CHEMICAL HERITAGE FOUNDATION

JACQUES TOCATLIAN

Transcript of an Interview
Conducted by

W. Boyd Rayward

at

Paris, France

on

22 June 2000

(With Subsequent Corrections and Additions)

CHEMICAL HERITAGE FOUNDATION
Oral History Program
FINAL RELEASE FORM

This document contains my understanding and agreement with Chemical Heritage Foundation with respect to my participation in a tape-recorded interview conducted by W. Boyd Rayward on 22 June 2000.
I have read the transcript supplied by Chemical Heritage Foundation.

1. The tapes, corrected transcript, photographs, and memorabilia (collectively called the "Work") will be maintained by Chemical Heritage Foundation and made available in accordance with general policies for research and other scholarly purposes.

2. I hereby grant, assign, and transfer to Chemical Heritage Foundation all right, title, and interest in the Work, including the literary rights and the copyright, except that I shall retain the right to copy, use, and publish the Work in part or in full until my death.

3. The manuscript may be read and the tape(s) heard by scholars approved by Chemical Heritage Foundation subject to the restrictions listed below. The scholar pledges not to quote from, cite, or reproduce by any means this material except with the written permission of Chemical Heritage Foundation.

4. I wish to place the conditions that I have checked below upon the use of this interview. I understand that Chemical Heritage Foundation will enforce my wishes until the time of my death, when any restrictions will be removed.

Please check one:

a. JT **No restrictions for access.**
NOTE: Users citing this interview for purposes of publication are obliged under the terms of the Chemical Heritage Foundation Oral History Program to obtain permission from Chemical Heritage Foundation, Philadelphia, PA.

b. _____ **Semi-restricted access.** (May view the Work. My permission required to quote, cite, or reproduce.)

c. _____ **Restricted access.** (My permission required to view the Work, quote, cite, or reproduce.)

This constitutes my entire and complete understanding.

(Signature) Signed release form is on file at the Science History Institute
Jacques Tocatlian

(Date) 2 May 2001

Chemical Heritage Foundation
Oral History Program
315 Chestnut Street
Philadelphia, Pennsylvania 19106

JACQUES TOCATLIAN

1929 Born in Alexandria, Egypt on 31 August

Education

1953 B.S., industrial chemistry, Alexandria University, Egypt
1956 M.S., textile technology, Milano Polytechnico, Italy
1959 M.S., organic chemistry, Utah State University
1968 M.S., information and library sciences, Drexel University

Professional Experience

National Starch Co., Alexandria, Egypt
1953-1957 Industrial Chemist

Monsanto Chemical Company
1959-1963 Research Chemist

Food and Machinery Corporation [FMC]
1963-1968 Literature Chemist

Merck Sharp & Dohme Pharmaceutical Company
1968-1969 Information Specialist

United Nations Educational, Scientific and Cultural Organization [UNESCO]
1969-1976 Project Officer (P-4/5)
1977-1978 Project Officer (P-5), Bureau of Studies and Programming
1979-1987 Director (D-1), Intergovernmental General Information Program
1988-1990 Director (D-2), Office of Information Programs and Services
1990-1991 Consultant for Bibliotheca Alexandria

United Nations University and FID [International Federation for Information and Documentation]
1991-present Part-time consultant

Honors

FID Fellow

ABSTRACT

Jacques Tocatlian has always had an international take on learning and acquiring information. He was born in Egypt, where he attended a French secondary school. From there, Tocatlian moved on to study industrial chemistry at an Egyptian university, where he took classes taught by English-speaking German professors. Tocatlian then earned an M.S. in textile technology from Milano Polytechnico in Italy, and an M.S. in organic chemistry from Utah State University. After a position as a literature chemist caught his eye at Monsanto Chemical Company, Tocatlian interviewed and was referred to the research department because of his outstanding qualifications. Still, research in the laboratory did not quell Tocatlian's attraction to research in the library. After work in the plastics division at Monsanto, Tocatlian accepted a position at the Food and Machinery Corporation in Princeton as a literature chemist, and worked on the first Selective Dissemination of Information [SDI] experiment. Tocatlian decided to pursue a master's in information and library science at Drexel Institute [now University], which was at the forefront of scientific information storage and retrieval in the 1960s. No sooner did Tocatlian learn of the United Nations Conference on World Science Information System [UNISIST] than he applied to one of its parenting organizations, the United Nations Educational, Scientific and Cultural Organization [UNESCO] where he worked from 1969 until retirement in 1991. Throughout the interview, Tocatlian discusses the international standardization issues of UNESCO and the organization of UNISIST. Woven into the history of the program is mention of the tension brought about by the Cold War. Tocatlian discusses influences of non-governmental and other information science organizations on UNISIST, as well as the impact of the failure of the Global Information Network, created by UNISIST 2 in 1972. He concludes the interview by reflecting on the conceptual shift of science from a "social good" to a commodity, observations of UNESCO, and his decision to leave the laboratory.

INTERVIEWER

W. Boyd Rayward is a research professor in the Graduate School of Library and Information Science at the University of Illinois, Urbana-Chamapaign. He turned to librarianship after graduating in English literature from the University of Sydney. He received his Ph.D. from the Graduate Library School at the University of Chicago in 1973. He has held positions in the University of Chicago [where he became Dean of the Graduate Library School]. He served as Professor and Head of the School of Information Library and Archive Studies and Dean of the University's Faculty of Professional Studies at the University of New South Wales in Sydney where he is now professor emeritus. He has published two books related to Paul Otlet, Belgian documentalist and internationalist, and a great many articles on history of national and international schemes for the organization and dissemination of information.

TABLE OF CONTENTS

INTERVIEWEE: Jacques Tocatlian

INTERVIEWER: W. Boyd Rayward

LOCATION: Paris, France

DATE: 22 June 2000

RAYWARD: Jacques, tell me something about your origin. Obviously, here you are living in Paris, but you are Egyptian by origin, correct?

TOCATLIAN: I was born in Egypt—my father was of Armenian extraction and my mother was Italian and Greek. I was born and raised in Egypt, but left at the age of twenty-five, approximately, and went to the [United] States. In Egypt, I attended a French secondary school and then an Egyptian university, where I studied industrial chemistry. Interestingly, the university's courses were taught in English by German teachers to Egyptian students.

RAYWARD: Actually, it exemplifies how culturally complex Egypt must have been at the time.

TOCATLIAN: Yes.

RAYWARD: Was the university in Cairo?

TOCATLIAN: Yes. Alexandria was much more cosmopolitan than Cairo. Cairo was mostly Egyptian, whereas Alexandria had a lot of foreign communities: Italian, Greek, Armenian, French, British, Maltese, and Lebanese. That ethnic mixture lived together happily until 1953 when King Farouk was expelled, and [Gamal Abdel] Nasser came to power. Nasser gradually eliminated all those foreign communities, which were not fully accepted.

RAYWARD: How did your own family fare under that new regime?

TOCATLIAN: We all eventually left—all of us. I went to the States as a student and the rest of my family followed later on. My brother and his family are in the States. My parents died in the meantime. I went to the States in 1957. I went to Utah State University because I had a teaching fellowship there. I worked on my master's degree in chemistry and taught.

RAYWARD: You entered the industrial research sector as soon as you completed your degree, correct?

TOCATLIAN: Yes. I applied and got a job at Monsanto Chemical Company, in Massachusetts. But here I have to open a parenthesis that might interest you. Among the jobs that were offered, the possible options, was one as a chemical-literature chemist in Monsanto, St. Louis [Missouri]. I went there for an interview. At that interview, it's interesting that they told me that since I had a very good background and my record was good, it was a pity to be a literature chemist and not be a research chemist. They advised me to go for interview in Massachusetts where the Plastics Division of Monsanto had an opening. That was where I ended up. But it's interesting that my "first love" was already there—to deal with information rather than research, which I'll come back to later.

RAYWARD: What stimulated your interest in information?

TOCATLIAN: I think it's the course I took while working on my master's degree. I don't remember what the title of the course was, but it dealt with the problems of chemical information—how to find information in a library. And then when I worked on my research, I had to do a lot of work in the library. How to go about finding information fascinated me. At that time, of course, there were no databases, but microfilm-microfiches and other traditional ways. There was a need for languages, which I found very fascinating.

RAYWARD: So you went to Massachusetts to interview for the research job.

TOCATLIAN: Yes. That was where I got a job as a researcher. I worked in the lab for four years. I got several patents for my research work.

RAYWARD: What did you work on?

TOCATLIAN: It was in the plastics division. I worked on a plastic polyvinyl butyral, which is sandwiched between two car windshields to manufacture a safety windshield for cars. You color the top in blue but the sun turns it into purple. So I had to look for a stabilizer for that color. And, of course, the patent is in the name of Monsanto. After four years, I realized that even doing this research I had to go to a library to search for information, which was something I grew to love.

RAYWARD: By that time some of the early information storage and retrieval devices had emerged, correct?

TOCATLIAN: It was just a few years later. I accepted a position at Princeton [University] with FMC [Food and Machinery Corporation] as a literature chemist. While I was at Princeton, Chemical Abstracts Service did its first SDI [Selective Dissemination of Information] experiment. Chemical Abstract was looking for some industries to cooperate with an experimental SDI, and FMC was one of them. So I worked on that very first SDI experiment.

FMC branched out to many things. Before FMC started to invest in any research in the lab they wanted a literature survey on the subject. So this was what we did in the library. We wrote a report, which would take anywhere from a couple of weeks to three months to accomplish. It was a very exhaustive report on related research that had been done elsewhere around the world or in another industry on the same subject. Then management would decide to go ahead or not. When the research was finished, we prepared a patent application. So we had to search other patents. We were involved at the two ends of the research activity. I found the work very interesting and congenial. Then, I decided that I should go back to school and get a degree in information science/library science. So while working in Princeton I went to evening school in Philadelphia—Drexel Institute [now Drexel University]—and got a degree in information science/library science.

RAYWARD: Tell me something about the classes that you took and people like Claire [K.] Schultz. What do you remember of them?

TOCATLIAN: Claire Schultz's personality and charisma dominate my memory. She has since become a friend. She was very exceptional in stimulating students and making them interested in exploring information science. She was the first teacher in the U.S. to teach "search strategy." I went through the whole curriculum with great interest, but the field of information/library science seemed somewhat loose to me, probably compared to chemistry. Nevertheless, all through my career I've had a comfortable feeling about what I learned at Drexel, and I wanted to learn and discover more.

RAYWARD: It's interesting to put it that way. I mean I think Drexel was one of the leaders in beginning to look at and working with science information in new ways—the beginning of information storage and retrieval techniques, and so on. They were pioneering, I think, in the 1960s. What happened after you completed your degree at Drexel?

TOCATLIAN: I had an interesting offer from Merck, Sharp & Dohme Pharmaceutical Company in Rahway, New Jersey, to establish an SDI service for the company. Now, FMC was

not interested in going beyond what it was already doing, so I thought I could use some of the things I had learned at Merck, Sharp & Dohme. There were some two-hundred fifty Ph.D.'s in chemistry working in research, and I had to devise something for them to get to all the relevant information. I found a certain resistance in that they wanted to read themselves what was of interest to them, and they didn't want to delegate this task to a third person. So the compromise was that they were responsible for the core journals, which were of utmost interest to them, and I looked into peripheral literature.

While I was working at that, I went to a meeting where Burton [W.] Atkinson of the National Science Foundation gave a lecture at a meeting on a UNISIST [United Nations Information System in Science and Technology] feasibility study at the UNESCO [United Nations Educational, Scientific, and Cultural Organization]. I heard the lecture and I was fascinated by this project. I talked to him about working possibilities at the UNESCO. I applied and I got a negative answer right away. A year later they contacted me to see if I was still interested. I was, and I eventually ended up in Paris to work on this project. That was 1969. I worked until 1991, when I retired.

RAYWARD: So you worked on the first feasibility study?

TOCATLIAN: Yes. When I arrived, Adam Wysocki was my director and Jean-Claude Gardin was writing the feasibility study. I began to attend the meetings of the Central Committee under the chairmanship of Harrison Brown. He supervised the feasibility studies and Burton Atkinson was the U.S. representative on the committee.

RAYWARD: Can I just interrupt you?

TOCATLIAN: Yes.

RAYWARD: This was a joint project, wasn't it, with the ICSU [International Council of Scientific Unions] and the UNESCO? So Harrison Brown, in a sense, represented the ICSU through the National Academy of Sciences.

TOCATLIAN: Yes. Harrison Brown, president of the ICSU, had approached the UNESCO to say, "There's a problem with scientific and technical information. The systems and services that have proliferated around the world are not compatible and we, as scientists, worry that some day we will get into a very messy situation." The UNESCO responded positively and convened the Central Committee to do the feasibility study. Eventually the study and its recommendations were presented an intergovernmental conference, the UNISIST Conference. On that Central Committee were Harrison Brown, the president and an American, and Atkinson,

as a representative of the United States. Scott Adams was a very useful man who prepared some of the working papers. So a number of committees were set up in scientific areas. The result of that work was eventually presented to the UNISIST inter-governmental conference for adoption.

RAYWARD: Jacques, I'm curious how those reports were prepared. In a sense, they're joint efforts, almost as if written by a committee, but not quite. How does the process actually work?

TOCATLIAN: Jean-Claude Gardin wrote the draft feasibility study based on the work of the special committees and the deliberation of the Central Committee. He had one hundred recommendations in his first draft report. Then, the Central Committee met and discussed the draft and each member had comments. Jean-Claude Gardin took notes, and he came back the second time having consolidated from one hundred to twenty recommendations. Although he responded to the reaction of the committee, Gardin is the one who wrote it. In the end, the report was quite possibly an intellectual masterpiece, though it was difficult to grasp. The committee asked for a synopsis, something easy to read, and so Scott Adams rewrote the report in simpler language, and so on. Then the synopsis became the working document for the conference and the whole report became the background document.

RAYWARD: So you were a very keen observer of that first meeting.

TOCATLIAN: Yes. I worked in the Secretariat under Adam Wysocki, and was responsible for the organization of the meetings.

RAYWARD: So the UNISIST looked at changing, coordinating, catalyzing internationally this mass of information that was to be problematic in the future. Was there general agreement among the Central Committee members?

TOCATLIAN: The differences were East/West. The Central Committee Soviet member was Arutiunov. Arutiunov was a very influential member, and was considered the Soviet version of Atkinson.

RAYWARD: Was there tension?

TOCATLIAN: It was during the Cold War. I think—this is personal—the Soviets thought they could acquire some important international technical information through the UNISIST. So they were very favorable, but they were leaning towards a system rather than a program. The

UNISIST became a loose program to stimulate international cooperation, leading towards better access to scientific and technical information. Arutiunov and the Eastern Block wanted a system. In fact, the UNISIST was known as a global science information system, which it never was. The Soviets also wanted technology rather than science. They insisted on technology. Then, later, as the UNISIST was in existence as a program, the developing countries began wanting technology as well. They considered science elitist for the industrialized countries only. So there was a little bit of tension. But Harrison Brown was a real diplomat; as were Scott Adams, Adam Wysocki, and Jean-Claude Gardin. They always managed to find the proper compromise through formulation. So the UNISIST Conference was a fairly successful event. It was the first time, I think, that member states' governments attended an international conference on information.

RAYWARD: Speaking in those terms, the INIS [International Nuclear Information System] was being developed at roughly the same time, correct?

TOCATLIAN: A little before probably. While the UNISIST was being studied, the INIS existed already. It's interesting. I wonder if the Soviets were hoping to establish some sort of a world information system in science and technology along the lines of the INIS.

RAYWARD: One could imagine them being interested in something like the VINITI [All-Russian Institute for Science and Technical Information], but worldwide.

TOCATLIAN: Yes.

RAYWARD: So you were then situated in the UNESCO. The meeting concluded. The whole series of recommendations were approved by the UNISIST inter-governmental conference. What happened next?

TOCATLIAN: Now the recommendation of this inter-governmental conference goes to the UNESCO general conference because that is how it could get into the UNESCO program formally. The UNESCO general conference meets once every two years. They received the recommendation of an inter-governmental conference called the UNISIST, accepted it, and voted a budget for it. So the small group in the UNESCO Secretariat that was under Wysocki received a budget with some objectives and the UNISIST program was officially launched.

Now, as you can understand, the ICSU had originated the idea. The ICSU was very interested, but it did not provide the setup for that program. So it became a UNESCO program with a UNESCO budget and UNESCO staff, which collaborated a lot with the ICSU in its

implementation. But as years went by, there was a divergence as we will have occasion to explain.

Now, it was, as we say, a program to guide voluntary cooperation and had a lot of emphasis on compatibility and standardization between information systems and services. At the same time, we have to speak about an internal problem that existed in UNESCO at the time. UNESCO had already a large department called the DBA—Documentation Library and Archives. The B comes from the French *bibliothèque*. And the DBA had the three NGO's [Non-Government Organizations]: the IFLA [International Federation of Library Associations and Institutions] for libraries, the ICA [International Council for Archives] for archives, and the FID [International Federation for Information and Documentation] for documentation—closely collaborating with them. The DBA had what you may call a traditional approach to the subject. The UNISIST was a little more sophisticated in its approach, although it was for scientific and technical information and the DBA was for the area of documentation library and archives. But the overlap between the two programs was inevitable and went on in an increasing fashion.

RAYWARD: When you say the UNISIST was a bit more sophisticated, what do you mean?

TOCATLIAN: More sophisticated in its approach. First of all, in the UNISIST concept, we considered an information-transfer chain, from producer to user, which goes through abstracting and indexing services, publishers, storage and retrieval services, specialized libraries, *et cetera*. That vision gives a wide *vista* on who is involved in the transfer of scientific and technical information and addresses technology, training, infrastructure-building, and standardization of systems and services at the national level, at the regional level, and at the international level.

RAYWARD: Do we have that sequence in developing international activity?

TOCATLIAN: In developing an activity in any specific area, there are several steps we had to go through. They were time consuming, but it's important to get international backing for whatever you're doing or recommending in an international program. So we convened a committee meeting with all the important players represented, and the committee meeting made recommendations. Some of those recommendations lead to an activity or pilot project, and out of the results of the pilot project came a set of conclusions or recommendations. This step-by-step approach was slow, but indispensable for international approval.

RAYWARD: So you were maximizing international acceptance?

TOCATLIAN: Yes. The UNISIST, and later the PGI [*Programme Générale de'Information*], are the only programs to deal with information as a subject. All the other U.N. [United Nations]

agencies have specialized information systems and services in that field of interest and provide information in their respective fields. But no one has looked at the problems of information, as such, with the exception of the IDRC [International Development Research Center], a Canadian international development center. We dealt with a heterogeneous international environment, with strong political and professional differences. From a professional point of view we had to deal with different groups: library-oriented people, archivists, scientific and technical information people, and scientists. Their outlooks were often different.

So the UNISIST and the PGI were under external pressure, both professional and political, and if anybody spoke at a meeting, you always had to first find out where he came from and what his profession and background was because when a librarian from Moscow spoke his or her message was different from a librarian from Washington [D.C.]. When a scientist or a documentalist speaks on the problems of information, it is a different message. It's quite an interesting puzzle to put together and to try to make sense of.

RAYWARD: How would you describe the differences between them?

TOCATLIAN: [laughter] Let us consider the United States, take the American Library Association [ALA] as opposed to the ASIS [American Society for Information Science], now the ASIS&T [American Society for Information Science and Technology]—look at what they deal with, what they discuss, what they talk about, and what their objectives and concerns are. They both deal with the overall problem of access to information, but from different angles. Then you find that they have several different tendencies even though they are within one country. Now, the Special Library Association [SLA] has tried to get closer to the ASIS and vice versa. Have they succeeded?

RAYWARD: No.

TOCATLIAN: So even now, in the twenty-first century, we still have many of the problems that were prevalent in the 1960s and 1970s. Do you think the Internet will bring people together? Perhaps technology might assist.

RAYWARD: I'm not sure that technology will bring everybody together. I think that will simply make existing tendencies easier. Of course, scientists themselves have a different approach, I would imagine.

TOCATLIAN: So let's continue discussing the history of the UNISIST for another couple of minutes. At one point there was a need to look at what the UNESCO had done with the UNISIST for the past ten years and see where to go from there. At that time the UN was

convening in Vienna for a conference on science and technology for development, the UNCSTD [United Nations Conference for Science and Technology for Development]. So the UNESCO convened another inter-governmental meeting, called the UNISIST 2, in order to contribute to the Vienna U.N. conference.

RAYWARD: Before we were sidetracked, we were talking about UNISIST 1, the conference, and its immediate products. But then there were ten years of program development within the UNISIST with, I think, a review period every five years. What were the main achievements during the development period from the UNISIST 1 to the UNISIST 2?

TOCATLIAN: Well, in fact, one of the duties of the UNISIST 2 as an inter-governmental conference was to evaluate what had happened. And it did. In the final report there is an evaluation. What was realized was that the UNISIST was on the right track. Its objectives were good and clear. But the funds allocated did not allow the progress that one would have wanted in those ten years. So, although good results had been achieved training, promoting national policies in member states, standardization, infrastructure building, *et cetera*, there was much to be done.

The UNISIST 2 was undertaken in 1979. The focus was on scientific and technical information for development. Ten years earlier, under UNISIST 1, it was on science. The developing countries, when they met in Vienna for the UNCSTD, wanted a whole new approach for them to access technological information and know-how. They would not accept the argument that the UNESCO already had a program to do all that work, which was basic and could be built on. They wanted to start a new system from scratch. They voted in Vienna for a resolution to establish a Global Information Network—the GIN.

[END OF TAPE, SIDE 1]

RAYWARD: One of the things that went through my mind when you mentioned the GIN was the Russians approach to it. In a way, it was similar to the proposal they had hoped to achieve at the time of the UNISIST 1—a single, centralized network.

TOCATLIAN: Yes. Except again GIN was a referral system. It's recommended that each country had a national node, and in the U.N. there was the central, international node. Each national node could ask questions and obtain replies from other national nodes. It was a very strange scheme. It took ten years to realize that it would not work. Ten years later, in 1989, the U.N. evaluated the results of UNISIST 2 and subsequently ended the program. Of course, the funds didn't come since the industrialized countries were against that particular scheme, which had been forced onto them. The implementation proved impossible.

RAYWARD: The fact that they were proposing something like that and there was at least some pressure for funding, how did that impact what was then available for UNISIST?

TOCATLIAN: Let me go back a step, when I was talking about the convening of UNISIST 2 in preparation for the Vienna conference. At the time UNISIST 2 was organized and met, the documents of the Vienna conference were already available. So in a way, the two were happening simultaneously. We adjusted to that a lot. The members of the delegations who came to our conference already knew what would happen a few months later in Vienna, you know. So it was in the same spirit that UNISIST 2 recommended to put an accent on scientific and technical information for development. So it departs, somewhat, from the UNISIST 1 idea. Also, a lot of attention was given to the need to strengthen national capabilities to handle the information, especially for the developing countries. You can devise all sorts of international systems and programs, but if you're incapable at the national level—you have no trained personnel and no infrastructure to sustain access—it won't work.

The countries had become very much aware that this was lacking. So there was an accent put on national capability and moving from just science information towards information for development, which included much more. The users considered were not scientists exclusively, for even the grass-roots and policy-makers at the national level needed information. So the whole scope of the program expanded tremendously. We have to remember also what happened at the UNESCO. Within it, we had a problem between the small unit of the UNISIST and the DBA. At one point, because the overlap between those two programs was a serious problem, they were joined to create the PGI.

RAYWARD: Was that in 1974?

TOCATLIAN: It was 1976. When the PGI was created the UNISIST program remained intact under the PGI. The objectives of the NATIS [National Information Systems Program], of the DBA were taken and incorporated under each of the sub-objectives of the new PGI program. There was a lot of resistance from every side to make that change. But, in fact, when you look back it worked very well.

RAYWARD: Can I stop you there?

TOCATLIAN: Sure.

RAYWARD: I think this is interesting on two grounds. There's another thread that you've just brought in, which I was hoping we would get to: the NATIS Program, the National Information Systems Program.

TOCATLIAN: Yes.

RAYWARD: Then the second thing is, when you speak about the different aspects being bought under the PGI objectives, I'm wondering what that means in concrete terms. So please discuss the NATIS, because it's one of the streams which, with the UNISIST, became part of the work of the PGI.

TOCATLIAN: Within the UNESCO Secretariat, when the UNISIST was launched and became the focus of much attention, the DBA was frustrated.

RAYWARD: Do you know who the head of the DBA was at that time?

TOCATLIAN: [Oleg] Michailov, a Soviet.

RAYWARD: I didn't realize Michailov was there.

TOCATLIAN: He is not the big Michailov of the VINITI.

RAYWARD: I see.

TOCATLIAN: No, it's the small Michailov, who was later succeeded by Celia Zaher from Brazil. They both realized the UNISIST had been accepted with a strategic and technical advantage because, unlike the DBA, it had gone through an inter-governmental conference. So they organized the NATIS conference. They felt they would be at the same level. The NATIS conference had some very positive aspects, but it exacerbated the fight between librarians and information scientists. It was a negative, and as such, a waste of time and energy. The NATIS conference resolutions were submitted to the UNESCO General Conference for acceptance, but they did not turn into an inter-governmental program. At that point, the extent of the overlap became even more obvious. Eventually it led to the creation of the PGI.

RAYWARD: Everything at the PGI.

TOCATLIAN: For example, say if you look at the NATIS you would see there are a lot of recommendations for training librarians, archivists, and so on, whereas in the UNISIST there was training, of course, but not addressed specifically to those. So in the PGI, under the training program you would find spots that responded to each. The disadvantage or danger was the spreading of funds very thinly. But the PGI program had the benefit of an inter-governmental committee to supervise it. You met with Nathalie Dusoulier, who is presently the chairman of the committee. The bureau of that committee met a couple of times a year and would interact with the secretariat. So the selection of activities for the program benefited a lot from the experience and advice of the members of the committee. We made, I think, a fairly good choice in selecting program activities.

RAYWARD: Who was head of that Secretariat?

TOCATLIAN: Head of the UNESCO?

RAYWARD: No, of the PGI.

TOCATLIAN: Wysocki was head of the UNISIST, and when the PGI was created in 1976, he became its head.

RAYWARD: What happened to Celia Zaher?

TOCATLIAN: She was given a program on book promotion and other related activities. Then, in 1979, Wysocki was called back by his government in Poland.

RAYWARD: So he wouldn't have been head of the PGI very long—two or three years.

TOCATLIAN: Yes. And he was called back abruptly.

RAYWARD: Was there some political aspect to that?

TOCATLIAN: Certainly. In fact, he often told me, "One day I'll tell you." But he never got into talking about that. There was, in my view, a lot of pressure from the Soviets. The Soviets

wanted to control the program through a Polish director. Since the Polish director was more independent and, in reality, an international civil servant who wanted the success of this program, he did not follow blindly any pressure, and eventually they called him back. But what happened is that an American—not a Soviet—was named as the replacement of Wysocki. [laughter]

RAYWARD: That's when you came on.

TOCATLIAN: Yes. In 1979 when Wysocki was called back, I was nominated director of the PGI.

RAYWARD: That's when you came.

TOCATLIAN: We prepared the UNISIST 2 conference.

RAYWARD: Did you ever have pressure brought on you to take a particular stance on an issue within the PGI?

TOCATLIAN: Yes. I would say a lot. Until Arutiunov remained active in the Inter-governmental Committee of the PGI, he was always the delegate for the Soviet Union. Arutiunov is a very charming, powerful, manipulative, and terrible man, but he could use his charm. Sometimes he made me think of [Joseph] Stalin a little bit.

RAYWARD: My goodness!

TOCATLIAN: You know, historians say that Stalin was very charming. I understand that [Franklin Delano] Roosevelt was totally under his charm. Arutiunov was very friendly and nice. Then at meetings he would attack me, accuse, and apply all sorts of pressure to reach his goals.

RAYWARD: So what were the issues? What was it that they would want that would be problematic?

TOCATLIAN: It's very complicated, and I don't think I ever understood the whole thing. But there were a lot of internal problems in the Soviet Union that were not apparent to us. That is,

Arutiunov himself was under pressure from the KGB [*Komitet Gosudarstvennoy Bezopasnosti*], and there was a man who accompanied him at the meeting to hear what he said. The man watched Arutiunov's lips to be sure he said the right things. Sometimes, he contradicted himself when he was outside of a meeting. All of this was obviously an internal problem. But it was not clear to us what they wanted. One thing was clear: the Soviets wanted to name a Soviet at the head of the PGI.

And so getting rid of me would have been a good thing. When the United States withdrew from the UNESCO in 1983, the Soviets increased the pressure tremendously to get me out and replace me. They had meetings of the Executive Board of the UNESCO during which they argued that they shouldn't have to pay for an American working at the UNESCO because the Americans had withdrawn from the organization. It was very tough time. I don't want to make it too personal because it was not important. But what is important maybe is that they had hoped to achieve something through the UNESCO, which they never were able to.

RAYWARD: This is so interesting. Because at one level you'd think this is one area where it ought to be free of that sort of controversy—how to develop systems to improve the flow of scientific information and the technical sides of that, which you worked on—thesauri and processes of description of materials, and so on.

TOCATLIAN: Yes.

RAYWARD: You wouldn't think it could be political, other than in a sense of wanting somebody who was in charge. But then if you had somebody in charge, what advantage could that be to them? Do you see what I mean?

TOCATLIAN: Yes. I see your question. They had a man by the name of [Michael] Poboukowsky who was at the head of software development for the UNESCO—CDS/ISIS (a database management system)—and obviously they wanted him to take over everything. They had their own idea. Now the Soviet Union, from outside, seemed like a very powerful, strong organization, but looking from the inside it was in many respects backwards. For example, when I went on mission to Moscow—this is an anecdote, no big deal—they made an effort to take me to lunches with lots of vodka. For endless hours, you know—charm, music, ballet, the circus, and hospitality you couldn't dream of. But when it came to visiting the VINITI or whatever, I was shown practically nothing. They were ashamed, in fact, to show how backward they were. In the VINITI you had thousands of people writing with pencils. It was a very backward way of organizing things.

RAYWARD: So they didn't have the computing capacity or anything like that?

TOCATLIAN: They were very far behind. We got a lot of propaganda at meetings where they talked about what they could do, but nobody had ever gone there and checked.

RAYWARD: Did you have much contact with the big Michailov?

TOCATLIAN: Yes, he was a very nice and decent person. I met him several times at the UNESCO and the FID meetings.

RAYWARD: I met him once. Because it was in relation to my book and he was drunk at that time.

TOCATLIAN: Was he? [laughter]

RAYWARD: Yes. So I never saw him sober.

TOCATLIAN: He wasn't a troublemaker like Arutiunov. He was rather silent at the FID meetings. You were asking me about the interest the Soviets had in international programs.

RAYWARD: What was it that he wanted?

TOCATLIAN: Every Soviet that worked outside the Soviet Union that time, regardless of their employment—in embassies, in consulates, the UN system, or whatever—had to provide some sort of information to the motherland. They put a copy, tons of paper, and used to send them back home. In the UNESCO, I frequently saw my Soviet colleagues on the photocopy machine photocopying reports, journals, article, everything, and sending them back. It was a task assigned to them. So they have this mentality that they're lacking some important information and they send home all sorts of information. Then, someone in Russia screens it to determine if it useful. So to be on top of an international program that has contacts with one hundred and sixty member states and to know how the Mexicans or the Australians are organizing information, know the people there—it's an opportunity to get to talk to them and obtain certain things. Of course, it's a position that would open doors. And to them it was an obvious thing—probably disappointing because it didn't work out so much.

RAYWARD: In the broadest possible way you could say that maybe it's not a good advertisement for acquiring information. Look what happened to it.

TOCATLIAN: Yes. But, you know, another anecdote—one of our colleagues in the UNISIST, Vladimir Ribachenkov, was a spy. He was caught in Paris in front of St. Sulpice Church exchanging information with the French. The French had caught him and put him on a plane back to Moscow as a *persona non grata*. He was working with us as a colleague, but he was here to do some specific job. So there was a lot going on during the Cold War—probably less now, you know, since I'm out of touch. [laughter]

RAYWARD: So let's go back to that ten-year period before we come to the other conference and the Global Information Network idea. The UNISIST was at work and eventually the PGI came along. I am interested in that relationship, the interactions that occurred within the UNISIST program with some of the other major services. I'm thinking of the INIS, for example. But then there are the sources like *Chemical Abstracts, Biological Abstracts* that, though nationally based, are international in their scope—a distinction that you draw in your papers (1).

TOCATLIAN: Yes.

RAYWARD: That they are essentially international, even though they had that kind of location, and some of the people who you would have had interactions with and how all this worked to achieve what eventually came out of the UNISIST movement.

TOCATLIAN: When I came to the UNESCO in 1969, I was just a junior member of the team. As I mentioned earlier, I found that the feasibility study was going on and there was a whole structure to do this feasibility study with some sub-committees. I found also that the abstract-indexing services were playing a major role. That was for sure. At the beginning they were putting a lot of weight into playing a major role into the UNISIST. The idea, I think, is that if they shared the information and had standardized methods and norms, it would build up into what they thought would be a sort-of UNISIST system, right? And the ICSU had a sub-committee called the ICSU-AB—Abstracting Board—in which Dale Baker and Phyllis [Parkins] were members. Obviously, they were very influential and tried to put a lot of weight on this project. But as the UNISIST became a program rather than a system and was implemented, I think their influence decreased, in the sense that they had their particular problems and they were still a national system with an international dimension. So I don't think if you look back at what has happened within the UNESCO program in cooperation with them, there's not a lot as one would have thought at the beginning.

RAYWARD: You mentioned earlier that there was a drifting apart of the UNESCO and the ICSU and, I suppose, the ICSU-AB, as the program developed. Was that what you were going to say, or is there something more specific?

TOCATLIAN: When the PGI was created, bringing into the UNISIST the documentation library and archives business, the ICSU was very disappointed because they thought they had lost their own special program, which had to deal exclusively with scientific information. I mean first they wanted scientific information. Then they found that we dealt with scientific and technical information. Now they found under PGI libraries, archives all sorts of things in which they thought they were not so interested. I have failed over the years to explain to the ICSU—I have a lot of friends in the ICSU family—that you cannot look at science information as an entity of its own. It's part of a whole. If a country, say Senegal, does not have the proper infrastructure, the trained people, a national policy, and all the things you need to access and use information, you cannot speak of science information as something separate. You need to build infrastructure. You need to train people. So all of these elements were within the PGI, but somehow they considered science information as having some specific problems that had to be addressed. So there was this disappointment, although the relationship has always been good and friendly.

And your other question? You asked also about the INIS and the AGRIS. Again, the problem as we saw from it from the UNESCO is that these bibliographic systems like the INIS and the AGRIS gave access to a bibliography. But anyone looking for information has to take another step and get to the published information. At the time, you needed the hard copy, or the microfilm, or the microfiche somewhere. This is one thing again which brings us back to the PGI approach—I'm mostly thinking about developing countries, of course.

RAYWARD: Yes.

TOCATLIAN: They need to have an adequate infrastructure in the country. Good libraries and good librarians help in getting bulk of information. It was somewhat frustrating for the developing countries when we spoke about all these international systems such as the INIS and the AGRIS. They had an input. But, in fact, when you looked at the use that was made of this information at the national level, it was rather disappointing—because of the many problems that they faced.

RAYWARD: You remind me that one of the early the UNESCO programs, before we got to the UNISIST, was the development of demonstration organizations like documentation centers, something like the INSDOC [Indian National Scientific Centre], the IRANDOC [Iranian National Documentation Centre], and others. There were demonstration libraries as well. But there were these major documentation centers. I think the INSDOC still goes—

TOCATLIAN: Yes.

RAYWARD: —to show what was needed at the national level for the management of scientific information, both in terms of what is being developed internally and what might be achieved from the outside.

TOCATLIAN: Were they not more than demonstration centers? I mean they were actually services.

RAYWARD: Oh, yes. I think they were set up to show the rest of the world that they would work or what was needed. They worked, and then became independent agencies. As I say, I think INSDOC still exists.

TOCATLIAN: Yes.

RAYWARD: I'm not so sure about the Iranian one.

TOCATLIAN: In fact, they could adapt as the situation evolved. For example, when we go back to the idea of the Global Information Network of the UNCSTD, they advocate the creation of the national node to input information. So when they think of India they think of the INSDOC to be that national node. We at the UNESCO try to create what we call the national focal point. The national focal point in our recommendation was more of a policy-making body. Now, again, many countries nominated those INSDOCs as the UNISIST focal point. So they had several hats. They evolved and adapted.

RAYWARD: But there weren't very many of them I think.

TOCATLIAN: No. They were products of the DBA at the time.

RAYWARD: Yes, they were.

TOCATLIAN: In the early 1960s.

RAYWARD: Yes, the late 1950s, early 1960s. So we're coming home towards this UNISIST 2. We haven't got there yet. We're looking at the achievements during that period and the sorts of people that you would have hired in to do some of the work for you. You mentioned earlier Pauline Cochrane. But there would be quite a few others that would be brought in for the preparation of documents.

TOCATLIAN: Yes. The staff of the PGI was managing programs.

RAYWARD: How big was the staff at the PGI?

TOCATLIAN: The largest figure was sixty-nine. But that includes the clerical and professional people. That was the largest. Of course, you manage programs but you need expertise. And you don't have all the expertise within the staff. Besides, the staff cannot be absent too long, I mean if you need people in the field. So around this nucleus of staff we had a family of experts and consultants who came in and under contract went to various places to do certain jobs. Some wrote books or guidelines, some went for training. Of course, you had the expert who came to meetings and advise us on the different products. It was a whole large family. In the States we have used a lot of known, capable experts. You mentioned Cochrane was one of the first one, and Wilf Lancaster , Paul Wasserman, Tony Garbo Berman, and many others.

RAYWARD: What happened to you during those ten years? You started, you said, as a junior person?

[END OF TAPE, SIDE 2]

TOCATLIAN: Professionals are classified as P-1, P-2, P-3, and so on. Then there's D for Director-1, Director-2, et cetera. In the professional scale, I came in as a P-4.

RAYWARD: So you came in fairly high up on the scale.

TOCATLIAN: I was forty. No, I think that was normal. What was unusual is that within two years I became P-5 because I had organized the UNISIST conference with Wysocki. They had foreseen a P-5 post for the organization of the conference. But by the time the post was advertised, I had organized the conference. I applied and I got the P-5 post. So for those first ten years I moved further and further away from chemistry and into information science, and also I learned the baby steps of international work. Wysocki was a very good teacher for that because he came from a different surrounding than mine. He was from an Eastern European

country where they are much more politically minded than we are. Perhaps the word suspicious is not a good word, but he always tried to look into the motives, reasons, and influence behind any statement or position. It was a whole frame of mind, which was quite interesting for international work. I learned a lot from him in that respect and, in fact, I enjoyed it.

I have to say that after two or three years in the UNESCO, Harrison Brown asked me if I was interested to returning to the States, where there was a position at the Academy of Science. I went for an interview, because I was already "hooked" by international work. I found it difficult to go back to the national level. International work has a political aspect, a technical aspect, and a human aspect that make things complicated; slow but also very interesting. To say nothing of working with colleagues from different nationalities: one is Japanese and the other is Tunisian or Brazilian. There's quite considerable difference in mentality, which can be very frustrating, and some people dislike it very much. I liked it, probably, because of my Alexandrian background and my roots. I found it very congenial. Once the decision was made to stay involved, it was very agreeable. Then, as of 1979—ten years later—when I was appointed Director of the PGI, it also became a completely different setup for me because the Director General had changed. It was Mr. M'Bow from Senegal, who unfortunately ran into serious problems with the United States, and eventually the United States withdrew from UNESCO. I was an international civil servant at the UNESCO, a director that M'Bow had nominated. But still in his eyes I was an American citizen. And so it put me into some awkward position, but I survived pretty well I think considering the situation. [laughter]

RAYWARD: Would it be unusual for somebody to be of a nationality not represented in the UNESCO? How many of you were there? I should imagine very few; the UK [United Kingdom] withdrew a few years later.

TOCATLIAN: Yes. But if you were in the organization already at the time of the withdrawal as a UK or as an American, you were an international civil servant and you stayed.

RAYWARD: Yes.

TOCATLIAN: And because we take an oath, as we get into the organization, to take no orders from anyone but the Director-General, so we become international civil servants. It's unfair to reverse the situation when member states withdraw. So it was difficult but it didn't end up into anything drastic—except that the UNESCO lost 30 percent of its funds. The United States used to give 25 percent and the UK gave 4.9 percent, or whatever. We had to cut programs, and that was probably the most difficult thing to do.

RAYWARD: How did you do that in the PGI?

TOCATLIAN: Again, it was with the help of the inter-governmental committee and their approval. For instance, instead of having twelve training programs you had to cut it into nine or eight, in proportion.

RAYWARD: So you didn't cut off certain areas?

TOCATLIAN: No. That was always a management decision. There were attempts and recommendations to do that. I personally resisted because the idea of the UNISIST and the PGI was a holistic approach. You could not say, "We're going to help you build your infrastructure but we're not going to bother about training your people," because both are necessary. And so it's a question of selecting the activities that would have the most international impact. Producing a good guideline that everyone could read about probably has more impact than organizing a little training program in Senegal or in Peru that benefits only a few people. It became a question of selecting activities. We had budget cuts, and for a long time the UNESCO survived with zero growth and went on okay.

RAYWARD: Who gave you the most trouble?

TOCATLIAN: Someone who worked for me. It's a long story, though everyone who has come across the PGI may have heard it. I had a colleague from a developing country who thought that when Wysocki left he ought to have been given the position of director, and resented my being nominated instead. He said it openly. He said that he felt like it was a personal insult. From that day on he started fighting in all sorts of unethical ways, to the point of sending anonymous letters to the Director-General about me, about budgets, about my management. Now I brought all this to the attention of the Director-General, Mr. M'Bow. I said that it was detrimental to the UNESCO and to me personally. It was explained to me, not by M'Bow himself but his surrounding officers that the Director-General found it very hard to come to a decision as to who was right and who was wrong, because my colleague came from a developing country and I was an American. He could never say that the American was correct and the man from developing country was wrong. So he let the situation go on and on.

So when United States withdrew from the UNESCO there were a lot of efforts to gain them back. I suggested the Director-General go to Dallas to attend the meeting of the American Library Association—there were some forty thousand librarians—and speak to them. He accepted the idea. So we organized this visit and I accompanied him to Dallas, Texas. He spoke, was very nicely received, and he was very happy. I think the American Library Association voted a resolution supporting the UNESCO. So, to him, he had to reward me for that, and he said he would take care of my pending problem with my colleague. [laughter]

RAYWARD: And he did?

TOCATLIAN: Yes, to some extent, but not completely.

RAYWARD: But in terms of other professional people—people from the field, organizations with particular interests—none of those—I'm only putting it in this way just to stimulate your thinking about problems you had.

TOCATLIAN: Let me think Secretariat first of all. Within the Secretariat you have some people who find it difficult to adjust because, as we mentioned today, there are political pressures and there all sorts of problems. Not everyone seems to be prepared, so many become the worst type of bureaucrats. They hide behind rules and regulations and do their little job and don't bother to find solutions for difficult problems. Unfortunately, I think in every international organization, you'll find there are such people.

RAYWARD: And in national government bureaucracies as well.

TOCATLIAN: As well. You also had a few locomotives. Because of their background or what they believe in, they adjust and they do a great job. They do well. They are very stimulating. So within the organization you run into those stimulating and capable civil servants, and into "dead wood" who are only there to say that it cannot be done. One needs a specific example in order to make this clear. Suppose I have a contract with a consultant who is going to go to Jakarta to teach a course. Now the contract has to be signed, and sent, and there are all sorts of steps to go through. But at one point it's very late. The man is about to catch his plane to go to Jakarta and the ticket has not been issued and the contract is not there, whatever. So you cannot go by the rules and say it will take three days to get this. You have to be pushy. You have to take a shortcut. You have to find a quick solution. That is where I used to get mad—take things and go run into offices and scream at people to shake them and make them react fast, you know. This is when you hit the heavy bureaucracy.

Then there's a political aspect, of course. When somebody is not working for your organization but is working for someone else, whether in Moscow or in Tokyo or whatever country—and then it becomes obvious that this person is not helping you or your program because he has a different instruction. That is also a source of friction, and so on. You can have two attitudes. Either you let it go because you don't want to have problems—some people do—or you fight and you get into even worse problems, which I chose to do when I was younger. [laughter]

RAYWARD: How about the non-governmental organizations?

TOCATLIAN: I worked mostly with the IFLA, with the FID, and the ICA—the three main ones. Also, I worked with the ICSU and a little bit with the ICSTI [International Council on Scientific and Technical Information]. That is a problem of itself internationally because there is a proliferation of such NGOs. There are some six hundred I think in the information field.

RAYWARD: You mentioned in one of your early papers that the number of NGO's would only increase (1).

TOCATLIAN: Yes. And with very limited budgets, so what can they do? I found they duplicated what the UNESCO was doing with better means. For example, let's say the FID had a working group on training and education but it couldn't pay for its attendees' airline tickets. In such a case, the attendees wouldn't have been chosen by the FID, but rather, by the country that was willing to send them at their own expense. Hence, one couldn't even choose one's experts. You have to accept Michailov because that is who can afford to come to the FID meeting. Sometimes one wonders what those organizations could do. In response to that system's failings, I prepared the Tokyo resolution to provide a forum where the NGO's in our field could work together in harmony.

RAYWARD: What happened to the implementation of the Tokyo resolution, Jacques? I know the FID publicized it very much on its website and it was very important.

TOCATLIAN: Again, to implement it you need action, you need people, and you need money. So far, it has remained as wishful thinking on a piece of paper; I don't think it's been implemented. I left it in 1994, as my health problems did not allow me to follow it up. I told the president of the FID at the time that if he was serious about it, at least for the first couple of years, he had to put a lot of effort in to making it credible.

RAYWARD: The FID raises some very interesting problems. I mean it's an organization I've studied now from its foundation and early years. I was asked to write an article some years ago and I suggested that it seems to me that the IFLA and the FID ought to come together in some formal way. There seemed to be a dispersion of the forces that seemed unnecessary for the two organizations.

TOCATLIAN: Yes.

RAYWARD: It attracted no comment—not even laughter. Yet I have the feeling that the FID is unable to do much of anything these days. Would you agree?

TOCATLIAN: It's difficult for me to disagree with you, although I have not kept up over the last few years with what has been happening. A lack of financing is the FID's major problem. A merger would benefit both the IFLA and the FID, especially considering they are in the same building.

RAYWARD: Yes.

TOCATLIAN: But the FID believes they are dealing with a different profession than librarians, and they don't want to lose their specificity. In fact, some of the problems of the public librarians, and so on, are outside of the FID's defined purpose. But it all stems at resources.

RAYWARD: Isn't it also a matter of roles? There are now a whole slew of organizations with functions similar or overlapping the FID's implied purpose. Even the ICSTI overlaps the FID.

TOCATLIAN: You could say the FID ought to be the ASIS—the International ASIS—and the IFLA should be the International American Library Association. The reasons why in the United States they are still separate and different are the same as why they are separate internationally—except that in the United States they are both working and have means to achieve their goals, and internationally—probably because of lack of funds—they are handicapped.

RAYWARD: They also have major overlapping memberships.

TOCATLIAN: Yes.

RAYWARD: And if you were to disregard the example of the US by the example of the UK—

TOCATLIAN: Yes.

RAYWARD: Now there is a move at the Institute of Information Scientists and the Library Association to federate.

TOCATLIAN: Yes.

RAYWARD: I just wonder what the FID is doing. It has annual meetings and sometimes publishes its proceedings, often inadequately.

TOCATLIAN: There were times where it seemed to be moving upwards and you would have an interesting meeting and start something and it would fall back, because it depends on voluntary cooperation of its members. But I think what we are saying about the FID is probably true of many other smaller NGOs. When you think of the number that exists, it would have made sense to federate them internationally. But each one is defending its own grounds. I mean when I was preparing the Tokyo resolution with a committee I had already retired from the UNESCO. I found a lot of pressure on me from some NGOs like the International Council on Archives. They were very upset that this was happening under the FID. They said to me, "How stupid we didn't think of it ourselves." You see, it's a matter of prestige. I have no idea where it will move in the future. I don't know how.

RAYWARD: My sense of it is that the new information order, if you will, that many of the organizations are going to be pipped at the post. I've made the argument that if you had the information in digital form, whether it's archival, ordinary print material, or museum images, it's effectively now the same. We have a whole set of other problems to deal with that common format. I think some of these other issues will take a different perspective as it becomes more prominent and important. It's still important because you still have to deal with the artifacts. But anyway, I'm not here to preach to you. [laughter]

TOCATLIAN: You were asking about the adaptation of our information systems and services to account for national cultures that sometimes make it difficult to use the systems and services developed in the West. I was thinking of a Professor Neelamegan who taught at the University of the Philippines (UP) in Manila. This was a project that the PGI sponsored and financed by the UNDP—United National Development Program—and with the collaboration of the Southeast Asian countries for five years. It developed an information science degree, which I think is the first of its kind offered in the developing world and taught by teachers from the developing world. So Neelamegan has done much to account for the students' various cultures because he had wide experience teaching in Canada and the United States. I'm sure one would find a number of examples there because he dealt with computer science and computerized systems and developed a lot of services; but at a different pace, taking into account a number of cultural issues.

RAYWARD: Neelamegan was the successor to [Shiyali R.] Ranganathan. But let us go back to the Global Information Network.

TOCATLIAN: All right. Remember we said that in Vienna at the UNCSTD conference—the United National Conference for Science and Technology Development—there was a conflict between the third world and the industrialized countries. The developing countries wanted an information system that would allow them to access not only to technological information but also to know-how, pricing policies, and all sorts of commercial information. Since they were a majority, they voted and it went through, although the developed countries were against the proposed scheme. So the decision of the conference to establish the Global Information Network—GIN—went through. At the UN in New York, the committee met for ten years, trying all sorts of devices to get it established by incorporating all the UN agencies, by having all sorts of schemes. But it never worked. Ten years later they put it aside. That experience taught me that things cannot be accomplished without political will.

This brings us back to that INIS. The INIS was established, as I understand, because [John] Woolston said that the United States and Soviet Union needed something concrete on which to collaborate. They decided that they would establish a nuclear information system. Once the decision was made, all the technical aspects were eventually solved. So the political will is number one. It probably is the most difficult to get, and the finances follow that.

RAYWARD: Another thing that seems to be important, apropos, is the difficulty of designing very grand and large systems as opposed to starting, as it were, from the bottom and working up. The GIN was of the first kind.

TOCATLIAN: Yes. Up-down. It did not work. You asked at one point regarding the evolution of the UNISIST from science information into science and technology, into science and technology information for development and then the incorporation of libraries and archives under the PGI. You asked about the future. I wonder whether a focal point on scientific information is still needed and who is going to take it over.

RAYWARD: I was actually asking you your own questions and saying well, now how would you answer them. And that was one of them.

TOCATLIAN: Right.

RAYWARD: These are the questions that you felt had become important with the modification of the PGI and its change in terms of libraries, and the STI [Scientific and Technical Information] and the loss of its special visibility. You ask, “Has a gap been created? Should the gap be filled? Does the STI need an international focal point? Will the UNESCO recapture this function in the future or will information be amalgamated increasingly with Informatics and

communication in the cooperative international programs of the UNESCO? If so, what would happen within the UNESCO? Should other governmental and NGOs strengthen their contribution in the area of the STI? Is the STI an appropriate concept for international cooperation, or should one rather focus on the social use of information (2)?" So we touched on some of these questions, but as a group it strikes me as being fairly central to talking about the future.

[END OF TAPE, SIDE 3]

TOCATLIAN: We were saying that I had asked some of these questions at a conference on expanding access to science and technology, which was organized by the University of the United Nations in Kyoto. That was a few years ago. But when we look at what happened at the UNESCO, in fact what happened was the amalgamation of the programs in Infomatics and the PGI into one program, and the naming of a director whose profile is very much computer science.

RAYWARD: That has happened, hasn't it?

TOCATLIAN: Yes, it happened. The whole program now is slanted towards what you'd call the Internet-type preoccupations. Is an international focal point on the STI still needed? I personally think it is, probably because of my background and my career. There is a question of content. Science, especially scientific information, has always been referenced and controlled by the scientists. You can't just publish anything without control. In the Internet-type of mentality now you just put in all sorts of information. Who is to control that, and by which mechanism? I don't know if it's going to create a problem for science or not. Perhaps science will maintain its own traditional type of publication, refereeing, and control, or maybe won't. But in that respect, an international focal point to my view is needed.

RAYWARD: In looking at it, I agree that there is a major problem with the content. But it's also interesting how all of the indexing and abstracting services, and so on, are adapting to this new environment. One of the things they're doing—just to get back to something you said very much earlier in our talk—they're introducing the full text of journal articles, and so forth; though that is not yet universal. In some cases, there is a disjunction between bibliographic information, the abstract, and the article. In other cases, one can examine everything seamlessly. The latter is becoming increasingly true.

I'd like your comment on this. Science and technology are more often seen as commodities in contemporary society than as social goods. We have a global marketplace in which information is a commodity and in which companies are trying to find their own particular advantages, in terms of profit.

Elsevier is an interesting case in that it has bought up Beilstein and a whole slew of journals. Consequently, Elsevier has created a monolithic organization with the idea that you buy your information through this particular source. That seems to be increasingly the case. So how does one regulate that information? How do we provide for less-developed countries? How do we provide for those within our own countries who have various economic and other reasons for not being able to get to it, and so on? Does that bring us back then to reinvent in a new environment; something like the PGI and the national focal point?

TOCATLIAN: Yes, I believe we do have a need. Perhaps there will be other forms. In fact, the problem of having this sort of focal point within the UNESCO is that it suffers from some people's negative perceptions of the UN and the UNESCO's efficiency. Many think of our environment as being bureaucratic and slow, or even useless. This is what makes it difficult to sell such an important function internationally to be located within the UN system. If it isn't within the UN system, then where do you have it? Within one of the countries is not acceptable by others.

And so today it is the technology, the industry, the telecommunication, the computer, the software, and the hardware that are pulling the whole system. Their decisions have an impact on what follows. It's not a UNISIST or a PGI, or any single intergovernmental conference that decides which way we will go. It's the other way around. Is it not so? How do we balance that? What are the choices? You have the UN. You have the NGOs like the ICSU or you have strong national systems. But obviously, for the time being, it is the vested interests of the United States and the UK and some of the large industrial countries that are leading the way. But it's not acceptable politically.

RAYWARD: Nathalie Dusoulier mentioned that the PGI should focus on more down-to-earth projects because of what had already been achieved and the changes that have occurred. Would you comment on her statement?

TOCATLIAN: She is a very practical person. She has worked with the CNRS [National Center for Scientific Research] in France, the Dag Hammarskjöld Library in New York, and the IOB in Geneva. She is the type of person who works internationally and is involved with things first hand rather than just discussing what needs to be done. So I understand and share her attraction for something concrete. Admittedly, some of the resolutions, recommendations, guidelines, *et cetera*, that come out of the UN sponsored or the NGO's activities are just wishful thinking on paper that don't always become something concrete. There's a lot of loss along the way. Nevertheless, I think we need an international focal point to facilitate and encourage global thinking and international input into our future; into some of the social and cultural aspects that are being neglected and that must be examined.

Technology drives the whole field now. So I ask: who is thinking of the impact the new technology will have on the children who spend much of their time in front of a computer screen? Who will be responsible for the content? Who will consider the social aspects of new technology? There are so many things that must be examined; perhaps some are being examined already, but I still wonder if we should fill that vacuum.

RAYWARD: I would like for you to characterize your work in the UNESCO. As you know, the PGI is reinventing itself. With hindsight, how would you characterize the developments that have actually occurred, the transformations from one period to the next at the UNESCO?

TOCATLIAN: I think personally that the UNESCO has had a lot of impact, thought it has not been recognized by some countries, especially in the West. I think you have to go back to the third world and talk to people who have witnessed those years from their perspective. I think you'll find a lot of positive assessment because they were totally isolated from what was happening. It's only thanks to the UNISIST and the PGI that they were brought in as partners or able to witness changes. Each one was left to go back home within its own environment, within its limited means to adapt and to do something about it. For example, since we began to talk about databases, the UNESCO has helped developing countries with fellowships, with training, with software, and with some hardware to create their own databases the way they wanted in their own language and in their own environment. One may not find intrinsic value in those tools, but they have helped developing countries enter and understand this field.

And this I think is very useful thing that UNESCO has done. As I say, again, internationally it cannot be recognized because it's not so obvious. But I think there is a lot of useful work has been done this way. The answer would be from the developing countries. When the United States withdrew from the UNESCO, I told the UNESCO's members that they shouldn't try to convince United States that it has done good work. It should only invite the United States to see the results of the UNESCO, first hand, in the third world. I've been flattered and surprised when I meet someone from a developing country in a top position, who had benefited from the UNESCO fellowships. The work that UNESCO has done is obvious there.

As I mentioned to you, there was a very negative program on French television a couple days ago questioning what the UNESCO's purpose. The UNESCO's headquarters is in France, and the program was a French program. So you can tell that the perception of the organization has become a little difficult and problematic.

RAYWARD: One other issue seems to be the ability to demonstrate that these programs have had real impact. I wondered how the developing countries measure the effectiveness of these programs, and how accurate those measures are.

TOCATLIAN: I really do not know. I know that Michel Menou has been working with Martha Strone and the IDRC to develop methods for measuring these programs' effectiveness. It is more of a research approach to it. But is it really needed? Don't you think people are now more than ever convinced of the value of information?

RAYWARD: I'm taking into consideration the French television program that criticized the UNESCO.

TOCATLIAN: The UNESCO as a whole.

RAYWARD: Yes.

TOCATLIAN: The UNESCO as an organization because of the cost of staffing, and when you look at the budgets how so much goes to staff and so little goes to programs, this sort of approach. The other aspect is the value of scientific and technical information, which to me is obvious. If you just calculated the time and money being spent on accessing and providing information, the value of information would become obvious to everyone.

RAYWARD: My approach to that is to say, "You can no longer have any access to any information in this way." What would happen? It would be disastrous.

TOCATLIAN: Yes, exactly.

RAYWARD: Even for meeting scientists in their laboratories. At some point their work is embedded in a context of other work.

TOCATLIAN: You've spoken to me about my career and how I moved from chemistry into information, *et cetera*. A couple of weeks ago, I was visited by my friend from the United States, Ira Seldin. He had been my colleague at Monsanto Chemical Company in Massachusetts before I decided to leave the lab. I remember him asking, "Jacques, are you sure you want to become a librarian?" He couldn't believe it. So the other day, after all these years, we talked about it, and he agreed that it was an interesting decision I made, probably intuitively, to move into a field that was to develop in such an interesting fashion.

As a research chemist in a chemical company, I was one of hundreds working in a team where someone else decided what had to be done. Alternatively, in information science, I was a pioneer working in undiscovered territory. So it has been a fascinating experience, and I was

very lucky to have made that decision. I don't regret anything, in retrospect. One becomes wiser. Of course, if I think of the hours I spent writing, designing projects, creating contracts, developing programs, and so on at the UNESCO, I spent a lot of time working on projects that were unproductive, essentially. However, the projects that have been productive, I think, have been very meaningful and very useful. Are there many chemists that get into this field? Yes, probably. There are more chemists than there once were, who've entered this field in many different ways.

RAYWARD: Through the systems that have been developed to handle chemical information in different ways.

TOCATLIAN: Yes.

RAYWARD: It's always been a place in which innovation in the field seems to have originated.

TOCATLIAN: Yes. I think Claire Schultz had told us the origin was World War II. That's when some of the German documentation arrived in the States, and the librarians couldn't cope with it.

RAYWARD: That's right. Masses of documentation of various sorts.

TOCATLIAN: Yes.

RAYWARD: New systems had to be devised where punch cards had been common.

TOCATLIAN: Yes.

RAYWARD: Microfilm was an established technology and computers were emerging. So the situation was ripe to say can we find a technological fix to this problem.

TOCATLIAN: Americans are very pragmatic people. They are impatient. They want results, and they want something concrete, and they are down to earth. A lot of what happens in an international organization such as the UNESCO is exchange and discussion, the benefits of which may not be obvious immediately. Again, you have to think that for some of the people

who participate in those international events, this is the only occasion. They'll go back to Burkina Faso or to Peru or whatever and be isolated for the rest of the year. So all this talk and exchange of ideas is a very beneficial thing to them. Now, as we said earlier, out of the very many proposals and activities that are going to see the day as a result of that talk, there's a percentage that will be useless and a percentage that will be useful. Those that are useful, such as the common communication format, have an international impact of which we can be proud.

RAYWARD: Yes.

[END OF TAPE, SIDE 4]

[END OF INTERVIEW]

NOTES

1. Jacques Tocatlian, “International Information Systems,” *Advances in Librarianship* 5 (1979): 1-59.

2. Jacques Tocatlian, “A Critical evaluation of experiences and Strategies,” Session 2a: *Experiences with International Cooperation and the Developing Countries*: Chairperson, Carlos Correa (http://www.unu.edu/unupress/unubooks/uno7cc/uno7cco8.htm).

INDEX