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ABSTRACT

The friends and colleagues of Clarissa Gadiel used this publication which deals with problems which were close to her heart and to which she gave much thought as of means of perpetuating her memory. The publication includes the following papers: "Information Education at the Grassroots," by Hans Wellisch; "Reference Work in Library and Information Science Curricula," by Sarah M. Thomas; "Dealing With Journals in Special Libraries," by Susane Weil; and "The One Man Show Reference Business: The Satiric Approach," by Esther Amiel. (Author/NH)

CONTRIBUTIONS TO INFORMATION SCIENCE

No. 5

ISRAEL SOCIETY OF SPECIAL LIBRARIES AND INFORMATION CENTRES

ISLIC

CLARISSA GADIEL MEMORIAL ISSUE

REFERENCE WORK - BACKGROUND AND [illegible] S

Tel-Aviv
June 1971

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Papers in this issue have been contributed by colleagues and friends of Clarissa Gadiel and are dedicated to her memory

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Clarissa Gadiel

IN MEMORIAM

Clarissa Gadiel died on June 9th, 1970, after a short and cruel illness. She was taken by a pitiless fate in the prime of life and on the threshold of a brilliant career, with so many hopes and promises unfulfilled.

Stunned by this harsh blow, her friends and colleagues had the spontaneous idea of perpetuating her memory in a publication which would bear her name and deal with problems which were close to her heart and to which she gave much thought.

Clarissa came to Israel from Rumania less than a score of years ago. Her education and work as a journalist in Rumania had not prepared her for life in her new homeland. She did not know Hebrew - so journalism was out.

With her energy and application she quickly mastered the Hebrew language, and after a short time on a Kibbutz Ulpan started out on her own, to find her place in her new homeland.

A frustrating period of odd jobs followed - always performed with a cheerful smile and with the determination to do every job - no matter how very much beneath her gifts and her capabilities it was - to the best of her ability. Every task which she undertook, big or trivial, was a challenge, and she was driven by an inner ambition to perform it with the greatest perfection.

Ten years ago, through pure chance, she came to work with The Center of Scientific and Technological Information, and here she found herself and her true vocation. Hers was the rare ability to combine intellectual curiosity with an open and flexible mind, an exceptional memory and the will and the capacity for systematic and disciplined learning. From the very beginning these natural gifts, along with an ingrained sense of service in which she took great pride, her warmheartedness and interest in people, made her the right person in [illegible].

Through independent study, short courses and in-service training she advanced rapidly in the profession. But being a perfectionist, she decided to formalize her training, and devoted two strenous years to study at the Hebrew University Library School, during which time she carried out her duties in the Center with a scarcely reduced load.

Her ambitions did not stop with the acquisition of a diploma in Library Science, and for the year 1970/71 she applied and was accepted at one of the most prominent universities abroad to continue her studies for a doctorate in Information Science. However, fate decreed otherwise.

Everybody who knew her personally and had the good luck to work with her has lost a very dear and warmhearted friend and the profession has lost one of its most gifted and promising members.

L. Vilenkuk

INFORMATIONAL EDUCATION AT THE GRASSROOTS

by Hans Wellisch
Visiting Lecturer

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University of Maryland

The Age of User Education

The future historian of librarianship and information retrieval may be tempted to call the fifties and early sixties of our century the "Age of user studies", while the late sixties and early seventies might enter history as the "Age of user education", to judge from the number of papers published on this subject in the last few years. In the "user studies" (or as they were sometimes called, "user need studies") whose number reached several hundreds, it was generally found that "users" either did not use their libraries and information centers at all, preferring to ask colleagues or to rely on their own haphazard collection of notes, or that they used them only in dire need, when all other avenues of approach to information proved ineffective. A relatively large number of users did not even know that there was a library or information service at their disposal. These results first caused somewhat painful surprise and later consternation and a growing [illegible] about the huge sums of money spent on information centers and specialized libraries, indexing and abstracting services, SDI services and plain old library services, all of which are chockfull of information not utilized to any appreciable degree by those who daily clamor for it or complain about being swamped by it.

However much the libraries and services themselves might have been to blame for the low measure of efficiency thus demonstrated, it occurred only recently to some investigators that users are not laboratory rats whose reactions to certain stimuli have only to be measured in an impartial and "scientific" way, to find out how they react or fail to react to information services offered to them. It was realized that "users" are not a faceless crowd but human beings, who react in a very human way to the systems with which they are confronted, when having to look for information. At least two important papers by Line[1] and Swanson[2] stress the fact that in order to provide information for people (as opposed to feeding information to machines), we have to look at the user as a human being first of all. The assumption of some inventors of sophisticated systems that the user will respond in a machinelike manner to what machines have to offer him is entirely erroneous. While the gadget-happy information scientists may like to play with consoles, look at reading-machine screens and push an assortment of buttons to get at a

piece of information, the average "user", even when he is a scientist or an engineer, is not at all inclined to play such intricate games. All he wants is information in a form which makes it possible for him to take it to his office or to take it home, to read it, not when harnessed to a machine but at his own desk, in the bus or car or even in bed, to mark it, draw doodles on it, copy it and sometimes file it away in his own personal system (in most cases consisting of an untidy mass of slips and papers in shoe boxes, from which he and he alone is able to retrieve the information with amazing speed and dexterity at any given time within two or three years after having put it there (in most instances the information is not worth retrieving anyway after a few years).

Thus we are faced with a situation where information is now produced, collected, analyzed, abstracted, stored and disseminated with "potential" users in mind, but a large number of these "potentials" never or only very rarely go near the places where such information is available to them. Harold Wooster, in a study of user habits[3] has found that scientists have to be "lured" to the information that is being prepared for [illegible] most all other user studies of scientists have shown that a [illegible] information center does not rank very high on their list of information providing sources. Engineers and technicians score somewhat better in this respect, but the overall picture remains the same: information sources of an organized nature, that have to be approached in formal manner (libraries, information centers, SDI services, etc.), are used only to a relatively small degree by those for whom they were conceived and for whom they are maintained, sometimes at exceedingly high costs.

Now this is bad enough, since scientists and engineers are not only exposed to professional literature, its vehicles, storage and ways of dissemination, while studying their subject at universities, but also because they themselves contribute to the literature by writing papers and reports. Almost all of them are today employed by governmental, industry or public projects or by large and medium-size industrial enterprises, where they have also at their disposal the services of a library or information center, and know in most cases that these are the places to turn to for organized information retrieval, even if they do not like to do so for a variety of reasons. And it follows, of course, that inasmuch as local information facilities are not fully utilized, the regional and national information services are even less efficient, since at least some of their services can only be made available through the library or information center of our institution.

Since the extensive research undertaken in this field has now exposed the serious problems involved, various methods of informational education for scientists and engineers have been proposed. To mention only a few outstanding examples there are the papers by Schiller[4], Wyatt and

Bottle[5], Lancaster[6], Mikhailov[7] and Wood[8], the proceedings of two conferences[9,10], one of which was entirely devoted to this subject, and Herners book[11] that grew out of a course teaching government employees how to use the sources of information at their disposal. The last few years have also seen the publication of several series of monographs "How to find out in ..." which are not only specialized and annotated bibliographies of a certain subject field, but try also to educate the reader about the existing information services, and how to make the best use of them. There is now real concern about making scientists and engineers aware of the information services at their disposal, and the need for user education is stressed emphatically by Lancaster, who concludes that "otherwise we may find ourselves with a national network of specialized information centers adequately staffed, but little used."[12]

Information needs of the non-scientific user.

But not only scientists and engineers could make better use of information. There is a vast barren field of almost total ignorance about utilization of information services by non-scientific and non-professional users, that has never been the subject of any research into user habits or needs, and about which we know woefully little.

The scientific and technical research of the last decades has generated a vast amount of so-called "spin-off" information on improved production methods, new materials, better ways to preserve, handle and distribute goods, etc. Most of this information can be understood without any difficulties by anyone with a modicum of technical know-how. In other words: although such information was originally generated by scientific and engineering research, one has not necessarily to be a scientist or an engineer to benefit from it. The people who need it most are the millions of owners of small enterprises, who do not have scientists in their employ and who are their own chief engineers. Even in the U.S., 95% of all enterprises are small, employing 50 people or less, and the percentages for other countries are similar. The small industrialist, the manufacturer who owns a workshop with one or two dozen workers, the farmer and the fisherman - they are all in need of technical information to stay in business or to make the best of it. Such information is readily available - yet they do not know that it exists and they do not know where to find it. And even in case they happen to know about the existence of an information center they either don't have the time to go there or else they think that such institutions (which tend to have awe-inspiring names) are not for them to use, since only a trained scientist would know even how to begin to ask a question ... Little do they know that scientists and engineers are equally likely not to know how to ask their questions, but that does not improve their situation.

It is this large mass of non-scientific potential users that must be educated in the ways of information gathering, if large amounts spent on the organization of information are not to be squandered by non-use. The small manufacturer, businessman, artisan or farmer, and others who in many countries have no more than elementary or at best high school education, cannot rely on scholarly traditions, because books and other information media played a small or insignificant role in their education. Yet it is here that information becomes vital for the economy of a country, because improvements in the manufacture of plastic buttons, the bottling of wines, or the preservation of cut flowers, may be more important to its balance of trade than the latest findings in plasma physics.

User Education at the Grassroots

How can such user education for information at the grassroots be achieved? First of all, the information services and centers must make themselves known to their potential users. This sounds trivial, but it is a fact that most non-users of information are not aware of the range of services in their field (that is true both of scientists, engineers and laymen). The first order of business for an effective information center is to spread information about itself and its services - and repeatedly, because new potential users are born every day, and recommendation by word of mouth alone cannot be a substitute for systematic advertising. Even the largest department stores and food chains find it necessary to advertise daily, to keep their customers informed about their existence. Information centers have been far too reticent about their wares, and even though this may be in the best tradition of scientific and learned activities, it does little to spread knowledge about the advantages of information services to those who are most in need of them. The non-scientific user must be reached through intense and frequent contact made at trade conventions, through commercial associations, chambers of commerce, local merchants' associations, trade schools, agricultural extension services, and the like.

But user education must put the emphasis not only on what an information center can achieve and which services it has to offer. It is at least as important to show prospective users what such centers cannot do, where their limitations are and why even the use of sophisticated computing equipment does not mean that needed information can be produced at the touch of the proverbial button.

True, many information services, both in the U.S. and in other countries, now rely on machines and computers as part of their information-providing equipment, and are going to do so increasingly as more information in different fields becomes available in machine-readable form. But much has

been written about computers as information retrieval devices, that belongs to the realm of science fiction or even sheer fantasy, and, regrettably, much of this stuff is believed by the educated layman. Books are miraculously "digested" by computers, which extract from them every bit of possible information, push-buttons that have only to be pressed to retrieve such information from them in any desired combination and in a matter of seconds, the storage of whole libraries on a few square inches of microfilm, the instant retrieval and display of any page of any document held by any library anywhere - these and other utopian fairy tales have been fed systematically to a gullible public. Most of these information-science-fiction writers are careful not to mention that some of these developments, though perhaps technically feasible and promising in the laboratory stage, cannot as yet be realized on a working scale, because of lack of necessary hardware or software or both, not to speak of the exorbitant costs involved. Yet somehow, having been conditioned for years to this kind of fantasy world of information retrieval, laymen are sometimes astonished to find, that there is more to finding the answer to a question than pushing a few buttons and waiting until the computer spews out an answer. A considerable portion of user education would have to consist in making them familiar with the facts of life, as far as mechanized information retrieval is concerned, and to realize both the benefits and the limitations of computers and other assorted hardware in this area.

The management of MEDLARS, one of the world's largest computerized information systems serving the medical and biological scientific community, has found it necessary to expound both the possibilities and the limitations of its system in short seminars and explanatory brochures aimed at its users (all of whom are highly trained scientists). Above all, it had to emphasize the role which the user himself must play if a search for information is to be successful. Now, if an information retrieval system aimed at scientific users has to do this, it becomes an absolute necessity for services aimed at people who were never taught what a reference in a footnote to an article means, or how one can look it up.

It will also be necessary to overcome the various psychological obstacles to a meaningful exchange between the man in need of information and the information center. Let us imagine that Mr. Smith, a manufacturer of plastic buttons, has heard about a new production method, but knows only vaguely what it is about: it seems to be a new kind of injection moulding and he has heard that the machinery comes from Germany (or is it Japan?) and that it might result in considerable savings, compared to his present methods. But that is about all he knows. Now, Mr. Smith is the boss of his enterprise and he is used to do things himself, to make his own decisions and to give orders to others. How embarrassing

for him all of a sudden to have to admit his ignorance (and in his own field, at that!), and to have to ask the advice of people who are not even familiar with his line of business. Also, he has read in the papers that there is an information explosion going on, and sure enough, there is so much material in all those trade journals he never has the time to even glance at, and heaven alone knows how much more there might be in the journals he does not even see, but which he assumes must exist somewhere in those giant libraries and new-fangled information centers, the use of which is a mystery to him. Is it possible that someone in an information center really can pull the right information out of this vast sea? Probably a waste of time even to ask. Would they know what injection moulding is? More likely not. They have never seen such a machine, since they are bookish people, poring over papers all day long. Well, let's try anyway. But how should one approach them? Maybe one should only give them a very general idea and see what comes up. And while I'm at it, let's ask for <u>all</u> relevant information ("relevant" is such a modern term now, maybe if I use it they will not think that I am altogether unfamiliar with information).

The result of such reasoning might then crystallize into this sentence: "I want to see everything you have on plastics." Whereupon the information officer or reference librarian must begin the long and sometimes tortuous question-and-answer game to find out what "everything" means (informational materials in which languages, how far back in time, at what level of sophistication, should it include patents and specifications, etc.).

Later, it is discovered that "plastics" really means "plastic buttons", and now the question arises whether the buttons should be considered from the point of view of manufacture, or use (in fashion? In industry? For instruments? For decoration?) - finally it is found out that Mr. Smith wants material in English on a German manufacturing process for plastic buttons used in ladies' fashions, utilizing a new technique of injection moulding, etc. This phenomenon is as old as reference service itself, and was succinctly stated by W.W. Bishop as far back as 1908:

> *The chief art of a desk assistant or a reference librarian is - as we all know - the knack of divining by long experience what is actually wanted by inquiries. The fact that so few readers will ask directly for what they want, even when they have a clear idea of their needs - which is seldom the case - is perhaps a greater obstacle to successful reference work than poor equipment, poor catalogs, few bibliographies.*[13]

Much of the success in this game depends no doubt on the person of the information officer and on his approach to the user in making him reveal

his real purpose, as opposed to what he asked for in the first place. But no matter how skilled the person may be in making contact with the user in a friendly and unobtrusive way, it will be very helpful to use a questionnaire that contains at least the most elementary guidelines to facilitate the search for the desired information. Some points to be considered are:

Specificity of request - what exactly is wanted?

Languages of documents - which are acceptable?

Level of exposition of requested documents (theoretical, practical, for engineers, for technicians, for laymen, etc.)

Time limits - how far back should a search extend?

Geography - from which countries should information come? Which countries should be specifically excluded?

Statistical data - how many and which kind should be included?

Official sources versus private sources - which should be covered?

Are patents and specifications to be included?

Number of items (if the answer is to be in the form of a bibliography)

The last question involves also a degree of evaluation: if the field is large and many hundreds of items may be expected, a request to include no more than 50 items is implicitly tantamount to a presentation of only the fifty best items - which in turn means that criteria for evaluation have to be given by the user.

It would be a mistake to let the user fill in such a questionnaire. He has probably had to fill in more questionnaires in the last few months than he would care to do in a whole lifetime. He does not want to fill in more questionnaires. He wants information. He thinks he asked for it in the simplest possible terms. What he has to learn is that the simplest terms are not always the best ones to find information for him and that a little background information is needed to make those simple terms meaningful in an information search. A few gentle questions from the information officer will elicit enough information to fill in most or all of the questionnaire and hopefully the procedure itself will teach the inquirer how to go about his questions when he comes to use the information service the next time. User education (like charity) begins at home.

Another fact that the non-scientific information seeker has to learn is that information is sometimes not to be gathered from books or other documents, but simply by talking to people. Scientists and engineers

seem to know this almost instinctively, as has become clear from many user studies of these information seekers. [14,15,16]. They are used to work in teams and they know that information has to be shared to be useful to anyone. So when in need of information, they ask Tom, Dick and Harry in the office next door or they get on the phone to talk with them or write letters to them, all this before they even think about going to a library. But businessmen, small manufacturers, artisans or farmers, who work pretty much by themselves, are sometimes reluctant to divulge their lack of knowledge to persons whom they suspect to be potential competitors; or they might think that people like themselves, who have not written learned treatises, might not know enough about a subject - so why bother them. Making people ask other people who are knowledgeable in a certain field or on a particular subject is one of the ways in which an information center can educate users about information gathering, while at the same time retaining its basic function as a switching point not only for recorded information but also for the kind that is found in other peoples' heads.

Follow-up

Finally, there must be a routine for follow-up of each individual case. Since the kind of information users we considered here does not readily respond to questionnaires and interviews, this might even be one of the few methods by which more about their needs and habits in information gathering and use can be found out. It would be difficult to lay down hard and fast rules for such follow-up routines, and an information center might have to use several of them, according to what would seem to be the best way to elicit this vital information from the clients: a few just might respond to a short (a very short!) questionnaire, others might have to be interviewed when returning next to the center (such behavior in itself would be a sign that the psychological barrier has been breached, and that the user is now confident to find help at the information center). Others again might have to be approached in a tactical way by telephone. It is important not only to find out whether the information supplied in response to an original request could be put to good use, but also whether the form in which it was prepared (bibliography, data compilation, referral to other institutions, etc.) was the right one, etc. Such systematic follow-up of information service will in time lead to a better understanding of non-scientific users' needs, and how to provide them with relevant information.

"Informational Deprivation"

It has lately become fashionable to talk about the needs of "informationally deprived people". No doubt there are those, especially among the minorities in the large communities of the United States, who are in

desperate need of the right kind of information, and the public libraries will have to respond to these needs. But in a very real sense, most potential users of information are "informationally deprived" or should one say "starved". This is as true for those scientists and engineers who do not know how to use their libraries and other information services, as it is for the non-scientific user, the "little man" who may not even know which kind of information he needs to keep his head above the water, nor where to get it and how to ask for it. It may well be that this is the largest part of the population that is "informationally deprived", however affluent it may be in the material sense. To educate these in the use of the many and variegated information facilities now available in practically every industrialized country will be one of the foremost tasks of information services in the years to come, if most stores of information shall not go unused and large amounts of money and manpower spent on the gathering and processing of information shall not be squandered.

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REFERENCE WORK IN LIBRARY AND INFORMATION SCIENCE CURRICULA

by Sarah M. Thomas
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Environmental Protection Agency, U.S. Government

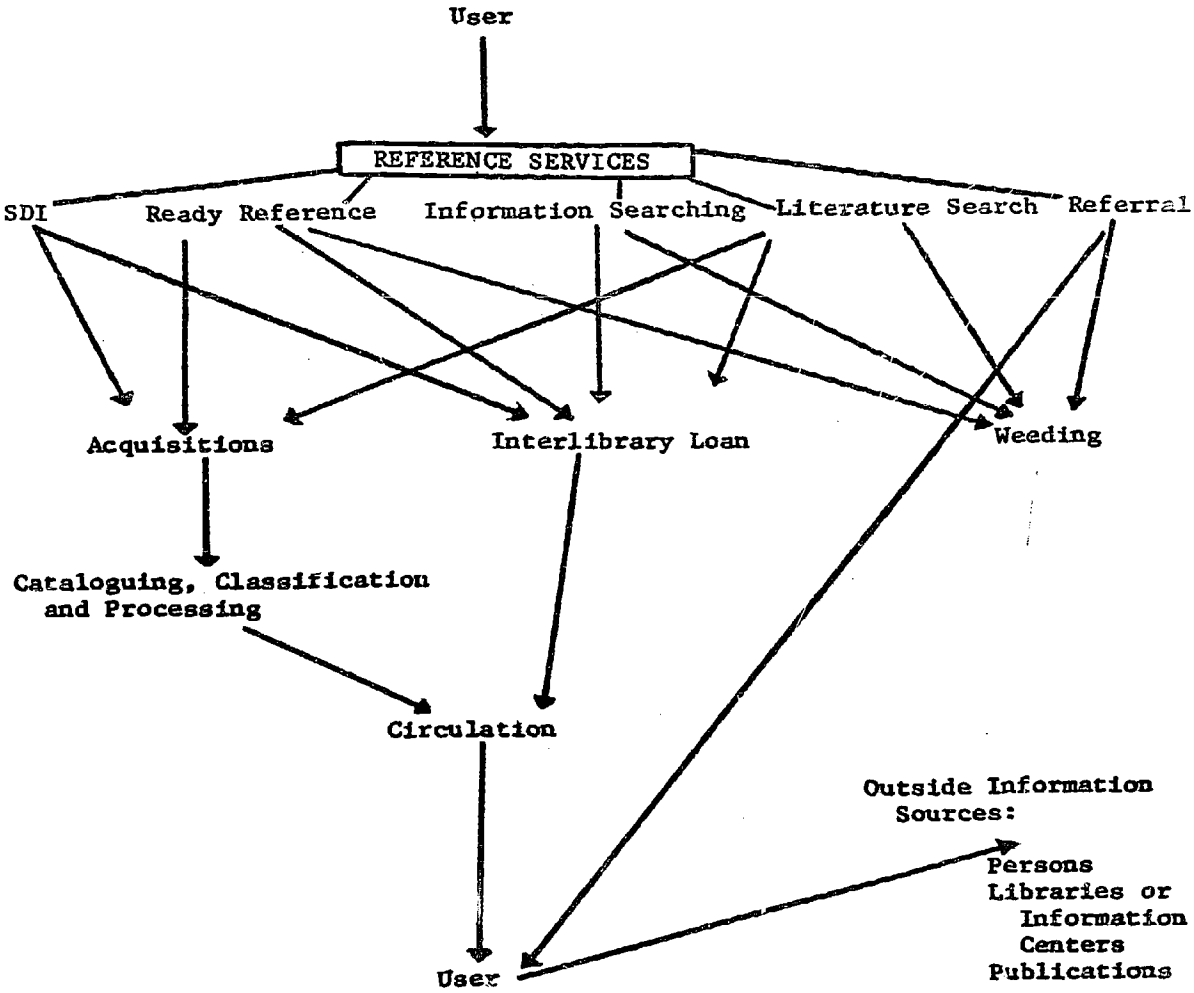
Today everything must be relevant to the aim which one sets oneself to attain. This is as true of library and information science education as of any other education. But if the term "relevant" is to mean anything, it must be defined. Library school teaching must be relevant - but to whom? Should the student's primary responsibility be towards the efficiency and convenience of the library or information center, or should the emphasis be placed on his ability to respond to the user's needs?

Invariably, discussions of relevancy involve criticisms of old-fashioned teaching methods still prevalent in today's library schools. Coming in for special condemnation in reference courses is the practice of memorizing titles and contents of reference books, and of teaching preparation of bibliographies as an end result of literature searching. While no doubt both practices have merit, the critisms are justified. A student may get to "know" a collection through learning by rote, but today's texts are rapidly revised or superseded, and the collection familiar to the student soon loses its value. And though very few would go so far as to say that the techniques of literature searching should not be taught at all, many argue that the preparation of bibliographies has been overstressed.

The main problem is how to provide the student with the basic skills and tools of information work while preparing him to deal with the user's problems, and answer the user's needs with the maximum flexibility and resourcefulness.

The teaching of reference sources and techniques in the library school program must relate to the broader curriculum in the same way that reference work relates to the overall activities of the library. (The chart on the next page attempts to show the impact of reference services on these activities.). Just as reference services cannot be separated from other activities in the library, so reference courses should not be isolated in an educational program.

Training could become more relevant to today's new and changing situations if more emphasis were placed on the interrelationships of all activities within the library, and a specific attempt made to direct all these activities to the user and his requirements. While a great deal of lip service is paid to the need to identify and satisfy the user's needs, there is little indication that these needs are really


User
REFERENCE SERVICES
SDI
Ready Reference
Information Searching
Literature Search
Referral
Acquisitions
Interlibrary Loan
Weeding
Cataloguing, Classification and Processing
Circulation
Outside Information Sources:
Persons
Libraries or Information Centers
Publications
User

being considered in library school curricula. The student generally absorbs no more than the library's idea of the user's needs, as opposed to the user's needs as he, the user, sees them.

No discussion of education of the reference staff in a special library can be isolated from several aspects of special libraries as they exist today.

Firstly, the information activity must be responsive to the user and his requirements or else will cease to exist as a meaningful activity within the parent organization or within the field of activity which it is to serve.

Secondly, in today's world information is becoming a commodity and an expensive one at that, calling for economies in operation, and often charges for services which heretofore have been free. Rudolf Penner in his state-of-the-art report on user charges* cites several authors in asserting that information centers must become businesses "complete with continuing problems of customer satisfaction, sales volumes, and seeking out of new markets".

Thirdly, the reference staff today must function as a first user of information, in order to present it to the user in a meaningful way. The reference staff is the central focus in the concept that the library is a partner in research. Herbert White in his address to the Special Libraries Association in 1968 pointed out that library service, as the customer has a right to expect it, does not compel him to know anything or do anything about the way material is handled and answers are obtained. He needs a solution to a problem, and expects the reference staff to provide, or attempt to provide, the solution or access to the solution.

Fourthly, competition at all levels, from local to international, makes it essential that the reference service produce results, in good time and as precisely as possible, efficiently using all channels open to it, to guarantee the widest possible access to the best information available.

Fifthly, continuous evaluation of the reference service offered is essential to meet the ever-changing demands which are and which will be made upon the services in the future.

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* Panel no. 6, Information Analysis and Data Centers. The information analysis center, seven background papers. Washington, D.C., Committee on Scientific and Technical Information, October 1969, p. 41-42.

How then can any program within an educational framework provide the kind of training essential to the student, who is to be faced with these problems? One answer may be to enlist the aid of other disciplines - as we have in recent years with the introduction of computers into libraries. Instruction in programming, and introductory and advanced courses in data processing have become standard in most curricula, and these are often taught by computer specialists rather than library or information science persons. Thus it would seem that we have already broken the ground necessary for the improvement of our programs in other areas. Since information work involves all disciplines in the information handled, exposure to education within these other disciplines should contribute a great deal to the student in an information program.

Two essential threads running throughout the earlier listing of characteristics of libraries are knowledge of the user or the market to which services are directed, and evaluation of how well the services, once decided upon and provided, are responding to the demands made upon them. In the past too many library and information science programs have covered administrative principles, but stopped short of many of the management aspects essential to the successful operation of an information activity in today's world. Thus an "ideal" curriculum such as that developed by the Texas Chapter, Special Libraries Association Ad Hoc Committee on Library Education, would include management science as part of the program. As early as 1962*, a proposed plan for Drexel Institute of Technology's curriculum in Information Science proposed courses in "industrial management" and "systems and procedures" to be taken in the College of Business Administration.

The proposed program outline presented below should be part of the Master's degree program, and should take advantage of courses and facilities outside as well as within the library science department.

Reference Environment

The User - Psychology
- Survey/interview technique
- Customer behavior
- Profiling
- Demand analysis

(contd.)

*Preliminary draft of a proposed curriculum in Information Science. Philadelphia, Pennsylvania, Drexel Institute of Technology, June 5, 1962, p. 12-13.

Reaching the User - Planning products (services)
- Advertising and sales promotion

Response - Sources - Publishing world
- Media world
- Information organizations - Centers
- Commercial services

- Techniques - Negotiating the question
- Search techniques
- Publishing (presentation of the information)

Cooperation and Networks - Agreements or Charge
- Planning
- Managerial aspects
- Political and social implications

Costs - Cost analysis
- Effective pricing
- Basics of accounting

Evaluation - Program effectiveness
- Efficiency
- User satisfaction
- Staff reactions

If the reference function is considered the focal point between the user and the library, it is essential that its role be given more emphasis in educational programs. As will be noted, many units and partial units are covered in courses already offered as core elements or electives in most programs, and only the interrelationships with reference work need to be added. There is no "ideal" program for reference personnel training, but in a time of rapid changes the use of interdisciplinary course programs represents an approach which may permit reference services to change as needs of the clientele change, and provide solutions to problems which are becoming more acute.

In a list of problem areas identified by COSATI'S working groups, 17 of the 43 relate specifically to reference activities and users. These are listed as food for thought, and there is hope that by the restructuring of library and information science curricula many of these problem areas will be solved through research during the educational programs or in actual practice:

How to make a cost analysis.
What basis to use for charging for services.
How to reach the entire potential audience.
How to decide what kinds of products to produce - something for scientist at forefront, for scientist in area not his speciality, for managers, etc.
How to distribute products.
How to advertise products.
How to obtain coordination and co-operation.
How to ensure that field of center is continually oriented to user's major needs.
Coordination, standardization, and uniformity of approach require detailed examination.
What is acceptable degree of completeness of search. How does one decide?
How to obtain adequate information for truly critical evaluation.
How to identify the users, determine what they think they need and what they actually need.
How to get feedback from the users.
How to measure effectiveness of a center.
How to decide on the variety of products and services to be offered.
How to bound and define information areas into manageable chunks.
How might users be categorized in order to improve usefulness of information analysis centers - paying vs non-paying; recipients of individual services vs recipients of general prepared publications; special interest groups, etc.

The reference librarian must be equipped to meet the myriad demands of today's information environment. Increasing amounts of information are available to users through regional, national and international channels, while the price of both information and services increases. Reference staffs will more and more be the first users of information and services, and will have to employ their critical faculties to evaluate their worth for their clientele.

The reference librarian today is faced with exciting challenges. A changed curriculum is essential if the library school is to help him measure up to his new responsibilities.

DEALING WITH JOURNALS IN SPECIAL LIBRARIES

by Susane Weil
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Soreq Nuclear Research Center

It is an indisputable fact that nowadays special libraries devote more money and effort to periodicals than to books. Scientists and engineers who want to keep abreast of the latest developments in their fields rely more and more on periodical literature. Books are by their nature slow to appear, and the information contained in them has usually been published earlier in periodicals. In many cases articles in periodicals are the only source of information available on a specific subject.

The cost of the annual subscriptions to scientific journals has doubled in the last ten years.[1] Furthermore, the number of scientific periodicals appearing has been increasing steadily ever since this form of publication was established[2], and the problem of handling these acquisitions is becoming more and more severe. One difficulty is the question of providing enough shelving space for storage purposes. Another is the matter of processing, which is made more complicated by inconsistency on the part of the publishers in giving bibliographical data[3]. Each periodical is a law unto itself - each appears at its own time, with its own numbering system, and with no standardization as to the display of the numbering on the cover. Worst of all, a periodical may change its title from time to time.

Most of us librarians are well aware of all the above facts, but as the problems are not easy to solve, they are mostly only stated and no practical solution for the future is provided. On the basis of experience acquired in our library practice I would like to discuss some of the problems that are part of our everyday work with periodicals, and attempt to propose some partial solutions. The problems may be stated as follows:

1. How to provide our scientific community with the optimal selection of current periodicals, assuming that the periodical literature should supply the user with recent information in science and technology in general as well as in his specific field of interest.
2. What should be permanently kept in the holdings of a special library? This is connected with long range planning of storage, on the one hand, and on the other with interlibrary cooperation, including division of responsibility for keeping back volumes and improving communication in loans and photocopy services.

3. Difficulties in handling periodicals due to changes of their titles.

1. It is not easy to choose the necessary core journals to fulfil the task of providing current awareness in a relatively small institute dealing with multidisciplinary fields of science, and having a limited budget. We subscribe to about 700 titles currently. The nucleus of this collection was established 10-12 years ago and every 2 years we check if our current subscriptions answer the needs of our scientific staff. The periodicals are arranged in subject lists which are submitted to all users with the request that they review their relevancy. After evaluation of the replies, the problematic ones are discussed personally with the scientists involved, and a list of cancellations is drawn up and checked with the heads of departments. New subscriptions are added according to the suggestions and requests of the scientists and the library. Sample copies are ordered first. New titles are checked after the first year of subscription with the person who was the initiator of the subscription.

We have about 300 readers, half of them really heavy users of the library, browsing regularly (every week) through the current acquisitions, the other half occasional users dropping in to the library when a specific problem has to be solved and it is necessary to look something up in the literature. The proportion of the number of current subscriptions (700) and users (300), is not unique in our library. Many special libraries in Israel are in a similar position. How much time is a scientist able to devote to reading, how much time does he spend in the library? According to many user studies not more than 4-8 hours weekly.[4,5,6] In view of this, should we offer less browsing and current awareness purposes?

It seems to me that there is no general formula for dealing with the problem. It would be easy to serve a bigger community of users with the same number of journals, but it would be dangerous to cut the current subscriptions just because our public is small. In some cases just one person is dealing with the specific subject, but nevertheless he still needs to be well informed on current developments in his subject. Any budget for research and production should take into account a certain percentage for acquisition of published information (not less than 1% of the general budget).

The budget for acquisitions should be increased yearly in accordance with price rises throughout the world. Otherwise for the same money we would be buying about 10% less each year. From the budget allocated for acquisitions about 60% should be spent on periodicals. The task of

the library is to allocate this money in such a way as to satisfy the current requests of users as well as to preserve the completeness of the collection in the specific fields pertinent to the institute's work, even if the current use of titles is neglected. For example, in recent years we found that several journals dealing with nuclear technology were not being used, but nevertheless we decided to continue our subscriptions, as these journals belong to the special subject field in which we try to keep our collection complete.

2. We come now to the question of what should be retained and stored in the back volume collection of a special library.

At present our special libraries try to keep the collection of holdings as complete as possible, to enable users to use the library like a well equipped workshop. Therefore most of the journals acquired, except news bulletins and current awareness bulletins, are bound and stored. The duplication of back volumes among different scientific special libraries is obvious. In the Rehovot area, however, it has become the practice for every special library to keep as complete a collection as possible in its own special field, but to rely on its neighbours' collection in peripheral fields. For instance, in biology and biochemistry we rely on the libraries of the Weizmann Institute and the Biological Institute, while in nuclear sciences they rely on our holdings. We try to keep an eye on the use of the holdings by checking the requests for photocopies from back volumes, but this of course does not reflect the whole extent of the exploitation of the holdings, since items used on the spot are not recorded.

The lack of storage space is a serious problem which all of us have to face in our daily work. A partial solution would be to keep part of our back volumes in microformats. The prices for microfiches have so far been too high to encourage libraries to buy them in addition to the originals; but it should be possible to bring the price down drastically if the publishers promoted large scale use of microformats by offering them as a package deal along with the full size subscription at a small extra charge. Then, in spite of the resistance and prejudice against the microformats, we would learn to live with them. It must be admitted, however, that there are some very reasonable arguments against the use of micro-copies of periodicals. The strongest are the impossibility of browsing, and the unsatisfactory reproduction of illustrations. A useful compromise could be to retain the originals for a certain period, when the demand for them is heavy, and replace them by microfiches for permanent storage when the demand subsides.

If there existed a National Lending Library in Israel, similar to the

British one, where photocopies from back volumes would be available within 24 hours, then the decision on what to keep permanently would be simpler. The special library could then use this service and give up a great part of its back volume collection. Only the most pertinent core journals would be kept permanently, while the less pertinent ones would be kept for a period of 5-10 years and the peripheral ones only for 1-2 years.

This problem is a country-wide one, and in 1970 the Standing Committee of the National and University Libraries nominated a subcommittee to be responsible for completion of back volume series in scientific libraries, as well as to coordinate storage of back volumes and foster more efficient interlibrary cooperation and communication. The aim is to divide the responsibility for keeping back volumes between the special libraries, so as to avoid duplication in storage, and provide for rapid interlibrary photocopying services. This is in effect a decentralized form of a National Lending Library. The working sessions of this subcommittee have just started, and we can only wish them success and hope that in the next decade they will bring us nearer to the fulfillment of this idea. Then the effort of the special libraries will be to keep their collections as small as possible and to exploit to the maximum the quick photocopy services of the National Lending Library System.

3. The last point I wish to discuss is the difficulty of handling periodicals which have changed their titles without at the same time starting new volume numbering. During 1970 we prepared a new edition of our periodical and serial holdings. This edition includes about 1000 entries of periodicals and serials (annuals). Of these, 160 are no longer being ordered, and only the back volumes are kept. A further 80 ceased to be published. About 220 periodicals changed their titles, half of them more than once and 36 more than twice (some of them numerous times). Only 40 of the changed titles started with new volume numbering; the other 180 continued with the old numbering.

The policy of continuing with the old numbering is hard to understand. These journals require special treatment in many of the phases of normal processing, including the check-in card, the payment record, tracing the journals in various catalogues, cataloguing and storage. All this detective work is time-consuming and therefore expensive, and it is repeated in all libraries throughout the world. Indeed a great deal of time and money could be saved if every new title started with Vol. 1, No. 1. Failure to do so is particularly exasperating when the journal concerned is one devoted to librarianship or information sciences[7], where the problems of librarians should be well understood.

As the problem of changes of titles bothers us greatly, we decided to make inquiries at the publishing houses about the reasons for this policy. We chose 60 journals that had changed their titles and sent questionnaires to the editors (see Appendix). We received 31 replies. Of these 8 claimed never to have changed their titles; actually the changes were made before 1955 (except for one change made recently) and it seems that the editor either does not identify himself with something that happened 15 years ago, or there is nobody there who remembers the history of the journal. Four replies claimed that there had been only slight changes in their titles, but 2 of them overlooked the fact that only the second change had been slight, while the last title had nothing to do with the original one. One reply stated that there had been no change since 1959, without any further explanation. Eighteen replies gave reasons for the changes. Half of them indicated that the change had automatically followed a change in the name of the Institute (in the case of proceedings, transactions, or journals of institutes or learned societies). Five gave the reason as a change of scope (broader or narrower) and that they wanted to attract a wider or more specific audience. The remaining 4 explained that the title was no longer suitable, and also that they wanted to make the title more attractive. Only one reply stated that the reason was to avoid confusion with a similar title of another journal. All 18 replies stated that the reason for continuation of the volume numbering was tradition and continuity.

Regarding the last reply quoted above, the reason given seems to me to be insufficient justification for a practice which involves such a large amount of extra work for the librarians. The policy also does not seem to be justified from the point of view of user reaction. This emerged from interviews we conducted with some of our users. They were not very much disturbed by changes in the titles of periodicals, beyond the fact that it took a few months to get used to the new title, but the question of whether the numbering was continued or started afresh was of no importance to them at all. (As to the back volumes of periodicals whose titles have been changed, these present no problem for the user provided he has an appropriate shelf guide to direct him to the references he needs to look up.)

Below are a few suggestions for alleviating the situation. a) As changes of titles involve libraries in expensive and time consuming operations there should be a regulation requiring a new title of a periodical to be approved by a specially appointed body, and making it mandatory to start with Vol. 1, No. 1. b) Transactions, proceedings, news bulletins, etc. of corporate bodies are the most subject to change, since the corporate body may change its name, fuse or split, and the title of its periodical then changes automatically too. Therefore at least new

periodicals of such bodies should receive distinctive independent titles. c) Lastly, as librarians have to live with the existing problem, they should make compromises in dealing with and processing the material. To keep a full trace of periodicals that change their titles is more of aesthetic interest than of practical use in retrieval problem. National and international union lists take care of the aesthetic aspect, as well as of the professional cataloguing of changes of titles. In special libraries it should suffice to have cross references in the catalogue indicating a change of title, and well prepared shelf guides to the stored back volumes. Thus cataloguing and transfer on the shelves according to the latest title of the periodical would be eliminated without impairing the efficiency of retrieval of material from the users point of view.

Only a few of the most pressing problems have been raised here, and if these could be solved, new ones would probably arise, as it is in the nature of periodical publications to be in a state of continuous change. Still, if by chance a fairy descend into our library and permit me three wishes, I would gladly settle for only two and ask for a well functioning National Lending Library System (decentralized in Israel, and systematization and standardization of publishing, including laws regulating changes in titles all over the world.

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THE ONE MAN SHOW REFERENCE BUSINESS
THE SATIRICAL APPROACH*

by Esther Amiel
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It took me time to decide how to begin a paper dealing with reference work, without turning away almost every potential reader (the one who already knows all about it, and the one who is fed up with professional literature). I want my paper to be attractive, because I want to communicate to others the moral of an experience learned the hard way. I have chosen the satirical approach to the subject as the most appropriate to the case. A few lines to introduce myself, and I am ready to begin: I believe in humanity, good faith, reason and humor. Although my basic values are continually abused, stubbornness is my next characteristic. A melange of inertia and obstinacy keeps my spirits up, and me in the profession. I do believe in successful personal relations, based on one's willingness to take the other's point of view into account. It took me a long time indeed to accept that our main, almost unique purpose in work is to aid others to succeed.

I have just introduced the main concepts I shall deal with: me, reference work, communications, readers, experience, reason, optimism, open-mindedness, personal relations, success. Budget, bosses, bureaucratic structures, lack of facilities and personnel frame the "objective" environment of the reference worker. I have tried to overcome these obstacles. However, to claim that I have survived them all, is to exaggerate; I have learned to live with them. One of my purposes is to illustrate some of the workable know-how and the conclusions I have reached.

I shall concentrate mainly on questions and problems connected with reference work in technology or science, in industrial organizations employing only one information science professional. The essential problem is one of definition. There is no general and accepted definition of what an information officer really is, is supposed to be, to know

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* Editor's note: The author of this refreshing article is a practising information scientist and has written with the enthusiasm and excitement of one deeply involved. The editorial board felt that any editing would interfere with the spirit in which this article was written and therefore let it stand virtually as submitted.

and to do. We have absorbed these doubts; we are too self-conscious, too eager to be recognized and appreciated. We are university graduates, yet do not wear white smocks. Other men's relations to us are based on the traditional image of the librarian: let us confess, it is not always a very flattering one. We must foster two new concepts: the concept of the library as an information center, and the concept of the librarian or the information worker as a personality with professional training and pride who has chosen his profession *freely and knowingly*.

On the other hand, what are the motivations of the "bosses" (the management), when they decide to hire a professional, instead of the amateur librarian, who did the work all those years? Some are vaguely information-minded, others sincerely hope that the dissemination of knowledge will ameliorate the human condition in general and the human character in particular (Socrates' disciples). Some are victims of the information explosion, others love books (the library atmosphere), some want to be modern, others embellish the building. Their expectations of what we must do are based on their motivations, education, experience and ambitions, and are therefore endless. Here are some of the things they want: books and journals to be taken care of; bibliographies to be prepared; scientific papers to be edited; abstracts, reviews, and articles to be circulated; data to be translated; drawings to be arranged; trade-catalogues, pamphlets, specifications, standards, microfilms, microcards, aperture cards, maps, slides - all to be ordered, sorted, classified, catalogued; the information disseminated; sorters, computers, archives, reprographic devices, graphics, statistics, etc., etc.,* all, or part of it, depending on your lot and chance. In English, French, Hebrew, German, Russian, in one room, typing help to be provided in the future (if you can persuade them it is really necessary).

So, you have the job. You are full of good will, modern theories and optimism. Please, don't show them how excited you feel. Do not make any declarations of what you are going to do, or how you are going to save time and money. This is a period of mutual acquaintance, and modesty is recommended. If you want to succeed as an information officer, you must be a good architect and build a sound bridge between the theories you have learned and the realities you face. Otherwise, you will feel like walking on quicksand, solitary and lonely, with no one near to understand and help you.

I shall try to help you build this bridge. I already have the experience. The technique I propose comprises two stages: the preliminary one - acclimitization; and the working one - the practice of the one-man show reference business in everyday life.

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* To be read like a Ionesco monologue

The preliminary stage:

Lesson no. 1: A GOOD RECONNAISSANCE SURVEY IS A GUARANTEE OF SUCCESS, or GET TO KNOW YOUR WORKING PLACE:
Learn all about your working place: aims, status, purpose, personnel, current projects, slang used, virtues and weaknesses of the managers and directors. Bear in mind that there is a difference between the written and the unwritten rules, and a certain discrepancy between the original aims of the organization and its present and future activities. Be aware of the latest conflicts, but hide your preferences. Your job is a neutral one, be a catalytic agent of good will.

Lesson no. 2: ADAPT YOURSELF TO YOUR WORKING PLACE REQUIREMENTS!
If you have learned your first lesson well, you already know that you have to close the gap between your initial concepts and projects and adapt yourself to the realities of your working surroundings. That is: you have to decide and choose what shall be done according to your client's needs and not according to your ambitions, knowledge and previous achievements.

Lesson no. 3: THINK!
Do not run too fast. Don't deny and disapprove of anything done in the library, even if it seems to you primitive and non-professional. Think of what you can do. Before you begin to disseminate information, get some yourself: WHAT information is needed, WHO needs it. The "what" will determine your choice of retrieval sources and reference services, the "who" - your means of processing the information and disseminating it. The functions of the information center and reference work being, as commonly accepted and advertised, the "collection, storage and dissemination of information", your first duty is to determine specifically what actually are the fields of your employer's activities, their scope and purpose and the technical level of information needed.

Lesson no. 4: PREPARE YOURSELF FOR YOUR PRESENT JOB!
Your next step must be self-instruction in the field of your employer's activities. Read and inquire about current projects; study the symbols and the main abbreviations used. Profit from the organization's publications, if any. Get in touch with your colleagues in

similar institutions. The 'clients' may realise that you cannot be a specialist on everything, but they do expect you to understand what it is all about.

Lesson no. 5: QUANTITY IS NOT ALWAYS QUALITY!
In a small scientific or technological organization, the emphasis is on the quality of the service and not on its quantity. Due to the fact that the relationship between the 'clients' and the Information Center's personnel is in most cases direct and personal, the R&D must be specific, efficient, well aimed and well timed.

Lesson no. 6: WHO IS WISE? HE THAT LEARNS FROM ALL MEN!
You do not need to be original. You are supposed to provide adequate answers to questions and your task is to know where you can possibly find the answers.

You are paid to help others be efficient and use somebody else's experience and knowledge, in order to save time and money. Give the example yourself.

And do not forget: Good communications is a dynamic two way street. A bad reference worker is like a driver on a highway speeding on and on, alone.

After all this 'popular science' has been well absorbed, you are supposed to turn to stage two and begin working in a scientific manner.

Let me describe what REFERENCE WORK means to me:

1. Giving a sound and true answer to a generally badly defined question.
2. Chanelling information to the right people at the right time.
3. Organizing services in a manner which will enable you to fulfill the first two functions.

I shall proceed and analyze the above aspects of reference work in more detail, keeping in mind the subjects of this paper and emphasizing only the practical side of each recommendation. I have tried to display schematically the flow-chart of reference work organization, in a logical and chronological order in Table 1, (p. 30) and I am going to refer to it occasionally.

The first point should be: Who is the potential client and what sorts of questions are you supposed to answer?

Let us consider the personal aspect of the problem:

Yours is a service function. Your work is dedicated to others. Therefore, you must be nice, serious, correct, and self-possessed. You must not look surprised by any question (there is no logical connection between status, title, responsibility and intelligence). Keep an enigmatic smile in cases when the only appropriate answer is an idiom in Russian.

A simple and clearly defined question is considered proof of non-sophistication, therefore you are going to receive a lot of puzzle-stuff to solve; snobs and nouveau-riche are the worst clients, but flattery is the one way to handle them properly.

Do not get excited, even if you are asked to buy all the technical reports published in the past ten years all over the world, or too provide your management with a 'list' of the contents of industrial agreements and science exchanges between private or government enterprises in a given country/ies.

How they approach us is their problem. How we are equipped to answer them is ours. So, we must be rational, democratic and patient. Rationality is the skill to find the shortest distance between the question and the adequate answer; democracy is the will to treat with equal zeal all problems, but with due regard to their contents, priority and urgency; patience is the quality which enables us to find the answers and make order in the chaos created by the information explosion, computers, thesauri, and the human urge to seek and express itself in an endless variety of forms and symbols.

Consistency is the next quality we must possess. We need it in our work, because it is the mother of all order, of all science, of all classification. If you want to be consistent and you lack a good memory, or better, you know you are human (ergo not eternal), or better, you are a responsible person, note and record anything which may influence your work and even your relationship with your clients. One exception leads to another, and lack of consistency is, in a way, a kind of consistency too. But you must choose between the two.

Let us suppose that you do possess the ideal qualities required, have had the proper training (much is left to be desired in this field too), have met your clients, survived the shock, answered Hamlet's dilemma by 'yes' and begun working. Your future problem will be to avoid frustration, a feeling due to much work and little compensation and reward. Good organization can help, but not solve the problem, much depending on what you have decided to do and how to do it.

The 'musts' of how to reach your clients and do reference work (to be read together with Table 1):

--- You must go on with the conventional daily duties in the library.
--- You must establish a subject list of 'information wanted' standing orders (most of them general enough; to be supplied to the management and the VIPs).
--- You must rely on gossip and personal initiative in order to get hints of the R&D decisions taken; there is no formal pattern to take care of it and to free you from the vacuum you work in.
--- You must adopt one of the existing subject headings lists or thesauri (the closest to your fields of IR) as a basis for processing the information and analysing the profile's data. Thus, you begin to be a part of a larger system, for good and for better. In adapting the system to your 'local' needs (an inevitable process) remember to record the improvisations.
--- You must cooperate with other information centers, libraries, and librarians; use their collections, facilities, experience and knowledge. Thus, you save time and money, and gain friends and prestige. Don't forget to send 'thank you' letters to all involved, including bosses and signed by bosses.
--- You must print a lot of forms, circulars, slips (on good paper, please), such as 'Included please find ...', 'Just received ...', 'With the compliments ...', 'We would appreciate ...', 'Information request', etc. Thus you save time, create an atmosphere of order, and may use copies of forms to produce in due time a subject personal file for each client.
--- You must prepare a booklet detailing library and information services, to be used by newcomers.
--- You must be aware of the following psychological facts concerning readers:
    --- Most readers are familiar with the traditional author-title-subject catalogs variations. There are some who prefer the 'color-size-place' identifiers instead. All of them loathe punched holes in place of the good old natural language signs.
    --- Readers like hard copies, enlarged photocopies. They detest micro-readers, micro-cards and micro-etc.
    --- Readers are in love with uncomplicated indices to complex material. They prefer good syntax to KWIC and KWOC.
    --- The readers are always right.
    --- The readers come and go, and you stay there forever.

A good profile questionnaire must provide the following data: current subjects related to projects, their priorities, clients' demands (being of two kinds - those connected with the work they are paid for, and the others), clients' qualifications, education, publications. It may also

disclose that:

- —— Qualified specialists are busy with administrative jobs.
- —— Non-qualified personnel work on highly qualified jobs (and are not aware of it).
- —— Few and fortunate have the job's needed qualifications, are information-minded, and have frustrated wives and children.
- —— Secularism and individualism are more frequent in R&D people than elsewhere.

(Whether the above situation is the cause of inefficiency, schizophrenia and frustration, we are not entitled to determine).

We have one more point to deal with and that is the organization of reference sources. Much depends on your personal qualifications, knowledge, connections and experience. Anything can be a potential reference source; your clients, books, people, a telephone call, an oral communication - apart from the existing classified, 'thesaurised', annotated, abstracting services and bibliographies. Some of them you can buy, others must be remembered at the right time. But whatever your information source is, its accuracy must be properly evaluated. For your sake, do not try to compete with larger information centers, use them! Update your reference sources, give away obsolete material.

Retrieval can be done by deduction or induction, but always with common sense. No results are to be expected when doing it in the wrong places.

That is the job: hard work, patience, intuition, training, experience and fortune to help you meet the challenge and sometimes to overcome it.

It sounds thrilling, doesn't it?

Table no. 1: THE ONE MAN SHOW REFERENCE BUSINESS ORGANIZATION: EVOLUTION IS BETTER THAN REVOLUTION

Legend: The horizontal reading of the table gives the time scheduling sequences, the vertical its logical ones. The 'practical-how to do' aspect of each stage is briefly detailed in text. The whole schedule is based on the hypothesis that the user exists, co-operates and has a good appetite.

	Stage one: Mutual acclimatization (not less than 3 months)				
I.	First contact with WHAT & WHO To stay or to go?	Check the existing reference services and facilities: the library, the collection, the patterns of work; catalogs, indices, etc.	Perpetuate the daily work: acquisition, lending, circulation, etc. Learn your readers' habits!	Prepare a first draft of your program, budget needed, list of priorities.	Acknowledge the administrative side of your work.
	A	B	C	D	E
	Stage two: You are on your own, but not alone (minimum 3 months)				
II.	The subjects and clients are recognized on a formal or/and informal basis	Search of outside reference sources; information centers, libraries, existing services scientists, colleagues, etc.	Go on with every day work. Begin to show initiative, do information retrieval on current projects on personal basis.	Check your draft. Incorporate in A, A', B, B' and adapt it to your budget and time.	Cooperate with the administrative personnel - it pays off.
	A'	B'	C'	D'	E'
	Stage three: The dynamics of Hegel's dialectics (six months)				
III.	Data processing of profiles of projects and R&D people	Adapting the reference sources to the results of A'' (index of subjects to be retrieved currently with a priority scale), i.e.: collection→acquisition→B'	Go on, but prepare your tools: classification, or subjects headings, formulae, etc. Close the cycle of I, II, III.	Keep the system living: feed and get feedback.	Peaceful co-existence.
	A''	B''	C''	D''	E''
	Stage four: The perpetuum mobile				
IV.	Data processing of profiles of projects & clients	SELECTIVE DISSEMINATION	Collecting and storing information Readers and library services	Feed and get feedback. Keep close to the spirit of clients	Provide the administration & management with statistics
	A'''	B'''	C'''	D'''	E'''