes place in different settings and at different times, population education planners are now beginning to look at the educational system as a whole, including school and nonschool. Table I suggests a schematic matrix for analyzing and planning the content of population education programs. In order to determine which cells will be filled, and which left blank to be filled by another part of the education system, the planner needs: (1) a broad and encompassing set of goals and objectives; (2) an assessment of the strengths and weaknesses of the various institutions within the system with respect to these goals and to the handling of the particular content; and (3) information concerning the socio-cultural characteristics of the society. It is assumed that, to the extent possible, each individual should receive the maximum amount of information, limited only by the level of his intellectual development and capabilities.

Adoption of this overall population education planning concept has obvious implications for the organization and administration of programs, as indicated in Figure I. A unit is needed to assume responsibility for developing educational goals and objectives, and for coordinating the activities of the whole range of educational institutions and organizations that may contribute to population education either through action programs or through training and research activities. Cooperation between a range of governmental agencies now involved in educational programs will be required. School programs will have to come under the aegis of the Ministry of Education which may also have responsibility for some aspects of nonschool education. Other Ministries, including, for example, Agriculture, Labor, and Social Welfare, will have relevant educational programs under their jurisdictions that must be coordinated with each other and with school programs. For overall planning to be effective patience will be necessary.

The Status of School Population Education in the Developing World*

A review of school books and curricula around the world would undoubtedly show that virtually all countries include population information in their school programs. The inclusion of these population materials and concepts is, however, by chance rather than by design, and is random rather than planned. The information serves goals that may be complementary to those of population education, but which are in the final analysis different. Population education, by definition, is a program which is planned, integrated, and sequential.

Population education programs can be seen as a part of the total population communication effort, and are clearly the school system's response to the identification of population problems in the society. At the same time it is important to recognize that these programs have validity in purely

---

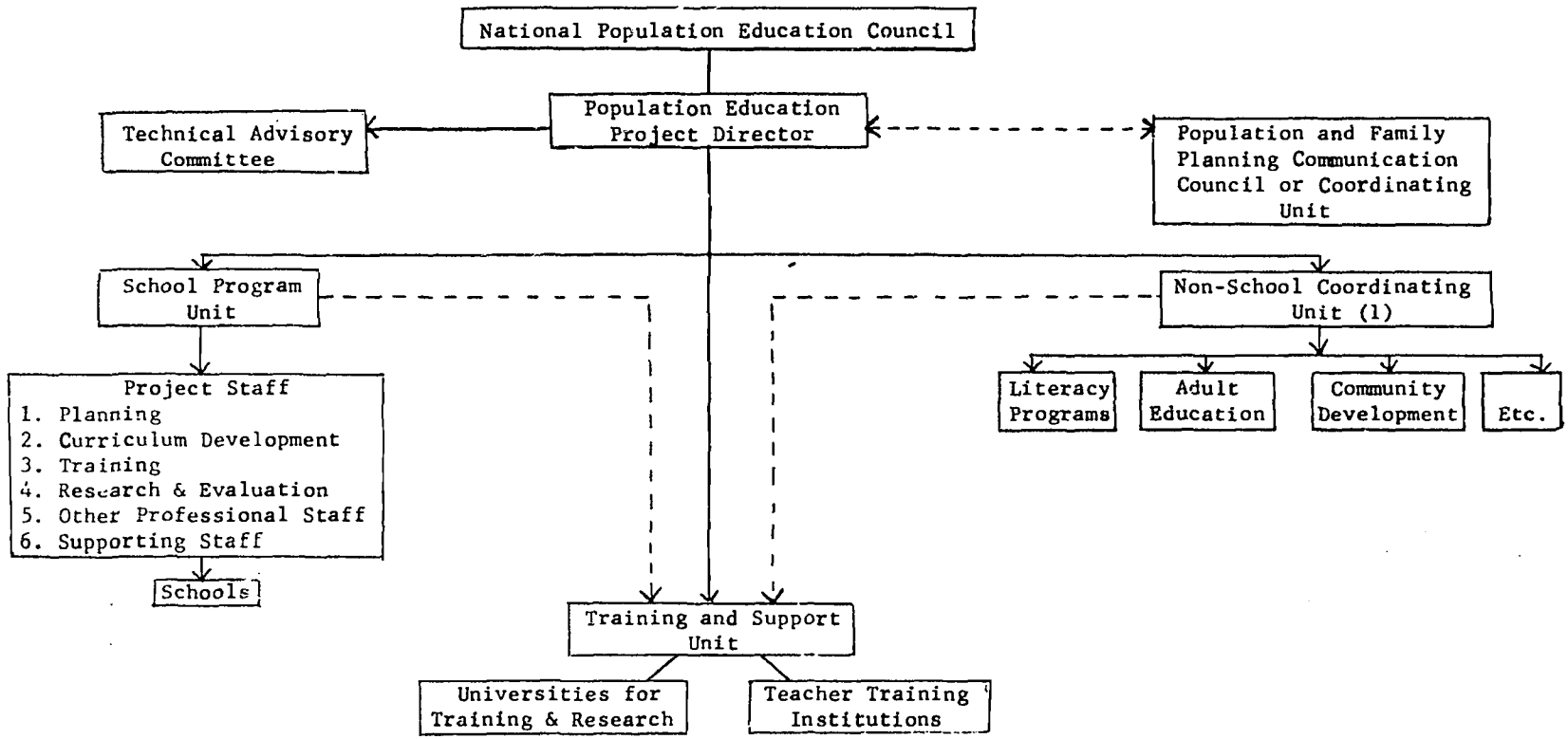
*Adapted and up-dated from Stephen Viederman and Sloan Wayland, "In-School Population Education," prepared in October 1972 for Bogue, Johnson and Wilder, eds., Population Communications: Overview and Outlook (tentative title), forthcoming.

The Content of Population Education / The Educational System		THE POPULATION SITUATION					POPULATION AND THE QUALITY OF LIFE INCLUDING:								ACTION PROGRAMS		HUMAN REPRODUCTION		
		Size	Growth	Distribution	Migration	Trends	Food	Health	Education	Employment	Urbanization	Environment	Socio-Economic Development	Family Life	Public Policies & Programs	Individual & Family Choices	Human Physiology	Human Sexuality	Family Planning & Contraception
URBAN	Universities																		
	Teacher Training Institutions																		
	Secondary Schools																		
	Primary Schools																		
	Out-of-School Youth Programs																		
	Adult Education																		
	Literacy Programs																		
	Community Development																		
	. . .																		
RURAL	(As above plus)																		
	Agricultural Extension																		
	. . .																		
	. . .																		

Table I: Matrix for analyzing and planning the content of population education programs

FIGURE I

Organization Chart for a Hypothetical
National Population Education Program*



(1) In this chart, the nonschool unit has primarily a coordinating function. In some cases, however, a regular project staff, such as for school education, may be called for.

* Adapted from J. E. Jayasuriya, Communication 9 July 1972, UNESCO Regional Office for Education, Bangkok.

educational terms as well, educating students to understand the world in which they live.

Formal work in population education had its beginnings in Asia, and a number of countries on that continent represent the furthest development of the field to date. Since many Asian countries were among the first to recognize and accept population as a problem, and to mount national programs designed to deal with the problem, it is not surprising that they should also have been first to develop school education programs as part of or as a supplement to a national population policy.

India was among the first countries to accept the challenge of school education about population. The initial interest and impetus came not from the educators, but from the government and private family planning programs. A number of seminars helped to focus attention on the subject, and provided impetus for governmental action leading to the development of a Population Education Cell within the Ministry of Education's National Council of Educational Research and Training (NCERT). The Family Planning Association of India, through its national headquarters in Bombay and through a number of its state affiliates, has continued to play an active role in the field, as has the Central Health Education Bureau in the Ministry of Health. At the same time the NCERT program has flourished, and is extending its efforts into the states. Interest has also developed in a number of universities and teacher training institutions, and through the federation of teachers, providing a fertile climate for a diversity of approaches to this new field.

Iran was also one of the first countries to express an interest in school education. By the end of the sixties the Family Planning Department of the Ministry of Health was able to convince its colleagues in the Ministry of Education that population materials should be included in the texts. No formal program has as yet been developed within the Ministry of Education, but some materials on population are being made available to secondary school students, and plans are being developed in the government and in the Teacher Training Colleges to expedite program development.

In Korea the Central Education Research Institute assumed early responsibility for the program development effort. Careful studies of texts already in use and of students' and teachers' knowledge of and attitudes toward population concerns, have provided important baseline data for curriculum and materials development which was begun in 1971. The regularly scheduled revision of primary school social studies texts in the summer of 1972 provided an opportunity for the inclusion of population materials therein, and work is progressing at other levels as well.

The Philippines program is already characterized by a diversity of approaches, both in terms of institutional settings--private, university-based, and within the Ministry of Education--and in terms of subject matter--ranging from traditional sex education through population education, in the sense of the term used here. A Population Education Program (PEP) unit has been established within the Bureau of Public Schools to coordinate the various approaches, and a sizeable project grant has been obtained from the UNFPA. In 1972 the program moved into the first stages of a five-year

implementation plan, and by 1973 some classroom materials were already in use.

Indonesia's newly developing program is extensive, attempting to coordinate educational programs both in and out of school, each being supportive of the other. Planned programs are being developed both through the Ministry of Education and through the private schools of the Muslim Association, with assistance from the World Bank and the UNFPA.

Late in 1971 and early in 1972 seminars and workshops in Thailand, Malaysia, and Sri Lanka brought together population specialists and educators as the first step in the development of a population education concern within the educational community. Malaysia and Sri Lanka have received UNFPA support to proceed with program development, mainly in the schools.

During the spring of 1973 Thai educators developed a comprehensive draft plan for submission to the government for a coordinated school-nonschool program. Thai educators are also discussing the possibility of a pilot project to test the various approaches to population education--infusion, the development of separate units to be used in existing courses, and the development of separate courses--in order to determine which approaches are most effective at which grade levels.

During the summer of 1972 educators from four Asian countries--Indonesia, Malaysia, the Philippines and Thailand--participated in a workshop held at the East-West Center devoted to the planning and implementation of population education programs in school and in nonschool settings. Teams from governmental and private agencies developed plans for the implementation of program ideas and considered problems of the development of content, teacher training programs, pilot programs, and the need for research and evaluation.

In Latin America population education has been slow to develop largely as a result of controversy concerning the meaning and consequences of population growth for national development. Population education is viewed by many as population control education. Although this is not, or need not be, the case, political problems are often raised when the topic is discussed.

A Chilean program developed in the late sixties represents an interesting case. Interest in the systematic inclusion of population concepts and data in the curriculum did not arise as part of a national or private population or family planning effort. Rather, it developed as a result of the interests and competencies of specialists who were involved in the revision of the national social studies curriculum that began in the mid-sixties. Emphasis in the program was on development of demographic and population-related concepts that would help the student understand the socio-economic causes and consequences of population change. Education, not propaganda, was clearly the goal. The concept of the program could hardly offend the staunchest supporter of population growth. Unfortunately, no information has been available since late 1970 on the further development or implementation of the program.

In Colombia, leadership in the development of population education has been assumed by the Population Division of the highly respected Colombian

Association of Medical Faculties (ASCOFAME), and by a group of educators and specialists at the University of Valle in Cali. ASCOFAME has focused on sex education, but has recently indicated an interest in including "demographic education" in their program. At Cali an attempt is being made, with UNFPA assistance, to integrate population, sex and ecological education into one package that is educationally sound, responsive to perceived societal needs, and politically acceptable. Through their efforts, which are separate but complementary, they hope to train teachers, and develop curriculum and text materials that will be acceptable to the Ministry of Education.

With the exception of these efforts, and recent indications of interest in El Salvador, Guatemala, and Panama, population education is more argued than practiced in Latin America. Primary emphasis in most countries has been on the development of sex education programs, usually with the support of Catholic leaders. The focus is less on the individual's responsibility for his actions or on the consequences of population growth than it is on solving the problems created by high rates of out-of-wedlock pregnancies, illegal abortions, and venereal disease. Within a Latin American context these are important and real problems, and the development of sex education programs as a response is valid and important. It is questionable, however, whether these programs, generally devoid as they are of population content, can serve as an adequate response to the need for greater population awareness necessitated by high rates of population growth, heavy migration from the countryside to the city, and problems of economic and social development.

Only one country in Africa--Tunisia--has become involved in the development of a school population education program. Beginning in 1969 a small group of educators, working in the Institute of Educational Sciences of the Ministry of Education, attempted to develop population awareness materials for the primary grades. But interest has declined in the last year or so, and no further program development seems likely in the immediate future.

In sub-Saharan Africa the multi-national African Social Studies Program is presently seeking support for the systematic development of population education materials for schools in the twelve countries affiliated with them. They hope to have their program underway before the end of 1973.

In summary, despite increased levels of activity in the last few years, there is as yet no national or local population education program that is fully operational. Very few of the programs have materials already in use in a large number of classrooms, and none has a usable and tested sequence that covers the entire span of primary and secondary schooling. It may be some years before a full program exists, for the development of a school program with extensive needs for teacher training, curriculum development, research, and evaluation is necessarily a slow and painstaking process.

The Status of Nonschool Population Education in the Developing World*

It is doubtful whether anyone has a comprehensive picture of nonschool

*Portions of this section are adapted from David Kline and Thomas B. Keehn, "Nonschool population education," prepared in January 1973 for Bogue,

population education in the developing world today. Within the United Nations system itself, a number of the specialized agencies have extensive programs planned or in progress. ILO has population education programs for workers and employers in various parts of the world. FAO's Program for Better Family Living incorporates population-related concepts and materials into activities directed to rural populations. UNESCO's programs in literacy, in education for rural development, and for youth either have or are planning population components. UNICEF and WHO also have relevant program activities.

Private organizations are also playing an important role. For example, IPPF has a particular interest in educational programs for out-of-school youth, and is planning a major workshop on that subject for the Asian region in 1973. World Education (New York) has provided technical assistance and financial support to a number of experimental family life planning projects in different parts of the world.

Nonschool population education programs can be broken down into two categories: those dealing with literacy, and those concerned with community education.

1. Literacy Programs

As with school population education, nonschool programs seem to have had their beginnings in Asia, and particularly in India. Literacy House in Lucknow, particularly through its Young Farmers Institute and Family Life Center, has been involved for years. They pioneered in the development of materials for new literates on population and family planning. More recently Literacy House South, a part of the Andhra Mahila Sabha in Hyderabad, has also begun to develop family life planning materials. Two workshops were held during 1972 devoted to the planning and development of functional literacy and family life planning projects. Nineteen separate proposals for programs in various parts of the country were developed, and funding is being sought so that they might be implemented.

In Thailand, the Division of Adult Education of the Ministry of Education has been operating a pilot functional literacy project in North Thailand since 1970. The aim is to provide functional education that will assist the learner to live more efficiently and productively in his own environment. Program content is developed in response to the learner's own perception of the obstacles to social and economic development he encounters in everyday life. Emphasis is placed on the broad needs of the family unit and emphasizes earning a living, family economics, health and family planning, and civic responsibility. The program is now being revised and expanded to other parts of the country as an integral part of the regular educational structure. Efforts are also being made to integrate family life planning concepts into other adult education programs under the auspices of the Ministry of Education and other Ministries.

Johnson, Wilder, eds., Population Communication: Overview and Outlook (tentative title), forthcoming. The author wishes to acknowledge with gratitude Messrs. Kline and Keehn's permission to use their material.

In Turkey the Ministry of Education, in cooperation with the Ministry of Health, is running a pilot literacy and family life planning project in five provinces. New materials, all including population content, have been developed, and teachers have been trained for 30 experimental classes. These materials are also being used in experimental classes in the Turkish army's educational program for illiterate conscripts. The program will eventually reach some 50,000 adults annually.

In the Philippines the Rural Reconstruction Movement, and the Community and Adult Education Department of the Bureau of Public Schools have projects in process which combine population and family planning information with functional education.

In Costa Rica the Demographic Association, the National Council on Population, and the Ministry of Education are designing and testing four texts on population and sex education to be used at various literacy levels.

2. Community Education

The Ministry of Education, Community Education Department in Indonesia, is developing a project geared to the needs of a culture that traditionally transfers information through a wide range of non-written media. In addition, a Communications Service Center for Family Life Planning has been set up as part of the Department of Education and Culture. They have been collecting and testing already existing materials, especially those aimed at rural audiences of low literacy levels. At the same time they are assessing the needs of various audiences for new materials, and developing a wide range of materials to fill particular needs. These materials will eventually be absorbed into the newly emerging Development Schools System which is an attempt to make education lifelong, to make it relevant to the needs of a developing society, and to bridge the gap between school and community.

In Malaysia the Federal Land Development Authority and the Malaysian Trade Union Congress are both developing programs. The former is concerned with improving the quality of life in selected re-location areas, and the latter with improving knowledge and awareness among labor and union members.

The Colombian Family Planning Association (Profamilia) and the Coffee Workers Association are cooperating on a pilot project in the Department of Riseralda. The existing community education programs of the Coffee Workers Association and other nonschool educational organizations in the Department will add population and family planning concepts to their curricula. These programs range from literacy and adult education to community development.

Late in 1972, a two-week seminar was held in East Africa to consider the incorporation of nutrition and family life planning concepts into community education programs. Participating countries included Kenya, Tanzania, Uganda, Zambia, Ethiopia, Botswana, Lesotho, Ghana, and Nigeria. It is expected that a number of projects will be developed.

In Kenya the FAO Program for Better Family Living is developing

materials to include population and family planning in community development programs for rural areas.

In summary, there is much activity in the area of nonschool population education. A survey of existing and planned activities would be useful, however, to assess the present state of the field and the degree to which activities are complementary or overlapping. This would also aid in the diffusion of innovative and tested program ideas.

Needs and Responses

Population education programs must be developed at the national or sub-national level taking into account the socio-cultural characteristics of the nation and its subgroups. In order to move ahead, a favorable climate of opinion among responsible leaders in population and in education must be created in order to insure necessary political and administrative support. Skilled manpower to plan and implement the programs must be trained. The necessary coordinating units must be established to administer the programs, and to develop policies, objectives and priorities for program development. Educational and research institutions must be developed to provide intellectual support within the country, both in terms of the content of population education, and in terms of the process of population learning. Materials for teachers and for learners must be written, tested and revised prior to wide-spread dissemination. Teachers must be trained. Research and evaluation programs must be designed to support activities at all stages of program development.

Population libraries and information centers have a critical role to play at almost every stage of program development. They must be active participants seeking out materials and disseminating them to those who need them, not simply repositories of information waiting to be used.

Population libraries and information centers can collect, catalog and annotate learner and teacher materials from their own countries, from their regions, or from the world to help persons working in the field know what is being done, and avoid duplication of effort. Reports on program planning and program evaluation collected and disseminated to the right persons at the right time can greatly assist in the process of diffusion of program innovation.

Working with specialists in the field of population education, population libraries and information centers can assist with the translation and dissemination of important materials from other languages that would be otherwise unavailable to educators. Similarly they could assist in the preparation and dissemination in popular form, for teachers and other lay audiences, of the products of population-related research done at population research centers throughout the world.

Much of the literature in the field of population education today is fugitive in that it has not been published but exists as a mimeographed document mailed to a small number of the author's closest associates. The photocopier permits circulation to a second range of people--a smaller number

of associates of the original recipients. Those few things that are published are either in reports of national seminars, which have limited circulation, or in journals whose primary focus is something other than population education, and are therefore not read by even a majority of the small number of specialists in the field.

Discussions are going on concerning the development of an annual or semi-annual publication to bring together the best writings in the field. In the meantime, however, there is an imperative need to develop an abstract publication, perhaps along the lines of the Population Council's Current Publications, to bring the fugitive literature to a wider audience. This might well be combined with a reproduction service, similar to that offered by the Simon Population Trust or the East-West Communication Institute Library, to make the materials available free or at low cost to those who need them.

Corollary to this would be the development of special population education repository libraries in each country to insure that at least one copy of all the most important work in the field is within the reasonable access of educators in that country. An international advisory committee of population educators, working with APLIC and its sister organizations in other parts of the world, could develop such a program within a reasonable period of time. The activities on a regional scale of the population education clearinghouse of the UNESCO Regional Office for Education in Bangkok should be reviewed for light that might be shed on what is most needed.

Reference has already been made to the problems of the knowledge base for population education. Here again collaboration between population libraries and information centers, population educators, and scholars is both necessary and advisable. From the outset, literature must be searched in order to determine what is already known that is relevant to developing the content of the field. Annotated bibliographies on various aspects of population and the quality of life in relation to urbanization, the environment, employment, family life, and women's roles, to list but a few of the many subjects of interest, would greatly assist curriculum developers and teacher trainers. If educators are to maintain their obligation to tell the truth, then they must have ready access to that which is known. These bibliographies could also be used by scholars to assess the state of the art and to develop research maps for the future. Joe Wray's "Population Pressures on Families: Family Size and Child Spacing"* is but one example of what might be done.

This listing of needs and possible responses is only suggestive of the many areas of cooperation that are possible between APLIC and specialists in the field of population education. Further discussion and expansion of these and other ideas would be beneficial to all concerned.

---

*Reports on Population/Family Planning, Number 9, August 1971.

INFORMATION SOURCES AND RESEARCH IN DEMOGRAPHY AND HUMAN ECOLOGY

Halliman H. Winsborough

As I understand it, my task on this panel is to discuss information needs and resources for basic research in demography and human ecology. I believe that an adequate appraisal of these needs, resources, and prospects is dependent on three characteristics of the research process in demography:

1. Most demographic research is carried on within formally organized centers;

2. Demography is an inherently interdisciplinary area; and,

3. The data have an unusual place in the process of demographic research and the quantity of data is expanding rapidly.

I shall begin by arguing briefly that the first two characteristics--the center organization and the interdisciplinary nature of demography--provide a context and a demand for more-or-less traditional information services. I shall hold that these characteristics set the stage for a healthy and vigorous development of such traditional services in the 1970's.

The majority of my paper will discuss the third characteristic--the unusual place of the data in demographic research. I feel this characteristic leads to the major challenge of the 1970's. That challenge seems to me to be as follows: How can we provide information facilities to deal with the rapidly expanding demographic data sources in a fashion compatible with the way demographers do their work? I shall terminate my remarks with a few suggestions in this area.

My first characteristic of demographic research is an organizational one. Much of the basic research in demography is conducted within the context of a research group or formally organized "center." This organizational form is old and persistent as things go in the social sciences. The Office of Population Research at Princeton recently held its 35th Anniversary Celebration while the Population Research Center at the University of Chicago recently toasted its 25th birthday. The "center" organization in demography originated and persists because there are dramatic economies of scale in demographic research. Further, there is a tradition of taking advantage of these economies. This tradition clearly extends to library and bibliographic services, the archetypical example being the production of Population Index at the Office of Population Research.

The center organizational form has been recognized as relatively efficient and cost-effective by funding agencies. The Population Council and the Ford Foundation initiated the granting of basic support funds for such enterprises. More recently, and on a somewhat larger scale, the National Institute

of Child Health and Human Development, through its "center grant" authority, began offering core support for research centers in demography. These granting agencies are wise enough to look with favor on the inclusion of information research and services within the context of the core facilities of a center.

The "center" organization of research in demography and the historical precedent for including library, bibliographic, and information services within such centers have two important implications for developing information resources in the 1970's. First is that there is a natural "home" for information research and service activities within existing centers. This latter fact implies not only that clients for information services are reasonably locatable but also that they are likely to have access to professional assistance in making their queries of the service. Thus, services can be designed which presume an unusual level of sophistication on the part of users.

Projecting into the future, it seems likely that physical and organizational connections among demographic research centers will increase over the next decade. I would be surprised to see the decade of the 1970's end without the development of a data and information transmission network among them. I expect that the initial and primary use of such a network would be to permit persons at one center to use the computing and data archival facilities at another center. Clearly, however, computer-aided information services could be provided over the same network at marginal cost.

Thus, the first of my three characteristics of the demographic research process--that it is organized into centers--implies that the context exists for the development of quite sophisticated services at relatively modest marginal costs.

The second characteristic of the demographic research process has to do with its inherently interdisciplinary character. A given demographic research center usually includes specialists in many of the traditionally defined fields. The Center with which I am affiliated includes people trained in sociology, economics, history, statistics, mathematics, social psychology, operations research, library science and computer science. Of course, people in each of these disciplines tend to direct their publication efforts toward their traditional disciplines and to be quite concerned with the developing literature within the context of their "home" fields. At the same time, because a scholar within such a center works in the inherently interdisciplinary area of demography, he often requires more than trivial access to work done by people outside his traditional field and he will often publish work in the journals of "alien" disciplines.

My colleague, Warren Hagstrom, who specializes in the Sociology of Science, tells me that such a situation is one which typically generates an extremely high demand for bibliographic services. He provides the counter example of the nuclear physicist who can be reasonably abreast of things by subscribing to a readable number of journals. No doubt it is this situation which led to the provision of a bibliography, Population Index, as the sole publication of the Population Association of America for so many years.

As demography continues its expansion, both in the number of scholars working and writing and the number of substantive areas having recognized demographic components, the creation of more complex retrieval systems clearly seems called for. Although no expert in such matters, I should think that the proposed construction of a citation indexing system in the social sciences would be of great use to demographers and that demography would represent an ideal test case for the automating of a subset of that file.

Now, recall that I argued that the "center" organization of demographic research provides an appropriate context for information research and service. The second important characteristic of demographic research, its interdisciplinary character, argues, I assert, for a high level of demand for such research and service in the decade of the 1970's.

As I see it, this context and this demand should add up to a vigorous growth of traditional information facilities in the 1970's. By traditional facilities I mean ones designed to retrieve publications, articles, books, monographs and the like.

The third characteristic of demographic research which I would call to your attention is the omewhat unusual position "the data" hold in the research process. It is this characteristic, coupled with the rapid growth of demographic data, which seems to me to provide the primary challenge of the 1970's.

That challenge is how to retrieve information about data in a fashion compatible with the way demographers work. Meeting that challenge will require designing non-traditional information facilities because the thing to be retrieved is not a publication. Indeed, deciding what it is that research demographers will want retrieved is a major part of the problem.

What is this unusual place of "the data" in demographic research? In most disciplines the creation of "the data" is a large component of the research task. That task is usually under the control of the scientist, experimenter, or scholar. It is incumbent upon him to explain why he collected the data presented and how he collected them (in order that someone else might repeat the same process and achieve reasonably similar facts), and then to summarize the information they contain in a fashion designed to answer the initial question. In a great deal of demographic research the process is rather different. Most basic demographic data are collected as the routine activity of a government agency. Their raison d'etre exists in the planning and policy-making activities of the government. As a by-product of these activities, they are made available to the public at a tiny fraction of the very large cost of collecting them. The research demographer, then, spends much of his time doing what is frequently described as secondary analysis--that is, using publicly available data to address questions other than those for which they were originally designed. This process usually involves application of some rather elaborate transformations of the data to make them address the new question. These transformations comprise much of the corpus of demographic methodology.

How does the research demographer work? It is as though he has two lists in his mind. One is comprised of important or interesting research questions. The other is a list of data sources, including information about which variables coexist in a single table or record. In addition to the list of questions and the list of sources, the demographer has his bag of tricks which consists of the transformations he knows how to use and feels comfortable with. Much of the creative process in demographic research consists in finding a felicitous match between question, data source, and the transforming procedure which will permit the available data to address the interesting question.

Now, the path of virtue is to begin one's search for a match with the list of extant questions. One is supposed to choose a critical question and then figure out how to answer it. Most of us proceed in this way with some frequency. Also with some frequency, and often with good results, a researcher begins somewhere else. One may start with a method which he is trying to master and look for data and questions with which to exercise the technique. One may also become fascinated with a particular body of data and try to see what he can make it do. Without regard to where one starts in the matching process, by the time he tries to fit in the last piece he often wishes his lists were longer or his bag of tricks fuller. That is when he often wants to lean on an external information facility.

If the last piece of his puzzle is the theoretical question or the appropriate method, he can be tolerably well served by traditional bibliographic facilities. What he needs to fill in the gaps in these areas is access to the journal and monographic literature. With traditional facilities he can find out what to read to get up-to-date on, say, infant mortality, or what to do to add linear constraints to his equations.

If the final piece of the puzzle is the data, however, he is likely to receive little assistance. There is no source which will help the researcher find out for which countries and in what years there exist tables of ethnicity by mother tongue by age. There is no source which will tell him which of the publicly available, machine-readable files include data on both the birth expectations and the employment intentions of married women.

I suspect the dearth of information about data has two historical causes. First, in the past there wasn't that much of it. Data in the U. S. were limited to material available from the decennial censuses and from the vital registration system. One could get his mind around them fairly well. Access to census-specific publication guides helped a good deal, too. Second, the researcher didn't have the capacity to deal with very much data in the course of a year.

The advent of electronic computers has radically changed that situation. It is now possible for a researcher to deal with an almost unthinkable amount of data in the course of a single project. Perhaps more importantly, it is now possible for federal and other agencies to provide very large volumes of data at modest cost. The publicly available, machine-readable product of the 1970 Census alone runs to several thousand reels of computer tape. Files from the Current Population Surveys are shortly to be made available. Basic

records from all manner of federal and federally funded data collection activities are being made available at a seemingly accelerated pace.

In the past, then, most active demographers were able to keep a fairly satisfactory file of data sources in their heads. Today, however, maintenance of a strictly mental list is impossible. Part of the problem is that there is so much to know about each file. Most files come with a hefty volume of "technical documentation." These volumes vary in their accuracy and completeness. Almost uniformly they are written in an awful combination of social science jargon and computerese. Often they are poorly organized and without indexes.

Despite their shortcomings, however, these documents constitute the basic source for information about the data. The demographer, trying to keep his mental list of sources up-to-date, would have to read and digest each one as it comes out. But that is an almost full-time job.

All of the foregoing, then, explains why I believe that retrieval of information about data sources presents the major challenge of the 1970's. The task is to provide an external surrogate for the list of data which demographers used to carry in their minds.

Where might one begin in creating such a surrogate? I suggest that a reasonable beginning would be to find a way of dealing effectively with the technical documentation about data sources. They are the closest thing we have to publications--the kind of thing we know how to deal with.

But although technical documentation volumes are close to being publications, one of their most awkward characteristics is that they don't quite make it. Often they are more like an owner's manual distributed along with a product. Often they are difficult to acquire separately from the data set itself. Often their publication goes unnoted. No Library of Congress number is assigned, no citation appears in Population Index and certainly no copies are distributed for review by journals. Such public notice as does appear is concomitant with advertising the data set itself.

As a first step, then, I suggest that population libraries set up procedures to acquire and catalogue the technical documentation of each major data source as it appears.

I can imagine many center librarians shrugging off a suggestion of this kind. Perhaps it seems the responsibility of the computer people in the center rather than the library people. No doubt the computer people will need to have technical documentation too, but that possession will not satisfy the information needs of the center. First, the computer people will have documentation only for data files held by the center. Typically they will make no effort to routinely acquire material on files not to be purchased immediately. Second, the only way a scholar can come across the existence of the document is to know that his center owns the data set. These constraints are unsatisfactory.

As a second step in providing an information system about data, I think

attention should be given to ways of retrieving information from the technical documents. Such a task involves the difficult question of deciding what is the basic unit to be retrieved. In a project to design a retrieval system for published census material, my colleagues and I decided the basic unit to be retrieved should be the published table--i.e., that the tables should stand in the place of the article in the usual bibliographic retrieval system and that retrieval keys should be characteristics of the table.

I am less certain what should be the basic unit for machine-readable files--especially ones in which data for individuals, families, and households constitute the basic record. In one sense, the matter of concern for the demographer is the set of possible cross tabulations, but that set rapidly becomes unmanageably large. More realistically, perhaps, the generic form of individual records is the basic unit. But that notion is difficult when records are nested, such as persons within families and families within households. Things are even more complex when records are provided for geographical areas. In that instance one cannot presume that data are nested in an orderly way. Rather than being a formal tree, these data structures take on aspects of a random graph.

It may very well be that there is no formally "correct" solution to the problem of the basic unit in this situation. It would be desirable, however, if an arbitrary solution to the problem were one which could be maintained with some consistency over several retrieval systems.

Finally, and hopefully as an outcome of the second step in designing a retrieval system for information about data, I should like to see recommendations to improve the quality and organization of the technical publications themselves. Criteria for completeness, accuracy, organization and indexing would be uniformly welcomed.

If these three tasks could be accomplished, we would be a long way toward a satisfactory information system for demographic data. The first step, incorporating technical documentation within the library facilities, is a small one. Using that collection of material as a basis for retrieving information about what is actually in the data is a more difficult task requiring careful planning and research. Design and implementation of standards for documentation is a task to be considered later and one which requires arranging a good deal of organizational compliancy. Taken together, they seem to me to constitute a considerable challenge for the 1970's.

Taken over all, then, I believe the basic characteristic of demographic research insures that the decade of the 1970's will be an exciting one for people working in information resources for research in demography and human ecology. The center organization of research in the field provides a fertile context for growth. The interdisciplinary character of the field provides an increasingly high demand for traditional services. The special place of data in the research process, coupled with the "data explosion," set challenging problems in the design of non-traditional facilities.

SEX AND FAMILY LIFE EDUCATION

Kathleen Everly

I. Sex Education/Family Life Education

Although professionals generally agree that "sex education" and "family life education" are necessary, there has been more concurrence regarding necessity than there has been in defining them or explaining how they should be conducted. The terms "sex education" and "family life education," for example, have both carried a host of different meanings (Force, 1970; Smith, 1968; Goldstein, Haeberle and McBride, 1971; Position Paper on Family Life Education, 1970; Calderone, 1973, etc.).

Generally family life education is viewed as being more comprehensive than sex education. Our operational definition of family life education is: providing information about and discussions of physical, sexual and emotional development, interpersonal relationships, self-understanding and socialization for adult roles, with emphasis on responsible behavior. But this is not to say that there are not other equally applicable definitions.

As for sex education, we take a broader view than the "reproductive aspects only" definition. Sex education involves developing healthy attitudes toward sexuality by means of creating a climate of openness about physical expression, the body, and affection, as well as more specific sexual matters, such as masturbation and nudity, with emphasis once again on responsible behavior. But this is not to say that there are not other equally applicable definitions.

We agree with the National Commission on Population Growth and the American Future which states in its report (1972):

> There is a wide range of opinion on the subject of sex education among specialists who are themselves divided on the definition and content of sex education programs. To some degree, the social and cultural backgrounds of the group with whom the sex educator is more familiar, and his perception of their immediate needs, are reflected in his definition of sex education. The sex educator working in an urban ghetto will have views on the methodology and presentation of sex education which might differ from those of an educator working in a middle-class suburban community. The Commission recognizes that there is no best way to define or conduct sex education programs, and that local communities and groups must create programs which coincide with their values, resources, and needs.

Some of the ambiguity in trying to understand curricula content in family life/sex education results from such specifics as: (1) when does it

take place; (2) who does it; (3) how is it done; (4) what does it include; and (5) whom does it reach.

Let me give you an idea of how we feel about these guidelines:

(1) Both sex and family life education begin when children are born, not when they reach puberty, and should be viewed in terms primarily of prevention rather than of treatment. For instance, most programs that have been initiated in schools present treatment approaches, for by the time a child reaches school age many of his attitudes have been formed. Research at Johns Hopkins (Money, et al., 1957) has shown, for example, that by the time a child reaches the age of about 2 1/2, the child has an absolutely fixed awareness of being either male or female, whatever way his parents reared him.

(2) Because sex/family life education starts at birth, it is parents who first influence a child's attitude toward sexuality, his concern with moral values in interpersonal relationships and eventually his concept of the family as a social unit. Therefore, parents should have the prime responsibility for their child's family life education. All this does not suggest that the home should be a child's only source of sex/family life education; schools and churches have a special role in supporting and supplementing the education in the home (Kirkendall, 1970). It does, however, suggest that the home is, and should be, the prime source and that it is a much neglected area.

(3-5) Sex education can also be interpreted in terms of process and content. Catherine Chilman (1969) has commented that "no research has been done on how information about sex is best imparted, what its content should be, or what the effects of sex education are." She is correct; there is a lack of research findings--but, let's face it, no one process works best for all people and not all content is applicable to all age levels.

Sex educators and family life educators have to be flexible, willing to modify or redirect priorities to meet individual or group needs. The best part of current curricula is their variety in content and process. Unfortunately, the worst part of these curricula is that most are developed for the middle class.

Also, most educators and researchers stress the importance of setting goals in sex education. Unfortunately, the goals are usually stated in terms of attitude change. Sex/family life education curricula should have goals that are stated in behavioral terms in order to effectively evaluate "real change," and they should have built-in mechanisms for evaluation.

In essence, then, more important than the definition of sex education/family life education is how this definition is implemented and evaluated.

II. The Institute for Family Research and Education

The Family Planning and Population Information Center at Syracuse University was founded in 1970 and focuses almost exclusively on the sex

education of neglected youth, minority groups, rural youth, the mentally and physically handicapped, and the millions of young people with low reading levels. Our reason for specializing is that virtually all efforts made by schools, churches and community groups, especially in the areas of drugs, sex, smoking and general education, have been designed for the intellectually-minded, middle-class adolescent. Despite the hundreds of sex education books and films available, virtually none are geared to meet the needs of our "neglected" youth--so we use THE effective medium for reaching youths--comic books.

In 1972 we established Ed-U Press which publishes our tri-annual "Say It So It Makes Sense," a newsletter for professionals devoted to communicating with (not turning off) today's youth about love, morality, sex, drugs and smoking. It is dedicated to the proposition that adults often have worthwhile things to say to youth, so let's say it so it makes sense.

Recently we expanded our original organization to fit the needs of our expanded aims. Our new Institute for Family Research and Education, which incorporates both the Family Planning and Population Information Center and Ed-U Press, is devoted to strengthening the American family. We're going beyond providing youngsters information they can accept and are actively pushing for the education of parents in human development so that they will be a strong and responsible force in the education of their own children. If we're interested in responsible behavior among children, we must actively commit ourselves to teaching parents, particularly the young ones, some of the fundamentals of good parenthood.

Thus, our Institute devotes its resources to the development of research, seminars, workshops, educational pamphlets and films for the purpose of meaningful communication to the neglected (and this includes parents).

Comic Books as a Teaching Aid?

Now let me get into an area which is of particular importance to librarians and information centers.

I recently read an article in the Los Angeles Times about our work entitled "Sex Education Comes to the Comic Book." As I toyed with the possibility of restructuring the title, I found myself staring at the word "education." And that's exactly what we are doing in our four comic books. We're giving more than information (which in many works on sex education might be better labeled "misinformation"). We use processes that might appear vague or trifling to some of our adult readers, so let me clarify these and explain why we use comic books as part of our teaching aids.

Current approaches to communicating the knowledge that adolescents need in order to protect themselves are being thwarted by several major barriers in adult thinking, including:

(1) The mistaken notion that the less an adolescent knows about sex, the less chance he will "get in trouble." Our research suggests that keeping silent has never kept people "moral." The evidence strongly suggests

that the less youngsters know about sex, the more likely they will be sexually irresponsible:

--The birthrate is decreasing in every age category except among teenagers (Report of the Commission on Population Growth and the American Future, 1972).

--The rate of out-of-wedlock births among adolescents has increased 250 percent from 1940 to 1968, and almost 200,000 such births were expected in 1972 (Report of the Commission on Population Growth and the American Future, 1972).

--Zelnik and Kantner (1972) estimate that there are 2.5 million unwed female teenagers aged 15 to 19 who have had intercourse. When asked why they had not used contraception on these occasions, the most important reasons given were the belief that they could not become pregnant because they were not fertile, too young, not exposed frequently enough, or were playing the menstrual cycle for protection. The single most important reason for non-use was the nonavailability of contraception at the time it was needed.

--Approximately 300,000 teenagers contracted VD last year (Report of the National Commission on Venereal Disease, 1972).

(2) Some people also operate under the mistaken notion that the best way to keep kids in line is to "scare the pants off them." In response to this, we say: Kids (just like adults) resent overscare tactics. When they are fed a series of scare and/or moralistic lectures, they learn to tune it out, so they aren't listening to the really important things they must know. If we really want to help our youth and if we really feel we have some valid things to say, then we must first approach them in such a way that they will be willing to listen.

(3) Many people also operate under the strange idea that adolescents should only be presented with "tasteful" material. On this point, we must understand that youth are particularly distrustful of the establishment's "tasteful" approaches to such things as sex and drugs. But no teenager loses status within his peer group for reading a comic book. We should remember that comic books are the only source of reading pleasure for huge numbers of teenagers.

We did a study of 200 sex books for adolescents and found they had a terribly small circulation. Only a relatively small percentage of the population, teenagers included, willingly reads books. On the other hand, something like 300 million comic books are sold annually in the United States. It doesn't occur to most average young people to use books for information but comic books are a way of communicating with them. Once they read a funny cartoon, they are motivated enough to read a few lines of information.

The format of our first comic book, "Ten Heavy Facts About Sex," consists of cartoons interspersed with information based on the ten most

frequently asked questions from over 5,000 teenagers throughout the country. Our research on the first 5,000 letters we received brought forth only a smattering of criticism from adults that the comic was in poor taste. What these critics don't seem to understand is that what constitutes "good taste" for them is not attractive to most teenagers.

Our goal in creating our comic books is to give adolescents a few essentials so that they will have some basis for responsible decision-making. We avoid moralizing, use straightforward, everyday language and use humor to alleviate anxiety generated by sexual matters. Youngsters appreciate this.

All this explains our strategy, but it doesn't explain why we feel so strongly about disseminating sex information. The Institute for Family Research and Education seeks to improve the quality of individual and family lives through educational programs. One of its missions is to help reduce the number of unintended pregnancies which are, for the most part, the result of ignorance about sex. Unintended pregnancies too often result in children who are unwanted, neglected and resented. They grow up scarred, emotionally and intellectually, and frequently with physical handicaps. The damage done to them is then translated into the society they enter.

In addition, ignorance about sex very often results in unwarranted anxieties in the individual. Not only do vast numbers of people suffer from serious sexual problems such as impotence and frigidity (Masters and Johnson, 1971), but they also engage in all sorts of pathological behavior not obviously related to sex. And, in fact, it is these very anxieties which lead people into irrational, irresponsible and immoral behavior.

It is an old mistake to try to enforce "morality" by saying "don't" and leaving it pretty much at that. But by dealing honestly and realistically with the areas of greatest anxiety we encourage youngsters to behave in a responsible manner. Keeping silent has never made people moral; it only compounds the confusion. We must face the fact that many adolescents have sexual relations before marriage, whether we adults like it or not. Just saying "don't" does not make sense to them, but saying "don't exploit or hurt people by bringing an unwanted child into this world" does.

We recommend giving young people the facts and our opinions so that they can make up their own minds (they do anyway), but they should at least be sensitive to and aware of the options they have. Youth need to feel that they can make their own sexual decisions--with waiting for marriage as one of the healthy, normal options (despite the fact that most adolescents do not wait). They also need, however, to feel secure that they have parental support for the use of contraception in the event that they decide to have sexual relations before marriage. (Over 200,000 girls of school age under 18 will give birth this year and about 60 percent will be married by the time the child is born, the majority of them forced into marriages which often end in divorce as well as serious problems for the unwanted child.)

The success of our sex education comics indicates that we are getting at an unmet need--we have already sold over 500,000 copies to libraries,

organizations, schools and churches, and, a crucial target, parents.

Although I've mainly reviewed only one specific aspect of our work at the Institute, I must mention that our main message is that the models for healthy sexual behavior should be the parents. We've used schools as a scapegoat for too long. Sex education belongs in the home, but most parents fail to carry out this task adequately. What we crucially need is a massive program for preparing parents and potential parents to be the sex educators of their children.

If I had to summarize our Institute's main goal it would be in terms of a two pronged campaign: to educate parents and potential parents about how to teach their children about sexuality, while at the same time not neglecting today's youth.

References

I.

1. Calderone, Mary, quoted in Publisher's Weekly, March 12, 1973.

2. Chilman, Catherine S., "Some Social and Psychological Aspects of Sex Education," The Individual, Sex and Society, Carlfred B. Broderick and Jessie Bernard (eds.) (Baltimore: Johns Hopkins Press, 1969).

3. Force, Elizabeth S., "Family Life Education 1970: A Regional Survey," The Family Coordinator, October 1970, Vol. 19, No. 4.

4. Goldstein, Martin; Erwin Haeberle; Will McBride, The Sex Book (New York: Herder and Herder, Inc., 1971).

5. Kirkendall, Lester A., Kirkendall on Sex Education: A Collection of Readings (Eugene, Oregon: E. C. Brown Center for Family Studies, 1970).

6. Money, J.; J. G. Hampson; J. L. Hampson, "Imprinting and the Establishment of Gender Role," A.M.A. Archives of Neurology and Psychiatry, 1957, Vol. 77.

7. "Position Paper on Family Life Education," The Family Coordinator, April 1970, Vol. 19, No. 2.

8. Smith, William M., Jr., "Family Life Education--Who Needs It?" The Family Coordinator, January 1968, Vol. 17, No. 1.

9. Commission on Population Growth and the American Future, Population and the American Future (New York: New American Library, 1972).

II.

1. Kantner, John F. and Melvin Zelnik, "Sexual Experience of Young Unmarried Women in the United States," Family Planning Perspectives, October 1972, Vol. 4, No. 2.

2. Commission on Population Growth and the American Future, Population and the American Future (New York: New American Library, 1972).

3. Report of the National Commission on Venereal Disease (U. S. Department of Health, Education and Welfare, Health Services and Mental Health Administration, Center for Disease Control, Atlanta, Georgia 30333).

DISSEMINATION OF POPULATION/FAMILY PLANNING INFORMATION

Chairman: Samuel Baum
Bureau of the Census

Panel Members: Charles M. Cargille
Institute for Global Dynamics

Kathryn H. Speert
International Institute for the Study of Human Reproduction

Jeannette Goldberg
Department of Population Planning
University of Michigan

Richard Walker
Carolina Population Center

APLIC Panel at the Population Association of America Annual Meeting, 1973

AN ANALYSIS OF THE SCOPE AND CHARACTER OF DEMOGRAPHIC LITERATURE: A DILEMMA IN INFORMATION RETRIEVAL (ABSTRACT)

Charles M. Cargille

Analysis of the citations published in Population Index between October 1969 and September 1971 revealed 825 primary sources of demographic articles. The 20 leading journals with the largest number of demographic articles per year contained approximately 34% of the total number of articles published. 44% of the journals had only one article every two years. 57% had two articles or fewer every two years. 44% of the journals were published in languages other than English, and 66% were published in countries outside of North America. The four major biomedical information retrieval systems were evaluated for their adequacy of coverage of the demographic journals. None inputed more than 7 of the leading 20 journals. It was concluded that at present no reliable information system exists for the literature of demography.

Five dilemmas in information retrieval were identified: (1) the large number of journals, (2) the sporadic occurrence of demographic reports in most journals, (3) the multidisciplinary spectrum of journals containing demographic reports, (4) the diversity of languages, (5) the local character of the literature which originates in many countries. The authors recommend that a cost/benefit analysis for an automated information retrieval system be performed and that a prototype system and operating capacity be established.

A CROSS-DISCIPLINARY VOCABULARY FOR INDEXING THE LITERATURE

Kathryn H. Speert

Introduction

The field of population/family planning is cross-disciplinary, encompassing the political and economic fields, demography, statistics, medicine, biology, and the social sciences. Many items of information appear in newsletters, newspapers, United Nations reports, typescripts of papers presented at meetings such as this one (but not published in the same form as originally presented), and census reports. Of course much of the material appears in journals which are indexed in recurring bibliographies like Population Index; but how does one locate a chapter in a book on one aspect of a subject recalled by a reader who cannot remember precisely where he saw it?

Librarians have a name for these materials: fugitive documents; and they have devised methods of confining and controlling them. The first step is to index the material.

Methods of Indexing

At the present time there are four principal methods of indexing, each answering a particular need. The most familiar is the back-of-the-book index, which is very detailed and specific in its entries and indicates, in detail, all the concepts in the work. Created by the author or someone familiar with his subject, it requires many hours to complete, can be as specific as the author wants or as long as the publisher allows, and can result in an item of many pages. Each paragraph can be represented by a separate index entry. Any terminology thought of by the indexer is allowed so that seldom will you find the same terminology in the indexes of more than one book -- even books on the same subject. Therefore the indexes of several books could not be combined and published as one interfiled listing, without the result being bulky and unwieldy. The book index is printed within the book; for other books on the same subject the catalog of a library must be consulted under the same general heading under which the first work is entered.

A second type of index is the library catalog of authors, titles, and subjects. The trend now is toward a divided catalog in which the subject entries are entered in a separate section of the catalog drawers. In the subject catalog will be found not only the subjects assigned to the monographs on the shelf, but also the unallowed synonyms directing the user to the preferred term or word order. This a controlled vocabulary: certain headings are allowed, the number being limited in an effort to restrict scattering of entries representing the same concept. Libraries maintain lists of the subjects in their catalog for the use of their catalogers and

often make these lists available to readers as well. Some catalogs, small and large, have been published for the use of other libraries. Planned Parenthood-World Population, which has a small specialized library, has published its headings and classification scheme in its Family Planning Library Manual and Family Planning Classification[1] for the use of its member libraries and any others that might find this specialized vocabulary useful. The large catalog of the Library of Congress[2] is 1,432 triple columns in length. This is an alphabetical approach to all branches of knowledge with some cross-references to alert the user to related concepts within a subject. Since the Library of Congress covers so much ground and its subject headings describe all branches of knowledge, the entries are general. They will serve for assigning a limited number of entries to a book but are not specialized enough to use in indexing journal literature and fugitive documents in any depth, or with any great degree of specificity.

For greater specificity in a specialized subject a third type of index is needed using a vocabulary which can be used to retrieve specific bits of information buried in the mountain of literature now appearing in every discipline. Not only must this list appear as an alphabetical catalog of used terms and their unallowed synonyms, but relationships among these descriptors ought, also, to be reflected in order to direct the user to other useful terms. The list of indexing terminology, or descriptors, showing these relationships is called a thesaurus.

Thesauri

In the physical sciences, controlled indexing vocabulary has been around for years. The Engineers Joint Council was one of the early experimenters in using broader and narrower terms in their thesaurus. Their most recent edition of engineering terms[3] still lists terms alphabetically in term-sets showing relationships among terms. The Thesaurus of ERIC Descriptors serves to index education literature. The Office of Education's Panel on Educational Terminology[4] defined the function of thesaurus thus:

> An information retrieval thesaurus is a term-association list structured to enable indexers and subject analysts to describe the subject information of a document to a desired level of specificity at input, and to permit searchers to describe in mutually precise terms the information required at output. A thesaurus therefore serves as an authority list and as a device to bring into coincidence the language of documents and the language of questions.

The two thesauri mentioned above cover the single disciplines of engineering and education. The National Library of Medicine has developed another thesaurus named Medical Subject Headings, with the acronym MeSH. The main emphasis of this vocabulary is clinical medicine, but there are also sections devoted to behavioral sciences, biology, health occupations and disciplines, environmental health, preventive medicine, physical sciences (including statistics), anthropology, education, population, sociology and social phenomena, technology, commerce and industry, humanities, communication, health care, health facilities, manpower and services, population characteristics, economics, organizations, social control, health services administration,

and geographicals. If a section on family planning services and programs is added to this the whole field of population/family planning is covered. MeSH has various methods of showing indexers and persons seeking information what terms are available in its controlled vocabulary: the first is an alphabetical list, the second a categorized list, the third a permuted index, and the fourth a series of tree structures. The Alphabetical list[5] gives all allowed descriptors and cross references from some near synonyms or other unallowed terms. The categorized list[6] groups related terms: for instance, anatomical parts of the digestive system, the diseases of the nervous system, or health services administration. The permuted index[7] gives entry under every word in a heading regardless of word order, and indicates the proper word order. The tree structures[8] indicate the arrangement of each category from the most general descriptor to the narrowest. This hierarchy is necessary to alert indexes to the narrowest available indexing term to describe a concept in a document.

Free Language Indexing

There is a difference of opinion as to the merits of using a controlled indexing vocabulary if a computer system is available. With a computer it is now possible to index in a fourth manner: to enter every word, pair of words, or phrase appearing in titles, abstracts, or texts of articles into a computer data base and to retrieve on these. This has definite advantages; among them is that the indexing will now reflect the author's words and therefore his meaning, not an interpretation of his meaning into a preselected indexing vocabulary. This will avoid distortion of his meaning by the limits of the allowable descriptors. In cases where abstracts of the text are used, actual data, not just citations, will be available for retrieval. If authors have prepared abstracts, minimal intellectual effort is needed for indexing.

However, the disadvantages are real and, for most information systems, insurmountable. The first disadvantage is the requirement of a computer, preferably an on-line system, so that dialogue between user and computer is constantly available. For a large information center this may be the way to operate, taking into consideration the necessity of a large memory possibility. The vast volume of terminology per document could only be manipulated by computer. Although intellectual effort will be minimal at input for documents with author-prepared abstracts, most documents will need to be abstracted by subject entered into the system, whether eventually retrieved or not. Although no control need be exercised over input vocabulary, there should be a computer-stored thesaurus for variant spellings of terms, for different verb forms, and for concepts appearing both as noun and as verb. Without some such internal control, the effectiveness of the information retrieval operation is impaired. The more sophisticated the thesaurus, the more efficient the system. Moreover, an external thesaurus will be essential for searching if related concepts in a search request are not to be missed.

Controlled Vocabulary Indexing

Controlled vocabulary indexing, still the preferred method for most information centers and libraries, involves other advantages and disadvantages. It can be used in a manual system, yet can be computer compatible for eventual change to a computer-based system if desired. It takes more intellectual effort at input to index the material, but less at retrieval, and increases the percentage of retrieved material from the data base. Although skilled indexers must be trained and used in this type of system, they do not need to be subject specialists. On the contrary, it has been found that subject specialists tend to read their own prejudices into documents, rather than simply reporting what is there. At retrieval, by using a thesaurus, a match is possible between indexing vocabulary and search request vocabulary. For a manual system there is, to be sure, a limit to the size of the collection handled efficiently, but this can be as many as 10,000 items. There are also simple mechanical aids, such as that described by Mount,[9] which handle this type of indexing and retrieval without the need for electronic data processing. Using a thesaurus of indexing terms to describe documents as fully as desired, and matching the indexing and search requests, will turn up relevant citations. Abstracting in this type of system may wait until the documents are called for. Lancaster[10] has conducted many studies on indexing language and retrieval performances; his recently published volume of vocabulary control sets forth his conclusions.

A Thesaurus in the Field of Population/Family Planning

In the field of population, family planning, and reproduction various efforts are now proceeding, from free vocabulary to thesauri. One cross-disciplinary thesaurus, with emphasis on family planning programs and their evaluation, is now published by the International Institute for the Study of Human Reproduction's Division of Social and Administrative Sciences.[11] Family planning program evaluation, a small part of the whole population problem, spills over into many aspects of the field, from evaluation of acceptors of a family planning program to philisophical overviews of human ecology; from the evaluation of the impact of a contraceptive device on the birth rate of an area to clinical research on new contraceptives. The thesaurus was developed during indexing of the documents collected on family planning evaluation, but the documents themselves touch on peripheral matters, and peripheral documents are also being analysed for retrieval.

It was decided at the Institute's information center to construct a microthesaurus of indexing terms using, where possible, the framework of the National Library of Medicine's Medical Subject Headings. This meant using MeSH terms where available, and introducing new terms when MeSH would not suffice. All introduced descriptors were fitted into the tree structure by making them narrower than an existing heading or grafting a portion of the thesaurus directly on to the main trunk.

The thesaurus has been divided into four sections, including a main section and three appendices. The main section consists of term sets: a term, its definition or scope note where desirable, any broader terms, narrower terms, or related terms. Also recorded are unallowed synonyms.

The main section also gives cross-references for non-used synonyms and unallowed word orders. The first appendix lists all allowed descriptors, the second appendix groups the terms into subjects or categories, and the third appendix shows the hierarchies or tree structures.

The MeSH categories that have been used appear in Table I. A few MeSH terms in Categories A thru F have been utilized: certain parts of the digestive and urogenital system, a couple of laboratory animals, some of the reproductive disorders, those chemicals and drugs dealing with reproduction and surgery, and some psychological reactions. In Category G are found various physiological terms including reproduction; H includes statistics.

Starting with Category I, where MeSH thins out, population/family planning finds its millieu. Table II shows a sample of terms assigned to this category which have been encountered in the literature. Most concepts which have been added have been given scope notes in the first section. These notes show the limits we have put on descriptor meanings for future indexing and efficient information retrieval. Table III includes the term "Contraception" and shows its broader term, and all narrower terms to one level only. For narrower aspects of each narrower term, the term itself will have to be consulted: "Contraceptive Agents," "Contraceptive Devises," and the other terms. Easier and faster is consulting the term "Contraception" in the third appendix which shows the hierarchy (Table IV).

The National Library of Medicine has arranged its terminology in hierarchies, or tree structures, but for ease of computer manipulation, especially in information retrieval, these terms are given letter and number codes. Table V shows a sample of MeSH with codes; Table VI is a sample of how an interfiled listing of MeSH and the terms of the Fertility Modification Thesaurus would appear with the alphanumeric code carried out to additional levels. For a classified library these alphanumeric codes could be used for literature arrangement.

Various sets of rules and ways to create thesauri have been published. A clear exposition can be found in Aitchison and Gilchrist.[12] It is the hope of librarians in the field of population/family planning that an overall indexing language can be produced. The thesaurus here described fits into a universally known and used indexing language. It is a first step; logically others can cast their indexing in the same mold. So far this is true of a project at the Carolina Population Center and one at the Karolinska Institute. It should follow that there will be marked similarities between their efforts and ours, with the eventual possibility of true compatibility. As more of these microthesauri are published, fewer new indexing terms will need to be introduced; some one else will have already defined the descriptor and fitted it into the scheme. Intellectual effort can then be used for answering questions, which is the purpose of all this input and of every service-oriented information center.

TABLE I

The following MeSH categories will be found in this thesaurus.

A: ANATOMICAL TERMS
- A3 Digestive System
- A5 Urogenital System

B: ORGANISMS
- B2 Animal Kingdom - Vertebrates

C: DISEASES
- C1 Infectious Diseases
- C2 Neoplasms, Cysts and Polyps
- C6 Urogenital System Diseases
- C8 Cardiovascular Diseases
- C10 Nervous System Diseases
- C13 Diseases of Nutrition and Metabolism
- C17 Symptoms and General Pathology

D: CHEMICALS AND DRUGS
- D2 Organic Chemicals and Structural Groups
- D8 Hormones, Precursors, Metabolites, Substitutes and Antagonists
- D12 Immunologic Factors, Biological Factors and Substances
- D13 Miscellaneous Chemicals and Drugs

E: ANALYTICAL, DIAGNOSTIC AND THERAPEUTIC TECHNICS AND EQUIPMENT
- E1 Diagnostic Technics and Equipment
- E2 Preventive and Therapeutic Technics and Equipment
- E4 Surgical Technics and Equipment
- E5 Miscellaneous Technics, Methods and Equipment

F: PSYCHIATRY AND PSYCHOLOGY
- F1 Psychological Mechanisms and Processes
- F2 Behavioral Symptoms and Mental Disorders
- F3 Behavioral Sciences, Psychological Tests, Psychotherapy Services

G: BIOLOGICAL SCIENCES
- G1 Biological Sciences and Biological Phenomena
- G2 Health Occupations and Disciplines
- G3 Environmental Health, Hygiene and Preventive Medicine

H: PHYSICAL SCIENCES

I: ANTHROPOLOGY, EDUCATION, SOCIOLOGY AND SOCIAL PHENOMENA

J: TECHNOLOGY, COMMERCE AND INDUSTRY

TABLE I (continued)

K: HUMANITIES

L: COMMUNICATION, LIBRARY SCIENCE AND DOCUMENTATION

M: NAMED GROUPS OF PERSONS

N: HEALTH CARE
- N1 Population Characteristics
- N2 Health Facilities, Manpower and Services
- N3 Economics, Organization, Social Control
- N4 Health Services Administration
- N5 Family Planning Services and Programs

Z: GEOGRAPHICALS

TABLE II

Partial listing of Category I

Category I: Anthropology, Education, Sociology and Social Phenomena

I	Advisory Services	
I	Age Specific Birth Rate	
I	Age Specific Death Rate	
I	Age Specific Fertility Rate	
I	Alliance Indexes	
(I.7)	Anthropology, Cultural	A MeSH term
I	Blacks	
I	Chicanos	
I	Cultural Background	
(I.7.21)	Culture	A MeSH Term
I	Demographic Effectiveness	
I	Demographic Factors	
(I.22)	Education	A MeSH term

TABLE III

CONTRACEPTION (E2.114), N5
All Methods Used to Control Conception
BT Birth Control
NT Behavioral Methods of Contraception
NT Contraceptive Agents
NT Contraceptive Devices
NT Contraceptives, Conventional
NT Perfect Contraceptives
NT Sterilization, Sexual
RT Family Planning
USED FOR Conception Control
USED FOR Fertility Control

TABLE IV

- Contraception
  - Behavioral Methods of Contraception
    - Abstinence
    - Coitus Interruptus
    - Rhythm Method
  - Contraceptive Agents
    - Contraceptives, Injectable
    - Contraceptives, Oral
    - Foams
  - Contraceptive Devices
    - Condoms
    - Diaphragms
    - Foams
    - IUD
      - IUD Evaluation
        - IUD Failure Rate
        - IUD Retention Rate
        - IUD Termination Rate
      - IUD Insertions
        - IUD Failure
        - IUD Retention
        - IUD Termination
          - IUD Termination, Expulsion
          - IUD Termination, Pregnancy
          - IUD Termination, Removal
      - IUD Size and Type
  - Contraceptives, Conventional
    - Condoms
    - Diaphragms
    - Foams
  - Perfect Contraceptives
  - Sterilization, Sexual
    - Sterilization, Female
      - Hysterectomy
      - Tubal Ligation
    - Sterilization, Male
      - Vasectomy
    - Sterilization Rate

TABLE V

Personal Health Services	N2.
After Care	N2.20
Community Health Services	N2.40
Family Planning	N2.60
Health Education	N2.80
Maternal-Child Health Services	N2.100

TABLE VI

Personal Health Services	N2.
After Care	N2.20
Community Health Services	N2.40
Clinic Sessions	N2.40.40
Contacting Clients	N2.40.60
Family Planning	N2.60
Birth Control	N2.60.20
Contraception	N2.60.20.20
Behavioral Methods of Contraception	N2.60.20.20.10
Abstinence	N2.60.20.20.10.10
Coitus Interruptus	N2.60.20.20.10.30
Rhythm Method	N2.60.20.20.10.30
Contraceptive Agents	N2.60.20.20.20
Contraceptives, Injectable	N2.60.20.20.20.10
Contraceptives, Oral	N2.60.20.20.20.15

Bibliography

1. Horowitz, Blanche, Combined Edition Family Planning Library Manual and Family Planning Classification: with Coding Scheme, Index, Glossary. New York, Planned Parenthood-World Population, 1972.

2. Subject Headings: Used in the Dictionary Catalogs of the Library of Congress. Marguerite B. Quattlebaum, Editor. 7th edition and supplements. Washington, D.C., Library of Congress, 1966+

3. The Engineering Index, Inc. Engineering Index Thesaurus. New York, CCM Information Corporation, 1972.

4. Thesaurus of ERIC Descriptors. 2nd edition. Compiled by the Educational Resources Information Center, Bureau of Research. Washington, Government Printing Office, 1969, p. vii.

*5. National Library of Medicine. Medical Subject Headings Alphabetic List, 1973. Washington, D.C. NLM, 1973. The version used by indexers and searchers, and contains geographic terms, provisional headings, and helpful notes. (Accession number PB-212-068)

6. National Library of Medicine. Medical Subject Headings. Number 1, part 2 of each January issue of Index Medicus. Washington, D.C., NLM, 1960+

*7. National Library of Medicine. Permuted Subject Headings, 1972. 1973 will be available shortly. Washington, D.C., NLM 1972. (Accession number PB-207-707)

*8. National Library of Medicine. Medical Subject Headings Tree Structures, 1973. Washington, D.C. NLM, 1973. (Accession number PB-212-068)

9. Mount, Ellis, Information Retrieval from Technical Reports Using Termatrex Equipment. Special Libraries Vol. 54, 84-89, February 1963.

10. Lancaster, F. W. Vocabulary Control for Information Retrieval. Washington, D.C., Information Resources Press, 1972.

11. Speert, Kathryn H. and Wishik, Samuel M. Fertility Modification Thesaurus: with Focus on Evaluation of Family Planning Programs. New York, International Institute for the Study of Human Reproduction, 1973.

12. Aitchison, Jean and Gilchrist, Alan. Thesaurus Construction: A Practical Manual. London, ASLIB, 1972.

* These publications are available (no. 5: $9.00, no. 7: $6.00; no. 8: $6.00) from the National Technical Information Service, U. S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22151

SELECTED INVENTORY OF INFORMATION NETWORKS

Jeannette Goldberg

As the volume and complexity of information in the field of population/family planning have grown, the acquisition, storage and retrieval of this information have become a major concern. The data seem to be increasing faster than our handling of it. Scholars and librarians are frequently stymied and frustrated by the unavailability of materials, and indeed, by the question of where to initiate their data searches. Dr. Cargille in his paper has identified our mutual problems and properly labeled them a "dilemma." Mrs. Speert and Mr. Walker in their papers offer partial solutions: Mrs. Speert through the development of a thesaurus for indexing the literature and Mr. Walker by an examination of our existing tools - bibliographies. This paper will explore the possibilities of an approach to our "dilemma, " utilizing all our "tools" and potential, by looking at the problem in another context. Using the parameter that the researcher's concern is with obtaining materials with the least amount of effort and all reasonable speed, I'm suggesting that the organization of the materials in population/family planning into a cooperative computerized information network might present a solution to the difficulties in which we find ourselves.

In the past, the role of the library has been a passive one; and in this traditional capacity of collecting and storing materials, the library has served the scholar well and will continue to do so. However, it has become necessary to consider adding a new element of service. The needs of many users have changed, and the library too must restructure its format and assume a role of active participation. The evaluation of information, as well as fast retrieval of this information, has become paramount to the researchers. To accommodate these objectives, we must turn to newer technology. It should be noted that accusations have been leveled indicting many librarians of encouraging a reluctance on the part of the user to accept new informational systems and techniques. Scholars, too, are often loath to give up conventional means of research. If the primary objective is quick access to information, librarians and researchers, as well as libraries, will have to assume a new posture. Focusing chiefly on other disciplines and their efforts at sharing computerized information is a useful step in developing a model which might be applicable to population/family planning.

Some of the best examples of cooperative networks are the following systems: Medical Literature Analysis and Retrieval System (MEDLARS), Educational Resources Information Center (ERIC), and U. S. National Aeronautics and Space Administration (NASA). Each system will be briefly described.

1. MEDLARS (Medical Literature Analysis and Retrieval System) was organized in 1964 under the auspices of the U. S. National Library of Medicine. It is a computer-based information storage and retrieval system intended to furnish rapid bibliographic access to the large biomedical literature collection of the National Library of Medicine. Included in the areas of coverage are medicine, dentistry, nursing, pharmacy, and allied health fields. MEDLARS network arrangement consists of 12 stations and about 8 regional medical libraries. Requests for one-time bibliographic searches are submitted through regional medical libraries. The descriptors used to request information are found in Index Medicus, a comprehensive subject-author index, which reviews 2,300 biomedical journals and is published monthly. The vocabulary is then fed into a terminal, and an immediate printout is issued listing sources of materials. Recurring bibliographies on specialized subjects of wide interest are offered as well. The input sources are biomedical and health service journals, books, and periodicals.

2. ERIC (Educational Resources Information Center) was established in 1965 by the U. S. Office of Education. It is a nationwide information system designed to serve the field of education through the dissemination of educational resources and research materials. Its scope encompasses all aspects of education. ERIC conducts a systematic searching of schools, State Education Departments, colleges, universities, professional organizations and foreign sources for information. A central staff at the Office of Education and 20 decentralized clearinghouses, each focusing on a special subject area, make up the "network" whose functions include monitoring, acquiring, evaluating, abstracting, and indexing information which is listed in ERIC publications. Each clearinghouse produces newsletters, bulletins, interpretive summaries, and bibliographies. These centers are located in university or professional settings operating under contract to the U. S. Office of Education. Approximately 35,000 reports per year are received and scanned for selection and inclusion in Research in Education which is published monthly. RIE abstracts and indexes about 1,000 reports in each issue. The materials included are original unpublished research reports, descriptions of outstanding educational programs, and uncopyrighted fugitive literature. All documents are reproduced in hard copy, as well as in microfiche for ease in handling the volume of literature processed. Another ERIC publication, Current Index to Journals in Education, also issued monthly, includes 500 major educational and education-related publications reviewed for pertinent articles.

3. NASA (U. S. National Aeronautics and Space Administration) has a network of systems which feed into one another. Two of these systems are described below:

A. STIF (Scientific and Technical Information Facility) was founded in 1962 and is operated by Information Tesco, Inc., under contract to the U. S. National Aeronautics and Space Administration. STIF, as an integral part of NASA, encompasses all aspects of worldwide aerospace information. It is responsible for NASA's scientific and technical information program

as well as the acquisition and processing of domestic and foreign aerospace scientific and technical literature. The input include unpublished reports, journals, and conference proceedings generated by NASA centers on aerospace research. These documents are acquired from NASA Centers, NASA contractors, government agencies and their contractors, and university and private research institutions. Numerous publications are issued on a semi-monthly, monthly, and quarterly basis. The monthly issue of SCAN (Selected Current Aerospace Notices) is of particular interest. This is a "current Awareness" service available to NASA offices. The information in the other serial publications such as STAR (semi-monthly) and IAA (International Aerospace Abstracts) contains indexes and abstracts to the acquired documents. Literature searches and bibliographies are also part of the coordinating library services provided.

B. NSSDC (National Space Science Data Center) became operative in 1965. It provides the means for analysis and dissemination of space science data. The scope of this system includes scientific experiments from satellites, space probes, rockets, and balloons of high-altitude aircraft. The data input are received from science investigators, published and unpublished literature. A computerized technical reference file of its holdings is maintained in the form of magnetic tapes, microfilm, printed reports, and photos. Not only are descriptive catalogs of its holdings published, but technical evaluation of the information is also provided. Its publications are: The Data Catalog of Satellite Experiments, Handbook of Correlative Data (both biennial publications), and Spacewarn Bulletin (biweekly).

4. Equally impressive in size and scope of operation is the International Nuclear Information System (INIS) sponsored by the International Atomic Energy Agency. This information system was founded in 1969, and is the first computer-based documentation service which is, as its name indicates, international. It encompasses all publicly available literature dealing with nuclear sciences and their peaceful applications. Twenty-five countries are involved, many pooling their resources and joining together into regional groups. Each member country or regional organization scans the literature published in the area for which it is responsible and prepares it for input. This system is document-oriented. The file contains a description of each publication in the field of nuclear science. English is the "carrier language" for data entering the computer store. Unlike other networks described, there is no abstracting journal. However, an abstract for each item submitted is provided in English and one other working language (French, Russian, or Spanish). The abstracts are assembled on microfiche by the Agency and offered for subscription. The thesaurus used by INIS was supplied by Euratom (European Atomic Energy Community). Recognizing that the less developed member countries don't have facilities for the utilization of a magnetic tape service, INIS issues a bulletin (INIS Atomidex) which is printed directly from the tape and can be correlated with the file of abstracts on microfiche.

INIS encountered many obstacles and setbacks during its inception. The participating countries could not reach agreement at many stages in evolving the system. Considerable differences in interpretation of subject scope and adopting a coordinated indexing system involving the assignment of key words

are only some of the areas amid many which turned into stumbling blocks. INIS has, nevertheless, worked through its problems and has finally become operative.

In this selected inventory of information systems, the first four (MEDLARS, ERIC, NASA's STIF, NSSDC) are well functioning, cooperative networks, government-sponsored, and extensive in the coverage of their areas of interest. One of the common distinguishing features is the emphasis on analysis of the literature. This stress on evaluating, abstracting, and disseminating literature generates an impetus for new research which is fed back into the system. Another similarity of design adopted by these networks is their framework of a central control and decentralized units sharing information resources, which results in the obvious advantages of non-duplication and cost reductions. Their goals are consonant with the high level of sophistication of their audiences. INIS (International Nuclear Information System), previously described, falls in the same category of broad-based "networks," and experiences the same beneficial results on an international level, consequently receiving a very wide hearing.

In our own sphere of interest a new information system has been developed: the International Demographic Data Directory which is under the auspices of the Bureau of the Census. The demographic data provided include population characteristics, vital statistics, statistics on family planning programs, health programs, education, and demographic-related economic characteristics for the world, component regions, countries, and subdivisions of countries. The data include both primary and adjusted data. Its sources of input are the International Statistical Programs of the Census Bureau, United Nations publications, journal articles, newsletters, conference reports, overseas consultants, and Population Council and International Planned Parenthood Federation publications. A subject and country index has been developed and the printout received is either the actual data or a reference to tables which contain the information needed.

With the emergence of the International Demographic Directory, which was acknowledged with keen appreciation in the population/family planning community, a move has been made in filling an important gap in information services available to the researchers in our field. The coverage, although broad, very pointedly leaves many other areas in a state of neglect. Precisely because of the establishment of the International Data Directory, the concept of other sectors in the field forming similar units, and joining together to create a comprehensive computerized information system, becomes viable. Individual institutions can and do move more quickly than cooperative groups, and a number have already started their own systems. These individual centers function independently and primarily serve the requirements of their own staff. Some are computerized while others, such as the International Reference Center for Abortion Research (IRCAR), are manual systems of information storage and retrieval which are adaptable to computerization. The University of North Carolina's Carolina Population Center and Caltech's Population Program have made efforts to produce monthly computerized bibliographies. The University of Texas is putting international census publications on microfilm. The Center for Disease Control in Atlanta provides an excellent example of a computerized information program. Meeting the needs of its

own personnel, this center has developed a system of information retrieval in the areas of family planning and fertility: the Information Exchange System. Journal and conference literature is screened for input into the system at the rate of 50 articles a week. Each staff member is involved in reviewing articles on a regular basis. Abstracts are written and keywords are assigned to the articles, which are given accession numbers. This information and the journal references are key-punched and transferred onto magnetic tape. An abstract card indicating the contents of a particular article greatly facilitates information retrieval for the researcher.

These individual groups, computerized or not, are responding to pressures from scholars to provide "information services." The alacrity with which solutions have been attempted or found by these centers is not only commendable but enviable. Frequently plans of "cooperative committees" remain just plans. However, as estimable as these individual centers are, they have limitations of coverage, reach only a small percentage of potential users, and frequently overlap and compete with each other, which results in wasted efforts and dollars. The need for cooperation is paramount. We must recognize that common goals and the combining of efforts may achieve more effective long-range results than will short-range competition. The keyword is synergism: simultaneous action of separate agencies which together have greater total effect than the sum of their individual effects. The field of population/family planning is in need of an information retrieval network consisting of data banks, libraries, and information centers that are cognizant of each other's existence and able and willing to cooperate in an effort to provide replies to search inquiries. A scheme of specialization should be designed whereby each institution or group is responsible for a particular subject, relying on other units to investigate the various other areas in the field.

A review of the many problems that would be encountered in the establishment of an information network indicates a wide range of difficulties to overcome. The practical considerations of sponsorship and funding head the roster. Questions concerning government participation are manifest. Is there or should there be a recognition by the federal sector of a responsibility to the field? Should a population/family planning network be patterned along the lines of ERIC or NASA? Can the operational aspects of these programs be translated into a practicable course of action for population/family planning? Developing a vocabulary of indexing terms is mandatory in such programs. Although progress has been made in this area, can these thesauri be effectively integrated? Analysis of the literature requires subject knowledge by the librarians who perform this function. Do librarians have subject background? Is the training of manpower in this area feasible? Dissemination of literature is an important aspect of a network. Are we prepared to adopt a microform system as part of a distribution plan? What are the implications of the copyright legislation currently before Congress? These and many other questions will be discussed at the International Conference on population Library and Information Resources to be held in Bangkok in several months. The specific recommendations for information services presented at that time will certainly be relevant for the World Population Year Conference.

There are many deterrents in organizing a cooperative information system, but it's not an insuperable task. The field of population/family planning should, under federal supervision, establish an information network incorporating existing centers (if they are willing) and organize others across the country. We could pattern ourselves on ERIC, benefiting from their experiences. In view of the colossal feat performed by INIS (International Nuclear Information System) of structuring 25 countries into an alliance of workable components, the commission before us appears quite plausible.

In this paper, I have tried to present thoughts for consideration and a possible application of strategy as a means of resolving our problems of information communication. Our need is real. Our "dilemma" is soluable. Whether or not we are activated into seeking solutions is for us to determine.

Bibliography

1. "All About ERIC." Journal of Educational Data Processing 7(2): 51-134.

2. Buddington, William, "Venn Diagramming the Information Community." Special Libraries 63(9): 367-372 (September 1972).

3. Douville, Judith. "Technical Information Centers: Specialized Services to Science and Technology. An Overview." Journal of the American Society for Information Science 23(3): 176-184 (May-June 1972).

4. Krusas, Anthony, ed. Encyclopedia of Information Systems and Services. Ann Arbor, Michigan: Edwards Bros., 1971.

5. Mulligan, Sally. "The Computer as a Bibliographic Tool." Paper presented at the Population Association of America, Toronto, Canada, April 13-15, 1972.

6. U. S. Bureau of the Census. International Demographic Directory: A Computerized Information Retrieval System for Demographic and Family Planning Data. Washington, D.C., 1972.

7. U. S. National Library of Medicine. Guide to Medlars Services. Rev. (Public Health Service publication 1694). Bethesda, Maryland: 1970.

8. Woolston, J.E. "The Design and Implementation of an International Nuclear Information Sustem." (Reprint from: Handling Nuclear Information, IAEA-SM-128/48) Vienna: International Atomic Energy Agency, 1970.

APPENDIX I

APLIC CONFERENCE ATTENDANCE REPORT

1968--1973

APLIC CONFERENCE ATTENDANCE REPORT--1973

The following is a survey of conference attendance by organizations represented over the past six years, compiled from conference participant lists. As the Association continues to take shape, a firm idea of the membership composition of the group, past and potential, is needed. The totals given below include the total number of conference participants (as listed by organization on the following chart), as well as the total number of conference speakers and observers.

1968 22

1969 50

1970 50

1971 80

1972 102

1973 77

CONFERENCE ATTENDANCE BY ORGANIZATION

	1st 1968	2nd 1969	3rd 1970	4th 1971	5th 1972	6th 1973
American College of Obstetrics and Gynecology, Chicago, Illinois						1
Transnational Family Research Institute, American Institutes for Research, Silver Spring, Maryland				1	1	1
Department of Cell Biology, Baylor College of Medicine, Houston, Texas						1
School of Public Health, University of California, Berkeley	1	1	1			
Caltech Population Program, California Institute of Technology, Pasadena, California					1	1
International Demographic Statistics Center, Bureau of the Census		2	2	2	2	3
Center for Family Planning Program Development, Washington, D. C.					1	
Central Bureau of Statistics, Baghdad, Syria					1	
Communications Laboratory, Community and Family Study Center, University of Chicago					1	
Clearinghouse and Laboratory for Census Data, Washington, D. C.					1	1
International Institute for the Study of Human Reproduction, Columbia University, New York		1	1	1	2	3
Comprehensive Family Planning Program, Asheville, N. C.					1	
International Population Program, Cornell University, Ithaca, N. Y.						1

	1st 1968	2nd 1969	3rd 1970	4th 1971	5th 1972	6th 1973
Delaware League for Planned Parenthood					1	
Population Studies Program, Duke University, Durham, N. C.					1	
East-West Communication Institute, East-West Center, Honolulu					1	1
East-West Population Institute, East-West Center, Honolulu			1	1	1	
Emory University, Atlanta, Georgia						1
ERIC Information and Analysis Center for Science, Math, and Environmental Education, Columbus, Ohio				1	1	1
Family Health Foundation, New Orleans, Louisiana						1
Family Planning Training Institute, Baltimore, Maryland					1	1
Family Planning Clinic, Rochester, New York					1	
Population Office, Ford Foundation	1	1	1	1		2
Population Dynamics Program, University of Ghana, Accra						1
Population Information Program, George Washington University, Washington, D. C.						1
Harvard Center for Population Studies, Harvard University, Cambridge, Massachusetts	1	1	1	1	1	1
Human Resources Research Organization, Fort Knox, Ky.					1	
Institute for Sex Research, Indiana University, Bloomington					2	2

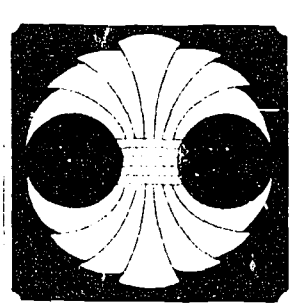
	1st 1968	2nd 1969	3rd 1970	4th 1971	5th 1972	6th 1973
Institute for Scientific Information, Philadelphia, Pa.						1
International Bank for Reconstruction and Development, Washington, D. C.					1	
International Development Research Center, Ottawa, Canada				1	1	
International Planned Parenthood Federation, London, England			1	1	1	1
International Planned Parenthood Federation, Western Hemisphere Region, New York			2	1	1	1
Population and Family Health Department Library, Johns Hopkins University, Baltimore, Md.		1				
School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland					1	1
Karolinska Institutet, Stockholm, Sweden						1
Korean Institute for Family Planning, Seoul						1
Latin American Demographic Centre, Santiago, Chile						1
Scripps Foundation, Miami University, Oxford, Ohio						1
Department of Population Planning, University of Michigan, Ann Arbor	2	1	1	1	2	2
Inventory of Published Research in Marriage and Family Behavior, University of Minnesota, Minneapolis			1			
School of Public Health, University of Minnesota, Minneapolis					1	

	1st 1968	2nd 1969	3rd 1970	4th 1971	5th 1972	6th 1973
Department of Demography, University of Montreal				2		
Office of Space Science and Applications, National Aeronautics and Space Administration			1			
National Family Planning Board, Kingston, Jamaica						1
National Institute of Child Health and Human Development, National Institutes of Health						1
Center for Population Research, NICHD, NIH		2	1	1	1	1
Program Administration and Analysis Branch, NICHD, NIH						1
Scientific Information Centers Branch, NICHD, NIH	2	1	1			
Division of Computer Research and Technology, National Institutes of Health	1	1	1			
National Library of Medicine					1	2
Newark Coordinated Family Planning Program, New Jersey					1	
New Orleans Public Library, Louisiana						2
North Carolina Department of Administration, State Planning Division, Raleigh				1		
Technical Information Service, Carolina Population Center, University of North Carolina at Chapel Hill	2	3	5	10	12	7
Department of Computer and Information Science, University of North Carolina at Chapel Hill		1				1

	1st 1968	2nd 1969	3rd 1970	4th 1971	5th 1972	6th 1973
School of Journalism, University of North Carolina at Chapel Hill		1				
School of Library Science, University of North Carolina at Chapel Hill						1
Orleans Family Planning Association, Albion, New York					1	
Department of Health and Population Dynamics, Pan American Health Organization, Washington, D. C.	1			1		1
Pan American Sanitary Bureau Library, Pan American Health Organization, Washington, D. C.			1			
Pan American Federation of Associations of Medical Schools, Bogota, Colombia					1	
Population Studies Center, University of Pennsylvania, Philadelphia	1	1		1		
School of Public Health, University of Pittsburgh, Pa.	1	1	1		1	1
Planned Parenthood Association, Chicago Area, Illinois					1	
Planned Parenthood of Detroit, Michigan					1	
Planned Parenthood, Essex County, New Jersey					2	
Planned Parenthood, Houston, Texas					1	
Planned Parenthood of Minnesota					1	1
Planned Parenthood/World Population, New York	1	2	1	1	2	1
Planned Parenthood/World Population, Southwest Region, Austin, Texas				1		1

	1st 1968	2nd 1969	3rd 1970	4th 1971	5th 1972	6th 1973
The Population Council, New York	2	4	2	2	3	2
Population Crisis Committee, Washington, D. C.					1	
Population Reference Bureau, Inc., Washington, D. C.	1	1	1	1	1	1
Office of Population Research, Princeton University, New Jersey	1	1	1	1		1
Regional Training Center for Family Planning, Atlanta, Georgia					1	
Research Triangle Institute, North Carolina				2	2	
Simon Population Trust, Cambridge, England						1
Social and Economic Statistics Administration Library		1	1	1	2	3
Family Planning and Population Information Center, Syracuse University, New York						1
Population Research Center, University of Texas, Austin						1
Center for Population Studies, Tulane University, New Orleans, Louisiana	2					
Dag Hammarskjold Library, United Nations, New York					1	
Fund for Population Activities, United Nations, New York						1
Population Division, United Nations, New York	1	1	1	1		
UNESCO, Paris, France				1		
Population Office, U. S. Agency for International Development, Washington, D. C.			1	1	4	3

	1st 1968	2nd 1969	3rd 1970	4th 1971	5th 1972	6th 1973
U. S. Department of Agriculture, Extension Division					1	1
Family Planning Evaluation Activity, Center for Disease Control, U. S. Department of Health, Education and Welfare, Atlanta, Georgia				1	1	1
National Center for Family Planning Services, U. S. Department of Health, Education and Welfare, Rockville, Maryland			1		1	1
National Center for Health Statistics, U. S. Department of Health, Education and Welfare, Rockville, Maryland				1		
Office of Population Affairs, U. S. Department of Health, Education and Welfare, Washington, D. C.						1
USAID/Jamaica, U. S. Department of State						1
Center for Demography and Ecology, University of Wisconsin, Madison				1		2
World Health Organization, Geneva, Switzerland			1	1		



APPENDIX II

APLIC OFFICERS AND BOARD OF DIRECTORS

APLIC OFFICERS AND BOARD OF DIRECTORS
1973-1974

OFFICERS

President	Wilma Winters Harvard Center for Population Studies
1st Vice President	Frances Jacobson Population Reference Bureau, Inc.
2nd Vice President	Blanche Horowitz Planned Parenthood/World Population
Secretary/Treasurer	Catherine Fogle Carolina Population Center

BOARD MEMBERS

	Board Term
Dorothy Kaufman Social and Economic Statistics Administration	1974
Kathryn Speert International Institute for the Study of Human Reproduction	1974
Dan Joldersma Department of Population Planning, University of Michigan	1975
Helen Kolbe Population Information Program, George Washington University	1976
Faye Richardson National Center for Family Planning Services	1976
Rolf Versteeg Center for Population Research, National Institutes of Health	Ex Officio

APPENDIX III

OTHER PUBLICATIONS IN THIS SERIES

OTHER PUBLICATIONS IN THIS SERIES

Proceedings of the Second National Workshop in Population Library and Information Services, including the Survey of Population Libraries in the United States, Chapel Hill, Carolina Population Center, 1970.

Proceedings of the Third National Conference on Population Library and Information Services, Chapel Hill, Carolina Population Center, 1971.

--Panel on "Information Resources and Population/Family Planning Needs"
--"Building and Maintaining a Classified Catalogue"
--"Family Planning/Population Library and Information Services: Suggested Directions for the Future"
--"The Extramural Program of the National Library of Medicine"
--Reports of Working Committees on New Libraries, Interlibrary Exchange, Subject Indexing, Census Material, and Newspaper Clippings
--Subject Classification Workshop Report
--Summary Report of the First National Workshop on Population Library and Information Services

Proceedings of the Fourth National Conference on Population/Family Planning Library and Information Services, Chapel Hill, Carolina Population Center, 1971.

--Panel on "The Partnership of Government and Private Sources of Population/Family Planning Information"
    "Activities of the Pan American Health Organization in Latin America"
    "Population Information Needs from the Perspective of Multilateral Assistance Programmes"
    "The National Center for Family Planning Services: Producer, Consumer, and Disseminator of Information"
    "The Development of Demographic Libraries and Demographic Librarians"
--International Seminar
    "The International Planned Parenthood Federation's Network of Libraries and the Population Library Situation in the United Kingdom"
    "Canadian Resources for Population Work in Developing Countries and the Question of New Information Services"
    "The Population Programme of the O.E.C.D. Development Centre"
    "The Latin American Demographic Center"
--"The Foreign Library and Information Services Consultant in Asia"
--Workshop Session on "The 1970 United States Census of Population and Housing: A Discussion of Data, Products and Services"

Proceedings of the Fifth National Conference on Population/Family Planning Library and Information Services, Chapel Hill, Carolina Population Center, 1972.

--Panel on "Information Needs and Sources in Family Planning"
"Information and Education in U. S. Family Planning Programs"
"Communications Program Planning"
"Development of Family and Population Planning Communications Material"
"International Family Planning Programs"
--Workshop Sessions
"Information Retrieval Using Library Methods"
"Construction of an Hierarchical Indexing Vocabulary for Population/Family Planning Literature"
"Computer Usage in Library and Information Retrieval Services"
--"Population Education: A New Dimension for the Population/Family Planning Library"
--"The First Five-Year Plan for Population Education"
--"Overall Structure of Information Resources in the Population Field"
--Bylaws of the Association