RECOMDOC '92

*EASTERN AND
CENTRAL EUROPEAN
REGIONAL CONFERENCE
ON MUSEUM AND CULTURAL
HERITAGE DOCUMENTATION*

4-6 May, 1992

Table of Contents

Documentation and Collections Management Projects
Archaeology, Numismatics, History, and Natural Sciences

Standards and Interchange Formats in Museum Documentation

Post-Conference Remarks

Acknowledgements

Opening and Welcome

Foreword

Dan Matei
Director
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

The Regional Conference on Museum and Cultural Heritage Documentation (RECOMDOC '92) is another consequence of the amazing events in Eastern Europe that occurred at the end of the 1980s. Few Westerners are aware of the fact that earlier, such a conference, i.e., within the Eastern Bloc, was practically impossible. The Iron Curtain between East and West obscured the (more rugged, maybe) Iron Curtains between Eastern countries.

This is an additional reason to be happy to see this conference take place.

The topic of RECOMDOC '92 is important. We think that a good heritage documentation—beside its obvious function of disseminating knowledge—is essential for the very protection of a nation's heritage. So, we felt that it would be interesting for all the countries in the region.

Before the conference I had the impression—which proved to be rather näive—that we (i.e., the Eastern countries) would find ways to cooperate on the spot. It seems that it is not so simple; we need more time, communication, and reflection to do that. Of course, we have common problems, many cultural interferences, and similar means. So, there is a basis—and a clear need—for cooperation. Moreover, we have to catch up with the West in many respects. And, as this conference proves, there are many Westerners willing to help.

Even before RECOMDOC began, we discovered one of our main common problems: the shortage of funds. Thus, unfortunately, people from only six (out of the nine announced) countries managed to attend.

The support that our Ministry provided for the organisation of this conference was vital, and I am grateful to many people within the Ministry. I want to thank then the Museums and Collections Commission which—despite the difficulties—provided encouragement and financial support. Many thanks are due to our Western guests whose interest and encouragement gave us much-needed confidence. In this respect, we felt a strong support from CIDOC/ICOM; most of its executives were present at RECOMDOC.

I wish to especially thank the Getty Art History Information Program (AHIP) for its contribution to the conference. AHIP is an active participant in the development of art information standards by means of such projects as the Art and Architecture Thesaurus (AAT), the Union List of Artist Names (ULAN), and the Thesaurus of Art Historical Place Names (TAP). AHIP also plays a catalytic role by bringing together organizations or projects that are ready to address common art information management issues, thereby making the community aware of critical issues in automation and, where possible, developing consensus. To that end, AHIP's support of this conference, its presentation of the workshops offered at

2

this conference, and assistance in the publication of the conference proceedings are greatly appreciated.

Last but not least, I want to thank my colleagues at CIMEC. They performed well in these unusual circumstances, and I discovered many hidden qualities in them.

I hope that RECOMDOC '92 will prove useful and that it is only a beginning.

CIMEC—Information Centre for Culture and Heritage—Short- and Long-Term Ideas Based on Our Recent Experience

Ecaterina Geber
Systems Development Department Chief
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

The history of the Regional Conference on Museum and Cultural Heritage Documentation (RECOMDOC '92), goes back to May 1991, in Copenhagen, when two delegates from the Information Centre for Culture and Heritage (CIMEC) attended the CIDOC conference. It was there that the idea of this conference was shaped (not only this conference, but also many other events that have happened since then and have left deep marks on documentation practice in the humanities in Romania).

The first lesson to learn in Copenhagen was to be able to evaluate the consequences of the isolation we used to live under and to understand that openness and cooperation are ways to connect things and go ahead. Last but not least, this recent experience yet again confirms that culture can take the lead and create new gateways for national and international understanding and development. And we do need understanding and development!

This conference, as well as the last two years, strongly remind me of the last chapter of Marshall McLuhan's book *Understanding Media*, entitled "Learning a Living," which I think is true and applicable to all of us.

As you might well know, CIMEC is responsible for the development and administration of the National Cultural Information System: SI-PCN. Although we have a long history, with many ups and downs, (which can be a story in itself), we'll leave history to history and concentrate today upon our short- and long-term ideas based on our recent experience.

SI-PCN covers the following disciplines:

- Arts
- Archaeology
- History
- Documents
- Numismatics
- Ethnography
- Rare books
- Natural sciences

The information has been provided by national, local, and county museums, private and church collections, libraries, and education centres. More than 800 specialists have been contributing data. The national database amounts to 450,000 documents in machine-readable form and about 450,000 cards awaiting input.

Other important computerised collections we manage are:

4

Museums Reference Database, with more than 1,500 items of information about museum services.

Museums Activities Data Collection, about scientific research, documentation, collections management, restoration/conservation, exhibitions, cultural events, publications, staffing, and training.

Museum Professionals' Reference Database (about 1,000 Romanian museum specialists), containing biographical notes and professional background.

Theatre History Database, with information about 12,000 premieres in Romania.

And recently, as a result of our openness and strong belief that cultural databases are part of the world's heritage, access to which must be as free as it is to education, we became partners in a challenging multilingual, interactive, international multimedia project. And who is a better choice for such a subject than Constantin Brancusi, one of the 20th century's major artists, represented in major collections all over the world, who was born in Romania and who has deep roots in our country, who lived and worked in France. The BRANCUSI Interactive Multimedia Project is more than a project. It is an investigation of the potential of international collaboration as well as new information technologies. Its aim is to create innovative contexts to complement museum visits and publications, for a wide range of publics, by integrating communication systems and creating gateways to existing materials.

A year has passed since we met in Copenhagen and started to study the different approaches to documentation and data organisation for the humanities. Having emerged from our former isolation, we now feel able to make observations and develop ideas.

1. Comparing our data standards and data organisation, we find that the remarks and objections of users are very similar to those anywhere else, a fact which clearly demonstrates the universality and potential of this new means of communication. One of our primary objectives is to support the further development and implementation of standards for recording and retrieval of information about museum collections in our country, to maintain the unity of the national system, and to integrate our work with international activities in this field.

2. Analysing the requirements expressed by our users, it becomes more and more obvious that there is a need to integrate curatorial, educational, collections management, publication, and broadcast systems.

3. Today's users are very different from yesterday's. The new user requires new rights: not only access but free navigation through the material and apparently limitless connections. The new user doesn't want to feel controlled by programmes; he needs to pass freely from public information to specialised information. Moreover, he expects to explore and enjoy a complex experience, built up by images (still and moving), text, and sound.

4. Among those who have expressed their interest in our systems (or to put it in other words, potential users) we find an ever-larger number of educators who are looking for new possibilities to stimulate creativity and ways to enhance the will and need to see and experience the original works as distinct from copies and images. Museum people are looking forward to making museums cultural centres for leisure learning and research, while countries are looking to encourage cultural tourism.

5

5.   Thus, building such a system is a multidisciplinary task for a multidisciplinary team including specialists in the humanities, computer analysts and programmers, publishers, communication experts, educators, artists, and others.

6.   The wide range of potential users, the different points of view regarding data, and the multidisciplinary development team make these systems need (and be suitable for) support from many sources, especially when one comes to the problem of budgets.

7.   It is high time to use existing material, and link the results of earlier work with new explorations (authority files, thesauri, existing collections used as links). Gateways and access, as well as a mechanism for interchange of existing material, are the priorities for significant progress in the construction of cultural heritage databases, research databases, and reference databases, to meet conservation and protection requirements, to schedule and arrange exhibitions, and to support different activities of museum management and services.

8.   A very important aspect is that of promotion, development, and application of software to meet the full range of museum requirements and to foster the interchange of technical information among current and prospective users for what in the future we would probably call a network.

9.   Special attention must be paid to the copyright aspect, to protect museums and the producers of the work.

10.   While the development of a database in the humanities may, at the outset, seem a finite project, we may find out—hopefully not too late—that it is a continuous function, an open-ended system and task. New data, new research, and new points of view always need to be taken into account; otherwise the system might become useless.

With all this in mind, we consider RECOMDOC '92 a starting point for analysis of and research into the new potential we have before us. Our hope is that RECOMDOC '92 will become a vehicle for cooperative development of research, information management technology, and information interchange.

Consequently the conference is hosting three sessions:

•   Session 1: National, European, and International Collaborative Projects
•   Session 2: Documentation and Collections Management Projects
•   Session 3: Standards and Interchange Formats in Museum Documentation.

These sessions are supplemented with two workshops made possible by the generous support of the Getty Art History Information Program:

•   Workshop on Planning for Museum Automation
•   Workshop on the Art and Architecture Thesaurus.

Thank you for coming, and we sincerely hope that you will find your stay in Romania both interesting and enjoyable.

How We Manage

Mary Case
Director of the Office of the Registrar
Smithsonian Institution
Washington, D.C., USA

This paper is about work: museum work and the people that do it. It provides an overview of U.S. demographics, an exploration of diversity in the American workplace, and an outline of the nature of museums and museum collections, the physical and the intellectual, with particular emphasis on the requirement for accountability routines intended to improve accessibility.

Melting Pot to Mixed Salad: U.S. Demographics

In the 1950s, elementary school teachers in the United States espoused the "melting pot" theory of the American population. The Statue of Liberty, a gift from the French people, dominated New York's harbor and served as a beacon, expressing the national sentiment of the day:

> Give me your tired, your poor, your huddled masses yearning to breathe free. The wretched refuse of your teeming shore, send these, the homeless, tempest tossed to me. I lift my lamp beside the golden door.[1]

Passage through the golden door required adherence to the melting pot theory, exhorting the immigrant population to assimilate. To become American meant suppression of cultural individuality. Only English, spoken without brogue, twang, or treble, suited aspirants to mainstream America. In my school, we practiced what came to be known as "broadcast English"—the flat, clear diction of radio and TV newscasters.

The 1960s brought the turmoil of anti-war demonstrations and civil rights actions coupled with the feminist movement. People began to express dissatisfaction with their inability to achieve the American dream. Moreover, many rejected consumerism and the militaristic policies of the U.S. government. People began to question both the reality and the desirability of assimilation.

Museums "entered a period of existential scrutiny, one in which the institution stands in an unprecedented and often troublesome relationship to its previous sense of mission."[2] Many flower children of the sixties—hippies—recast their revolutionary zeal and sensibilities in the not-for-profit marketplace.

By 1980, the political pendulum had begun to swing toward the right. Americans elected Ronald Reagan, the "Great Communicator," and the emphasis on individual rights and social responsibility began to erode. The 1980s became known as the "Me Generation," and Americans began to spend down capital resources, building a trillion-dollar debt. The span between rich and poor Americans grew, leisure time decreased, and economic factors stimulated increasing unrest. Social support networks eroded throughout the nation, and Americans reacted with increasing concern to the problems of crime, drug abuse, homelessness, and reduced international market share.

7

In the late 1980s, the world experienced unprecedented political upheaval. The Berlin Wall came down. The Soviet Union disintegrated. Latin American and African nations struggled under the weight of enormous debt. The Middle East exploded, and we witnessed smart bombs and tragic figures, live, in our living rooms through the miracle of satellite communications. Nationalism intensified and with it increased visibility of ethnic groups demanding to be recognized.

In the United States, the melting pot theory was discredited. We had a spate of concepts describing not a melting pot population, but a stew—or, in the so-called healthier 1980s, a salad, each ingredient colorfully standing on its own, dressed with spices from all corners of the globe and liberally lubricated with both OPEC and olive oil. We began to discuss and celebrate the experience of difference.

Human differences (and I celebrate them) can be teased apart and organized into a framework:

AMERICAN
WORKFORCE

Individual Differences

Gender

Sexual Preference Differences

Ethnic Differences

Physical Challenges

Female

Gay

African-American

Male

Lesbian

Japanese-American

Styles

Heterosexual

Latinos

Personality

Subjective Experiences of Being Different

National Differences

Political Differences

Religious Differences

Dutch

Communism

Jewish

French

Democracy

Catholic

American

Socialism

Protestant

Slovenian

Dictatorship

Buddhist

Romanian

Muslim

Adapted from A. Duran.

Figure 1—*Some Sources of Human Differences*[3]

8

It is quite important for museum people to consider human difference within a structured framework because we control the presentation of those differences in our gallery spaces, publications, and cultural celebrations. In effect, we illuminate the differences our populations possess.

Our attitudes toward diversity, or the experience of difference, can be polarized bimodally. Stereotyping is the opposite of awareness of individual differences. Ethnocentrism opposes pluralism and the recognition that many cultures add to the quality of life. We can expand bias into multiple perspectives. Finally, if we can see our own prejudices, we can begin to have control over negative impulses.[4]

Attitudes change slowly. Frequently, because of some external pressure—a change in government, marital status, or employment, perhaps—behavior changes occur. But attitudes can be quietly harbored, unaltered by behavioral change. Attitudes sit there, waiting for the opportunity to reassert themselves.

In this paper, I am proposing that we manage and improve our museum product by understanding the nature of human differences and make productive use of these differences in the work place.

This is particularly important for museums which are part of what is called the third sector in the United States, in other words, the not-for-profit sector. In the United States, we support more than one and a quarter million not-for-profit organizations. There are fundamentally three arguments[5] to support the not-for-profit sector:

Diversity

The not-for-profit sector fosters diversity. Democratic governments conform to prevailing majority views. A democratic government can only promulgate one view at a time, whereas, non-profits provide a forum for many, many voices.

Quality

The not-for-profit sector provides a place for quality products and services unconstrained by the bottom line. Unlike American industry, which has taken a beating recently, the not-for-profit sector can provide services through funding sources which do not compete with the profit-making sectors.

Individual growth

Volunteerism is at the heart of not-for-profit activities in the United States. Museums, schools, churches, and thousands of grass roots specialty groups provide fertile ground where individuals can choose to improve society.

Museums preserve and protect; they create knowledge and interpret that knowledge, yet their existence depends on community. In the United States, that means a pluralistic society.

Workforce 2000

In 1987, *Workforce 2000,*[6] a study by the conservative Hudson Institute, predicted startling changes in the American workforce. The study received nationwide discussion, perhaps because the Hudson Institute is conservative, perhaps because the statistics and trends identified replayed dramatically in the popular press.

9

Workforce 2000 predicted four key trends which would shape the U.S. economy during the last years of the 20th century.

- The American economy should grow at a relatively healthy pace, boosted by a rebound in U.S. exports, renewed productivity, and a strong world economy.

- U.S. manufacturing will be a much smaller share of the economy in the year 2000. Service industries will create all of the new jobs, and most of the new wealth, over the next 13 years.

- The workforce will grow slowly, becoming older, more female, and more disadvantaged. Only 15 percent of the net new entrants to the labor force over the next 13 years will be native white males, compared to 47 percent in that category today.

- The new jobs in service industries will demand much higher skill levels. Ironically, the demographic trends in the workforce, coupled with the higher skill requirements of the economy, will lead to both higher and lower unemployment: more joblessness among the least-skilled and less among the most educationally advantaged.[7]

Five years later, only the first of these four trends proved inaccurate. The U.S. economy has declined. U.S. exports have not rebounded, productivity has stagnated, the world economy is destabilized. In fact, because we have failed to stem the tide of a decreasing world market share, disregarded the needs of our aging workforce, and ignored the skill level of work-force entrants, American economic growth has stalled.

Museums, interestingly enough, are advantageously placed, based on a correlation with these trends. We are a service industry, we have a substantial number of women in our midst, and we place high above educational norms.

The Smithsonian Institution's purpose, staff, and resources are dedicated to increased understanding of the physical, biological, and cultural worlds in which people live and hope to thrive.

The Smithsonian is further dedicated to creating opportunities for people to discover, master, and understand new knowledge through seeking, collecting, and preserving evidence of the past and present; through observation, research, and analysis; and through educational activities. Thus, the Institution achieves its basic mission of increasing and diffusing knowledge.

We are an unlikely conglomeration of a astrophysical laboratory, a tropical research center, folk life programs, innumerable biological field stations, marine programs, presses and outreach activities, and 15 museums, including the national zoo. We manage 323 buildings with a total of 5.9 million square feet. Eighty-five percent of our funding comes from the U.S. federal government; the other 15 percent comes from entrepreneurial activities and private donations.

10

Objects and specimens arrive over the transom at the rate of a half-million per year, adding to the total of 138 million objects and specimens held in trust for the American people and made accessible to the world's scholars.

	1991	1990	1989
	Objects/Specimens	Objects/Specimens	Objects/Specimens
INSTITUTIONAL TOTAL	137,946,201	137,510,697	136,443,243
ART	271,382	267,762	266,406
AMSG	2,270	2,115	1,937
C-HM	170,749	169,294	168,835
FGA	27,113	26,968	26,955
HMSG	12,467	12,524	12,550
NMAfA	6,807	6,854	6,839
NMAA	36,197	34,721	34,269
NPG	15,779	15,266	15,021
CULTURAL HISTORY	16,799,178	16,598,459	15,960,078
AM	106,349	4,936	4,607
NASM	30,809	30,511	30,024
NMAH	15,955,043	15,909,118	15,888,032
NMAI	669,463	616,445	
OH	34,539	34,539	34,532
SFC	2,975	2,910	2,883
NAURAL SCIENCE	120,875,641	120,644,476	120,216,759
NMNH	120,848,156	120,616,518	120,188,999
NZP	3,951	4,424	4,276
OH	23,534	23,534	23,484
OTHER UNITS			
AAA *	10,601.80	10,159.91	9,800.40
SIL	1,120,741	1,101,023	1,078,935
SITES	N/A	N/A	N/A

N/A - Not Applicable   *Measured in Linear Feet

Figure 2—*Smithsonian Institution Collection Statistics*

In addition to predicting economic trends, *Workforce 2000* profiled the American work force.

"The population and the workforce will grow more slowly than any time since the 1930s."[8] The U.S. labor force will grow only one percent per year in the 1990s, one-third the rate in

11

1970. Such slow growth, in addition to slowing economic expansion, tends to push toward capital-intensive production systems. This bodes very well for people in museums interested in accountability and accessibility of museum collections because those goals will only be achieved through automation, a capital-intensive operation.

"The average age of the population and the workforce will rise, and the pool of young workers entering the labor market will shrink."[9] By the year 2000, the average U.S. worker will be 39 years old, up from 36 in 1987. The number of workers under the age of 24 will drop by 8 percent. Older workers provide stability and experience, important qualities for museums attempting to interpret cultural traditions. On the other hand, the rapidity of technological change requires flexibility and adaptability, more difficult for older workers.

"More women will enter the workforce."[10] Sixty-one per cent of all U.S. women of working age will be employed outside the home in the year 2000. They will remain, as they are now, in lower-paying jobs, making about 64 cents for every one dollar made by a man.[11] In museums, women are likely to remain concentrated in education, registration, and collections management, and the lower curatorial and administrative ranks.

"Minorities will be a larger share of new entrants into the labor force."[12] Twice the number of minorities will enter the workforce, concentrated in declining central cities. This will affect museums, which also tend to be located in large, metropolitan areas.

"Immigrants will represent the largest share of the increase in the population and the work force since the first World War."[13] Six hundred thousand immigrants will enter the United States annually, and two-thirds of those of working age will find jobs. Immigrants, as we know well in the United States, become productive, voting citizens. With the increase in the "salad bowl" model, American museums can expect ethnic and immigrant minorities to demand representation within our hallowed, marmoreal museum halls. These demographic shifts result in the fact that five-sixths of the new entrants to the U.S. labor force will be non-whites, women, and immigrants.

At the Smithsonian, the gender composition looks like this:

12

Total Smithsonian Institute Workforce
All Categories of Employment, September 1991 (percent)
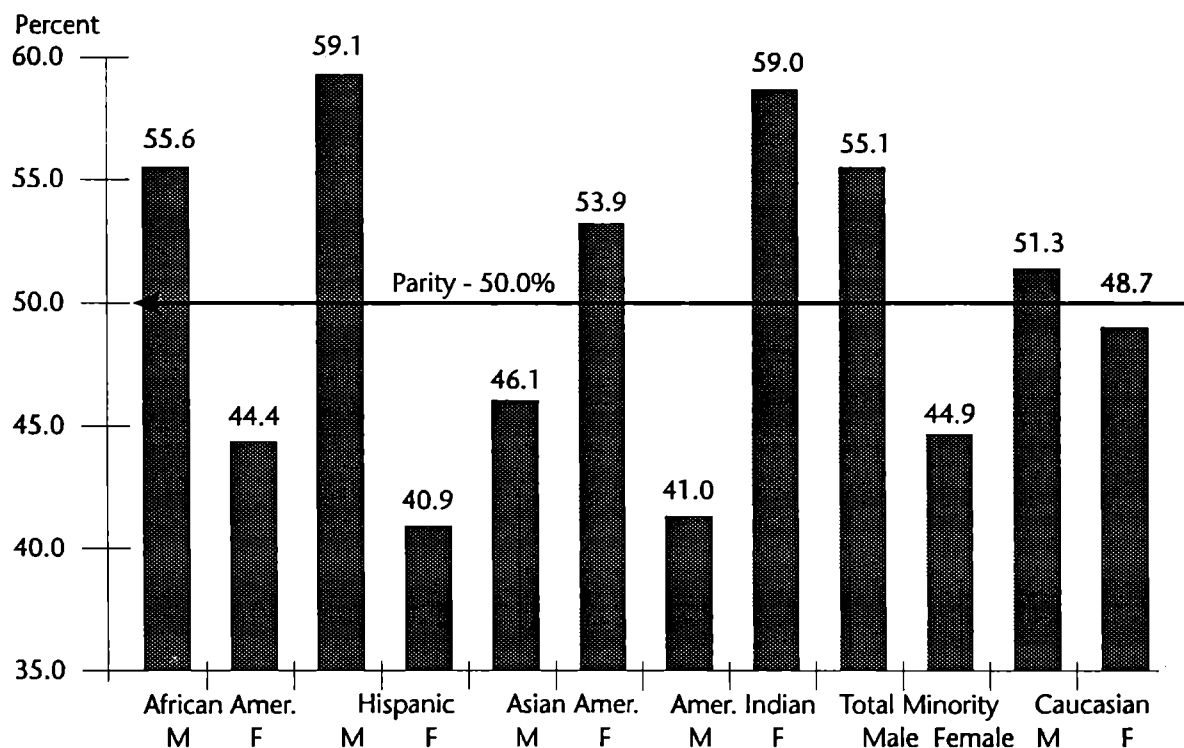
Figure 3—*Gender Composition Within Racial/Ethnic Groups*

American museums can flourish only if they consider and understand the nature of human differences. If they grapple with and establish as valid the whole range of human diversity, they can make productive use of these differences. Because of their not-for-profit nature, museums and other cultural institutions must address these differences.

The 6,000 Smithsonian employees are distributed by ethnic group as shown in Figure 3. A more telling graph shows the advantage Caucasians have over other U.S. ethnic groups at the Smithsonian.

13

Average Grade*, All Occupations and Categories of Employment,
for Racial/Ethnic Groups and Total
September 1990 - September 1991
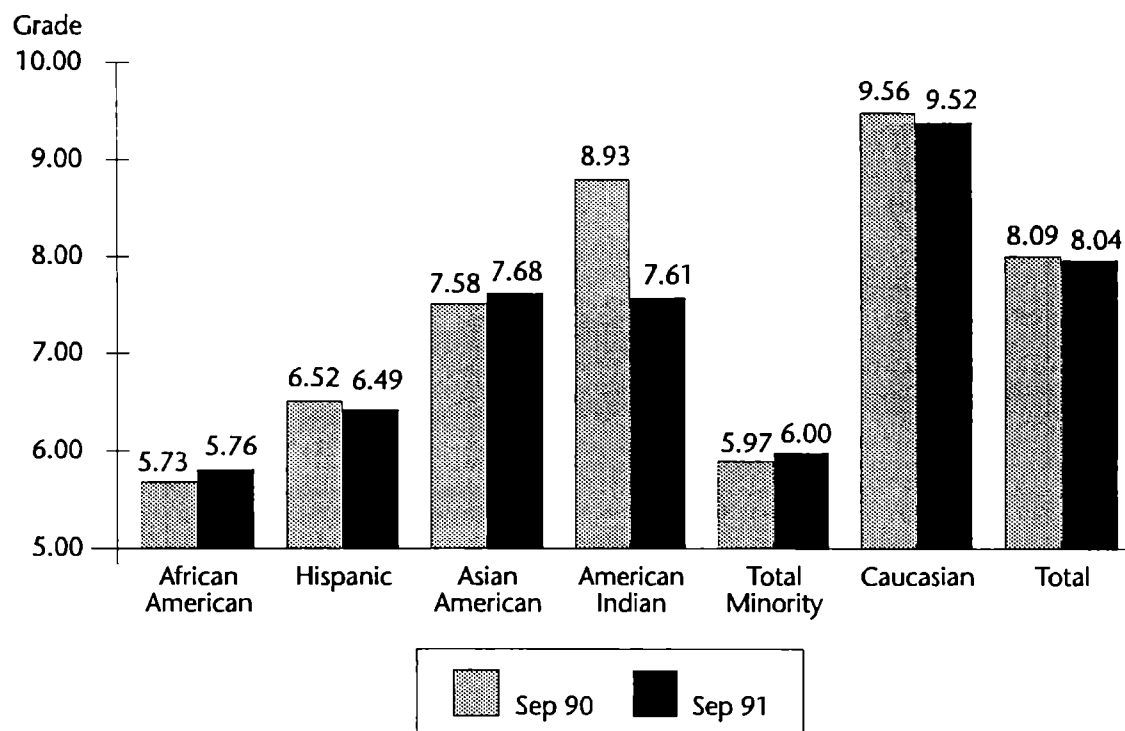
Grade

*Federal jobs are graded, from 1 to 16, according to factors
relating to skills, knowledge, experience, and education
required to fulfill the duties of the position

Figure 4—*Average Grade, All Occupations and Categories*

Smithsonian management takes seriously its responsibility to bring parity to both gender and ethnic disparities. Management considers commitment to multiculturalism and gender equity a moral imperative, but there are equally strong business reasons for paying attention to these issues.

Referencing Figure 1, the next section of this paper will concentrate on gender difference and why it makes good business sense to accommodate women at all levels of the work force. This analytical strategy can be applied to the other aspects of difference in the work force.

Women as a Museum Imperative[14]

Since museums seek highly educated employees, women must be attracted because the U.S. labor pool is smaller and colleges graduate 52 percent women. If the United States is to maintain a competitive position in the world economy, we must draw on the entire labor pool. For museums, with generally lower salaries than industry, and longer hours than academia, attracting qualified scholars and managers means hiring and promoting women in all job categories.

14

Leisure time has decreased since the 1960s in the United States, which increases the competition museums face for the visitor's time and dollars.[15] U.S. museums fare well in the competition for visitor's time and money—more museum visits are recorded annually than attendance at sporting events. To retain and increase this edge, museums must produce quality programming including specialized on-site offerings, in-school presentations, and distance education. In order to assure creative programming, museums must attract multi-talented educators, most of whom are women.

When women fail to move up within scholarly, professional, and managerial ranks, museums discount a vital resource. If, for instance, scholarship regarding traditionally female endeavors—foodways, childrearing, household organization—are relegated to secondary or tertiary positions behind economics, hard science, and war, museum presentations can't help but be skewed toward endeavors undertaken by men. Will working women continue to support museums which exclude them?

Failing to promote women limits individual contributions. When underqualified men are promoted because they "fit" the traditional masculine profile of museum leadership, qualified women remain on the sides and bottom rungs of the organizational structure. "Inequity of this kind results in decreased productivity. . .as the under-appreciated subordinate soon realizes that recognition for effort is not commensurate with output."[16]

Promising people who play a central role in domestic matters are undervalued. "Only 16 percent of American workers go home in the evenings to a nonworking spouse."[17] Child rearing and elder care frequently require women to split their attention between career and family issues. If the museum employer views commitment to career as the inverse of an employee's commitment to family, the museum risks losing employees who could bring high levels of commitment to work *and* family.

Recruitment and training money is lost when women leave the job market to raise families. Eighty-five per cent of women have babies. Since college-educated American women postpone pregnancy until age 31, on average, museums lose recruiting and training money if a woman leaves after the birth of her first child. The museum frequently loses a decade of experience—a loss which plays out in discontinuity and a revolving cycle of inexperience. Also, in a shrinking labor market, the replacement person will probably be less qualified upon entry.

People know corporate and industry reputations. Since all talent will be scarcer in the future, museums which do not take an aggressive position toward recruiting, training, and promoting women and minorities will find themselves unable to maintain current levels of experience, knowledge, and skills. The best people will migrate to industry, government, and third-sector organizations known for advancement of women and minorities. A museum's reputation for appreciating human needs is an asset as valuable as endowment, building, and collections.

Since museums are tradition-bound, any museum which actively grapples with work force trends can capitalize on a tremendous opportunity. Imagine your museum as the one in which the top people in your profession choose to work—people renowned for their scholarship, talented managers with sophisticated strategies for fundraising, political savvy,

15

and the ability to lead the museum creatively through the difficult times ahead. This challenge can be achieved by making systemic changes which acknowledge the fundamental biological fact of maternity, provide job flexibility to both men and women, and train women and minorities who already exhibit basic leadership traits.

"Five A" Collections Management

Understanding any discipline begins with definitions. H.J. Swinney, a well-known American museum pioneer, began with what a museum is not. A museum is not a building, he would expound. He would go on to recite what came to be the definition used by the American Association of Museums. An American museum is:

> an organized and permanent not-for-profit institution, essentially educational or aesthetic in purpose, with professional staff which owns and utilizes tangible objects, cares for them, and exhibits them to the public in some regular manner.[18]

At the 1989 International Conference of Museums, we heard that "a museum of any kind is an answer to a fundamental question. The question is: 'What does it mean to be a human being?'"[19] We were asked to consider a museum as "an instrument of survival and sanity."

With these definitions, and Marie Malaro's arguments of diversity, quality, and individual growth for the existence of a strong not-for- profit sector in a democratic society in mind, we can establish the principles of collections management through what can be called "Five A" museum work.

In the United States, forces of change affecting collections management include democratic notions of third-sector viability, political pressures, demographic shifts, professionalism, legal precedent, resource acquisition strategies, and new technology.

Every calorie of energy expended by museum staff, every tick of the clock, every dime in the till, should be spent to advance the museum's mission. The museum director balances on an ever more tautly stretched tightrope as she winds her precarious way through the canopy of conservators, curators, boards of trustees, community leaders representing the public, and of course, registrars and collections managers.

Other policies of the museum are derived from the mission statement. Fiscal and personnel policy, exhibition and education policy, and, of course, collections management policy, are informed by and fulfill the museum's overriding mission. Implementation of the collections management policy is accomplished through "Five A" museum work:

- Authority
- Accessibility
- Accountability
- Audit
- Automation

As museum professionals, we consider the intellectual collection and the physical collection. We curate the objects of human genius and the specimens of wonder from the natural world *and* we curate the information about those collections. Usefulness of the physical collections correlates in direct proportion to the quality and accessibility of the documentation. Who,

16

what, when, where, how, and why are the questions we seek to answer for every object and specimen in our collections.

In the United States, the director retains the responsibility of chief collections manager. Subordinates derive authority from the director through policy-establishing roles and responsibilities, limits of authority, practice, and procedure.

International colleagues frequently wonder what a registrar in a U.S. museum does. This answer finds many forms. The short answer is that curators do the intellectual work surrounding museum collections; registrars do operations. The flip answer is that curators create chaos and registrars reduce it to a form.

Curators are the intellectual force behind American museum work. Without constant development of the curatorial and scientific workforce, the museum world would be swept away by the lowest common denominator, epitomized by sitcoms, the popular TV situational comedies.

However, curators are unable to carry out the many specialties now found in American museums. It is the role of the registrar to capture information created by the curators and make that information available for the purposes of the museum. It is the registrar who ensures that documentation is maintained and that the museum is protected during the pursuit of new acquisitions and the rush to meet exhibition deadlines. The registrar is the logistical specialist, the gatekeeper, the stable balance in a changing world. It is the registrar who translates collections management policy into the procedures which will carry through policy.

Creative work—which is one of the realms of museum endeavor—needs to be unfettered by mundane tasks to the extent possible. Registrars examine the whole collections operation and establish efficient, flexible routines to minimize waste of the human resource. An inclusive collections management system allows museum staff to work together effectively and efficiently toward the established mission.

Collections management can be expressed through two related concepts: accessibility and accountability.

Accessibility is:

> The opportunity for visitors, scholars, and staff to take advantage of the resources of the museum in the context of a collections management policy, particularly the collections resource. Access to museum collections is provided through research opportunities, exhibitions, publications, educational and interpretive programs, response to public inquiries, loan of collections, and information management.[20]

Accountability, on the other hand, can be defined as:

> The cluster of activity that ensures physical care and control of collections. Museum collection accountability is attained through internal controls, written collecting plans, and authorized, documented collections management activity.[21]

17

At the Smithsonian we have codified collections management activity into a policy which enumerates and defines each activity or operating principle.

Components and Activities[22]

A.   Statement of Purpose
B.   Statement of Authority
C.   Collecting Plan
D.   Definition of Collections
E.   Collections Management Activity
    1.   Documentation
    2.   Acquisition
    3.   Disposal
    4.   Access
    5.   Care and maintenance
    6.   Risk management
    7.   Security
    8.   Inventory
    9.   Temporary custody
    10.   Lending and borrowing

The collections management policy is implemented through procedures which can be routinely audited by museum authorities including staff, governing body authorities such as external auditors, or government overseers such as state inspector generals. Routine staff audits usually preclude higher-level reviews. Museums which conduct periodic checks of storage locations, manual files, and automated records rarely find themselves facing the anxious scrutiny of external investigators.

Once the systems are in place, an operation like the National Museum of American History (NMAH) at the Smithsonian can research, track, pack, ship, photograph, conserve, exhibit, loan, or deaccession any object in its purview. Last year the NMAH acquired 47,587 objects, lent 1,075 objects, and borrowed 1,304 objects. Each of the players in this process, from curator to shipping clerk, from donor to truck driver, contributed information to and received information from the collections management system. In 1991, the Smithsonian Institution as a whole lent 128,000 objects and specimens.

The promise of accurate, timely, complete information about museum collections can be realized only through the advent of collections information automation.

With all the goodwill and money in the world it would be impossible to preserve all the objects in collections indefinitely. We can, however, protect the information about these collections and their significance for a theoretically indefinite period of time.[23]

The collections management policy codifies and defines the language, answering the question "How we manage". Ultimately, the far more interesting question is "Why?" Why do we manage museums? We do it because a healthy not-for-profit sector is a vital part of a democratic society. We manage our collections because our society requires the understanding of diversity, quality, and countless opportunities to improve our society through volunteerism.

18

Notes

1. Lazarus, Emma, quoted as appears on the Statue of Liberty.

2. Harris, Neil, "Polling for Opinions," *Museum News*, September/October, 1990, p. 50.

3. Adapted from Duran, Anne, Managing Cultural Diversity Workshop, Executive Programs, Graduate School of Business, Columbia University, New York, Nov. 25-30, 1990.

4. Duran, Anne.

5. Malaro, Marie, Lecture given at the American Law Institute—American Bar Association Conference, Legal Problems of Museum Administration, Mar. 25-27, 1992.

6. Johnston, William B. and Packer, Arnold H., *Workforce 2000: Work and Workers for the 21st Century*, Hudson Institute, Indianapolis, Indiana, June 1987.

7. Johnston, p. xiii.

8. Johnston, p. xix.

9. Johnston, p. xix.

10. Johnston, p. xxx.

11. Faludi, Susan, *Backlash: The Undeclared War Against American Women*, Crown Publishers, Inc., New York, 1991.

12. Johnston, p. xxx.

13. Johnston, p. xxx.

14. Schwartz, Felice N., "Women as a Business Imperative," *Harvard Business Review*, March/April 1992, Vol. 70 (2), pp. 105-113.

15. Schor, Juliete, *The Overworked American: The Unexpected Decline of Leisure*, Basic Books, New York, 1991.

16. Schwartz, p. 109.

17. Schwartz, p. 109.

18. OM 808: Collections Management Policy, Smithsonian Institute, 1990, Exhibit A, p. 4.

19. Postman, Neil, lecture entitled "Extension of the Museum Concept" given at the International Council of Museums, The Netherlands, 1989, p. 41.

20. OM 808, Exhibit A, p. 1.

21. OM 808, Exhibit A, p. 1.

22. OM 808, pp. 2-17.

23. McGee, Charles E., Notes for a Speech to Museum Documentation Association, York, England, September 18, 1990.

Documentation Practice, Systems, and Standards in European Museums

Andrew Roberts
Chair
CIDOC, the International Documentation Committee of ICOM
Cambridge, UK

Introduction

This paper reviews documentation practice, systems, and standards in European museums. It focuses on six areas of work:

- Documentation procedures
- Manual and computer systems
- Staff
- Sharing and using information
- Documentation standards
- National and international governmental bodies.

The paper is based on contacts and discussions through bodies such as CIDOC, the International Documentation Committee of the International Council of Museums (ICOM), and on a paper given at a conference on European museum documentation strategies and standards organised by the Museum Documentation Association in September 1991.

Many of you will know of ICOM and its work. In addition to its 87 National Committees, it has 24 International Committees dealing with museum disciplines—such as natural history, costume, and musical instruments—and functional areas—such as conservation and documentation. CIDOC is one of the largest of these committees, with over 400 members in 50 countries.

I am aware that my strongest knowledge is about the documentation situation in Western and Northern Europe. Although we have had CIDOC meetings in Hungary, and I am familiar with the situation there and in Slovenia and Croatia, we have of course had far less opportunity to learn about the work elsewhere in Eastern Europe until the last two years. It was a great pleasure to see so many participants from Eastern Europe at the 1991 CIDOC conference in Copenhagen. I am particularly pleased to be able to come here to Romania and learn about the experiences of you and your neighbouring countries. I hope that next year's CIDOC conference—to be held in Ljubljana, Slovenia, from 10-16 September 1993—will be an opportunity to pursue these important new contacts.

Why are we concerned about museum and cultural heritage documentation? First and foremost, it is because we care for objects and our heritage. Our discussions will concentrate on documentation and documentation systems, but always remember these systems are a means to an end and not an end in themselves.

Documentation procedures

I would like to turn first to documentation procedures. In Northern European countries, such as Denmark and the Netherlands, the national museum associations and documentation

20

advisory bodies have taken a lead in developing procedural guidelines concerning issues such as accessioning, loans, cataloguing, and location control.

In a number of other countries, branches of the national museum service have responsibility for implementing policies or legislation concerning the care of collections. In Romania, Hungary, Croatia, and Russia, rules have been established by the Ministries of Culture. Another country with a formal framework is Italy, where the need for a register of cultural treasures has led to a long-term investment in a central cataloguing organisation.

Elsewhere, as in West Germany, there has been much less coordination, and individual museums have developed local approaches.

I believe it is very important to have national coordinating bodies to develop common procedures and advise museums on their use. This was a recommendation made by UNESCO after a conference in Barcelona in 1977.

Systems

One of the primary applications of procedural guidelines is in the area of cataloguing. Until the 1970s, most catalogue records were written in registers, but since then many museums have changed to using catalogue cards. It is important to remember there will be a continuing role for manual cards for many years to come, because of the high cost of computerisation and the practical problem of incorporating large numbers of images—including photographs and drawings—into a computer system. Despite this, many museums are now beginning to computerise their collection documentation.

In recent years, the CIDOC Database Survey Working Group has carried out an analysis of computer use in museums. From this information and personal contacts, I have drawn together a summary of the extent of computer use in European museums (Table 1 on page 25). I should note that this survey is incomplete, and the figures are changing each year, but the table does indicate the underlying state of automation.

It is important to stress the way the figures may disguise the extent of automation. A large national museum—such as the Science Museum or the British Museum in London—will count as just one entry, yet may have 50 or 100 users and many separate or networked computers. In contrast, many of the entries refer to small museums with a single part-time user on one machine.

Similarly, the largest users—like the National Museum of Denmark in Copenhagen and the British Museum in London—already have 200,000 or more records in their systems, whereas other new users may just be beginning a long-term retrospective project.

The diversity of information in these records may vary from a basic but effective inventory to full catalogue details. The trend is to start with basic records, then add to these as time and resources allow.

The computer application may concentrate on inventorying, cataloguing, or collections management:

21

- Inventorying is concerned with the maintenance of a basic core record as a means of accountability
- Cataloguing builds on this core to give full descriptive and historic details of the individual items in the collection
- Collections management is a system to help control the day-to-day use of the collections, including controlling their movement, etc.

In terms of hardware, a small number of these museums have minicomputer or mainframe systems, such as the National Museums of Scotland in Edinburgh, the Ulster Museum in Belfast, the National Museum in Copenhagen, and the Nordiska Museet in Stockholm. A few use the central computer of their parent body, such as the university museum in Manchester and the network of national museums in France. However, the great majority are using microcomputers, including a wide cross-section of both large and small museums.

Concerning software for collection documentation, four main approaches have been taken in recent years.

- A few museums have developed software themselves, with the help of a computer programmer.

- Some use word processing packages, such as WordStar and WordPerfect.

- A far larger number have developed their own in-house application of generic database management software packages, such as dBASE, Oracle, Paradox, Informix, and Q&A. For example, in Austria one museum has 40,000 records in a dBASE application; in Switzerland over 15 museums use dBASE while eight use Oracle; in Sweden, systems in use include Informix, Advanced Revelation, Dataflex, dBASE, R:Base, Q & A, Paradox, and DataEase.

- The final category of systems is a standard application of a database management system or similar package which an external agency has tailored to match the needs of a group of museums. A few of these systems have been developed by a commercial vendor, such as the Micromusée package developed by Mobydoc in France, with over 50 users there and in the UK. Others have been supported by grants from charitable or government sources, such as MODES, with over 400 users in the UK, France, Slovenia, and elsewhere. Similarly, in the Netherlands, applications of Q & A and Tinman have been developed by Bureau IMC; in Denmark, the DMI system is being distributed to local museums; in Norway, the FotoMax system is being finalised for use with text and image databases; and in Hungary, the National Museum is producing an application of DataEase.

In each of these countries, as in Romania, a national agency is advising museums on how to proceed and in many cases providing the system and giving advice on its use. The availability of this central advice has tended to encourage computer usage. It is important that museums continue to support the development of common national systems, particularly for use by small museums with limited resources. These tailored applications with predetermined record structures are the most effective way of promoting standards among museums.

Turning briefly to image applications, the 1991 edition of the ITEM directory listed 55 European projects. Any one of these may involve a number of partners and there are new

22

initiatives that are not listed. One of the most exciting recent project is the BRANCUSI scheme being undertaken by the European Visual Arts Information Network and the Romanian Ministry of Culture.

One approach is concerned with the development of a text/image database of the collections, such as the 100,000 ethnography records on a videodisc produced by the National Museum, Copenhagen. This museum has also been involved with a public access system at the Resistance Museum in Copenhagen, as has the Musée D'Orsay, Paris, and more recently the National Gallery, London, with its highly successful Micro-Gallery. Other museums have concentrated on collection publications on videodisc, as at the Louvre.

Staff Specialisation

In the great majority of European museums, curators are responsible for all aspects of documentation and collections management. However, in Northern Europe we are seeing a gradual trend towards specialist support posts. In the UK, a number of museums (including some local museums) have appointed documentation officers, registrars, and systems specialists in recent years. The same trend is now beginning in the Netherlands. Elsewhere, documentation specialists are rare except in the largest museums, such as Munich, the National Museum in Copenhagen, and the National Museum in Budapest.

Individual museums are supported by a variety of external agencies, giving advice, offering training, maintaining standards, and sometimes developing systems.

Sharing and Using Information

Some of these agencies are responsible for cooperative national databases, as in France, Switzerland, Italy, and Romania. Other cooperative initiatives include regional networks as in northern France, where a joint videodisc has been produced by a consortium of 30 museums.

A number of individual museums have recently introduced public access facilities, such as the National Museum, Copenhagen, and the National Gallery, London, referred to above. Similarly, the Science Museum in London has been promoting a science information service.

Overall, however, initiatives to share and provide access to information have been slow to develop.

Documentation Standards

I will review the development of documentation standards in a separate paper. Organisations concerned with this work in Europe include two CIDOC Working Groups and a number of national coordinating bodies.

The most important need is for data standards, defining the different fields of information in a museum record and computer application. There are two distinct roles for these data standards:

* As a model that individual museums or system designers can use as the basis for a working system

23

• As an exchange format that can be used when passing data between different systems, such as the applications in a group of museums.

We need to support the continued development of national and international standards, as a prelude to the further adoption of computer systems and greater sharing of information.

National and International Governmental Interests

Government interest in documentation work includes the support it gives to museums to demonstrate accountability over the collection for which we are responsible. In the UK, government auditors have looked critically at museum information systems in both national and local museums.

In Italy and Greece, inventories of national treasures are seen as important tools in the protection of the cultural heritage. The European Commission is interested in these inventories as a facility to use when policing the movement of objects within and out of the Community, after the changes to customs regulations at the end of 1992.

The two branches of the European Commission with most direct interest in museum documentation are Directorates X and XIII. DGX includes the Cultural Action Unit which considers that the development of common data standards for European museums is of particular interest. DGXIII is responsible for policy toward the information industries and telecommunications. Its IMPACT II programme will significantly expand support for interactive multimedia initiatives.

The separate Council of Europe is also concerned with information about museum collections and related areas, particularly the architectural heritage.

The Future

Europe is an ideal environment in which to pursue the development of data standards. At an international level, there is a strong interest in collaborative database projects between different countries, with the potential for support from the European Commission and Council of Europe. Nationally, a number of countries are already actively developing internal standards, frequently basing their ideas on experience elsewhere and in CIDOC. If an international standard were available, it could be used as a model in individual countries and to support national and international collaborative projects.

ICOM and CIDOC intend to play a role in promoting these ideas, building on resolutions made at ICOM's General Assembly in The Hague in 1989 and growing contacts with museums and the European agencies. In a wider context, the Getty Art History Information Program is active in making links with the European agencies, and in encouraging a dialogue between European and American projects.

One risk we must work to avoid is the creation of new cultural barriers between the European Community countries and Eastern Europe. The countries of Europe have a diverse yet common cultural heritage. Museums can be a powerful weapon in explaining both the diversity and the commonalty. Documentation about museum collections can help support that process.

This conference can act as an important step in breaking down the barriers between documentation specialists in East and West. I will take our conclusions and recom-

24

mendations to ICOM, CIDOC, and the European agencies, and encourage these bodies to pursue cooperation across Europe.

Table 1
Computer Use For Collection Documentation

Country	Museum Community	CIDOC Survey (1989-91)	Current Survey (1991)	% Use
Norway	520	46	85	15%
Sweden		28	31	
Finland		11	34	
Denmark		8	50+	
Germany			50+	
Netherlands	c800	27	200+	25%
United Kingdom	c2,000	183	500+	25%
France		57	c100	
Spain				
Portugal		10	10	
Switzerland	700+	44	50	7%
Italy				
Austria	300+	27	27	10%
Slovenia	40		40	100%
Greece				
Hungary	775		c40	5%
Croatia	130		40	30%
Romania			17	
Russia			20+	

September 1991
Sources: CIDOC and personal contacts

**National, European, and International
Collaborative Projects**

SI-PCN: The National Cultural Heritage Information System in Romania

Irina Oberländer-Târnoveanu
Cultural Databases Department Chief
Ecaterina Geber
Systems Development Department Chief
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

The Information System for National Cultural Heritage (SI-PCN) is a classical centralised inventory system with:

1. National databases, reference databases, and image collection, as *information content*
2. A territorial network for collecting information, the central Museums and Collections Commission and national information center, as *institutional framework*
3. Standards, thesauri, and authority files, as *conceptual framework and documentation tools*
4. Computers and programmes, as *technical support*
5. Database design, maintenance, and development, information collecting and dissemination, documentation, museum assistance, and consulting, as main *activities*.

SI-PCN was designed and tested from 1978 to 1981 (using Mistral-2 on the Felix-256 mainframe computer, the only hardware and software available in Romania at that time) and implemented during several years, beginning in 1982. Its principles came out of the 1974 law for the protection of the national cultural heritage, which stipulated a centralised inventory system (for objects, specimens, and monuments), organised on three levels: local (museums and libraries), territorial (offices for national cultural heritage), and national (National Cultural Heritage Board).

The project was inspired by other similar projects of the 1970s, especially the French one. A network of distributed databases was envisaged, connecting central databases in Bucharest with territorial ones, maintained at territorial computer centres, which were also supposed to process the object cards provided by local museums and heritage offices and to send record copies, on magnetic tape, to the Information Centre for Culture and Heritage (CIMEC) in Bucharest.

The whole system was unitary, based on standard cards, rules, thesauri, information flow, programmes, and procedures which, although strict, were flexible enough to enable easy data centralisation, distribution, and development.

Unfortunately, as in many other cases, the budget of the project was underestimated, which made severe cuts and adjustments of the initial plan necessary during implementation.

Despite resemblance to other heritage information systems, SI-PCN is designed to meet the particular requirements of our national heritage features, museum traditions, and material and human resources available at present and in the foreseeable future. One of the first is the epitome of our cultural heritage.

27

Romanian cultural heritage is in great part the result of a millennial unwritten civilization. Archaeological and ethnographic heritage, the basic components of many museum collections, as well as anonymous art works and numismatic collections need to be identified and attributed (determined) by permanent research work. Our cultural information is, in great part, vague and open to changes (improvements). Few known authors, few dated pieces, many uncertain data are not easy to standardise or to retrieve, sort, and frequently update. Those require both solid, sophisticated programmes which are able to properly treat textual information, terminological variants, and conventions and good, predefined documentation tools.

The project incorporates the experience of the manual heritage evidence system in use between 1975 and 1982. The project team's concern for assuring a smooth transition from one system to another, avoiding unnecessary changes, and keeping continuity in mind suggested in great part the building up of an open system.

Because of the scarcity of human and material resources, compared to the volume of scientific inventory work in Romanian museums, we had to find an equilibrium between collections management and research requirements, to pay special attention to the training of museum personnel. Computerised heritage catalogues can't be a copy of museum manual card files, as some museum directors and curators still believe and demand. Even if all the information in a manual catalogue is transferred into computer files, at high costs, the result will still be a dead repository of information, and the only way the computer could be used would be to sort rapidly and reproduce the overly large catalogue entries. To serve the real information needs of the museum profession as a whole, some radical changes in the thinking of museum people, at all levels, must be made with regard to cataloguing aims, interactive use, and data access. That implies the selection of what is really important to enter into the computer.

The SI-PCN is a general catalogue, covering all periods, from prehistory to the present day, all disciplines, and the whole national territory. It aims to provide a national inventory of heritage artefacts and specimens for documentation, research, and protection purposes.

SI-PCN Territorial Network
Romania has more than 600 museums and public collections. In each of the 40 administrative districts (counties) and in Bucharest there are Offices for National Cultural Heritage, which form a network for inventory, protection, and conservation of cultural heritage.

At the central level, the heritage activities are coordinated by the Museums and Collections Commission and the Historical Monuments and Sites Commission, both founded in 1990.

CIMEC is the administrator of the national cultural heritage databases. Hundreds of Romanian museums and Offices for National Cultural Heritage contributed to the national databases and, in doing so, to their own future ones.

Museums and Territorial Offices
- Document, determine, and describe artefacts, fill in cards (eventually data entry)
- Send cards (or diskettes) to CIMEC (via NCH offices or directly), as well as retrieval requests, lists of candidate terms for the thesauri

28

- Receive processed cards (with SI-PCN number) from CIMEC (directly or via NCH county office). Correct wrong or incomplete cards and send them back. Provide answers to documentation requests, requests for information, and statistics.

CIMEC

- Receives cards (for data entry) from museums and territorial offices
- Registers, checks object cards, loads, updates, maintains records, answers queries, and delivers reports
- Sends processed cards back to data deliverers (for use in manual museum files) and eventually copies of entered records, reports, and documentation material.

Museums and Collections Commission

- Finances the national inventory system
- Coordinates and advises on museum collections documentation activity
- Assists in professional training, documentation tools, and general policy of collections documentation.

SI-PCN Information Flowchart
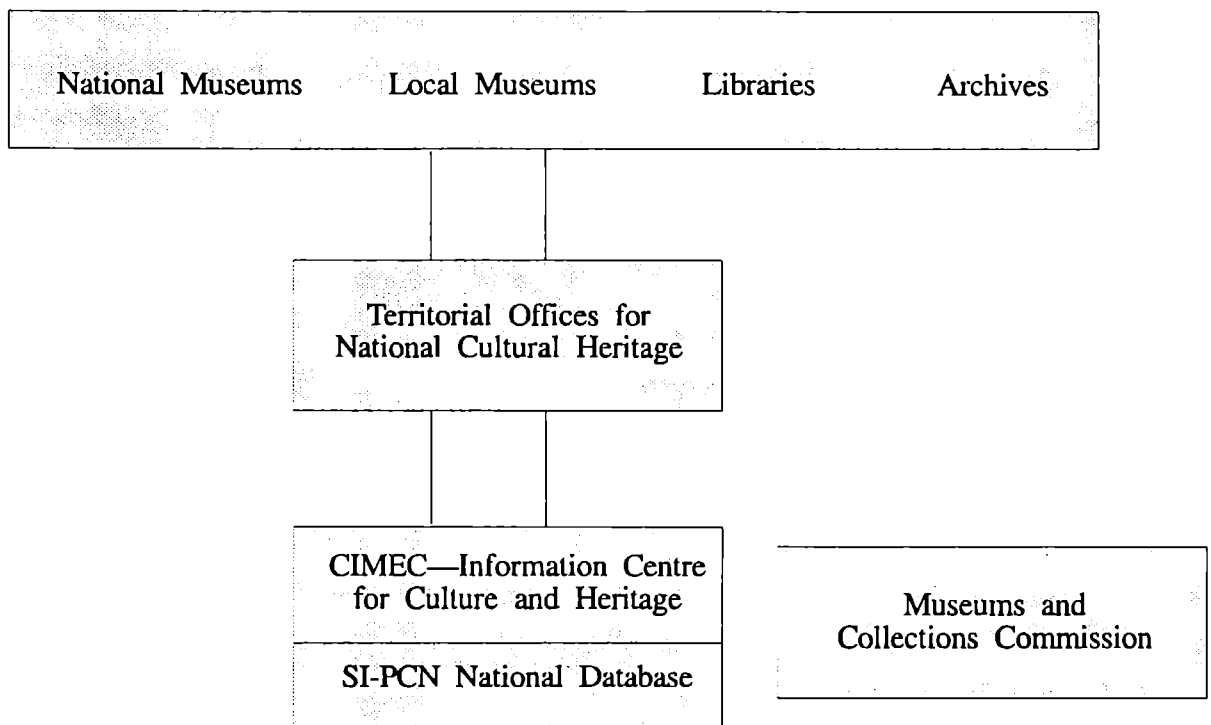
In the not too distant future, some museums will have their own documentation and information services with computerised data collections; they will eventually send only copies of records to the national database, which will raise new problems of compatibility, information flow, file versions, etc.

The National Database

The Cultural Heritage National Database is modular, structured according to the following disciplines: FINE ARTS (ARP), DECORATIVE ARTS (ARD), ARCHAEOLOGY (ARH),

29

NUMISMATICS (NUM), ETHNOGRAPHY (ETN), HISTORY (IST), RARE BOOKS (CV), DOCUMENTS (DOC), MEDALS AND DECORATIONS (MED, DEC), NATURAL SCIENCES (STN).

In 1992 the national database consists of 450,000 computer records. Another 400,000 object cards are awaiting data entry at our center. The loading rate has become 80,000 documents per year since 1991.

From the very beginning we knew that the quality of information depended on many factors, among them the following:

- Important variations in registration practices and the amount of information available for registration of each object in museums

- The number and territorial spread of data deliverers, as well as disparities in experience and training level of the museum personnel who were to catalogue the objects which varied from one institution to another.

In order to enssure an acceptable degree of information standardisation and scientific verifiability, we introduced a scientific control procedure of cards sent to CIMEC for data entry and processing. Slowing down data entry flow by that, we hoped to gain in quality of database content, and avoid having mistakes or wrong information enter the computer and thus require later updating. That was also supposed to be of help to museums, which received back a new version of correct classification of their specimens and items and relevant information for their own registration.

The logical structure of the national database is flexible enough to withstand changes and, at the same time, keeps data unity and thereby retrieval accuracy.

Data Standards

Data standards (that is, common denominators of data) serve as the basis for both system unity and inter-institutional communication.

Following our museum registration tradition, as well as international documentation recommendations, we established data and procedural standards for our system.

First, we defined the structure, content, and values for museum information. We established different fields and the relationships among them, the rules and conventions for data entry and card fill-in, as well as the terminology to be used. Then we designed the manual and automated procedures for data entry and retrieval.

Some of the standards we defined are common to all disciplines; others have to do with particular information fields in one discipline or another.

We pay very special attention to these problems, as we believe that they are the key points for the future of our data and system. We know very well that we have poor software and hardware and that the only solution is a well structured, although apparently rigid and

Thesauri/Authority

data structure
standards

data value
standards

TERMS

FACETS

interchange   standards

procedural standards

data content
standards

ACCESS

("middle-out")

ARD   ARP   ARH   ETN   IST   DOC   NUM   CVR   STN

Disciplines/Objects

Owners' Locations
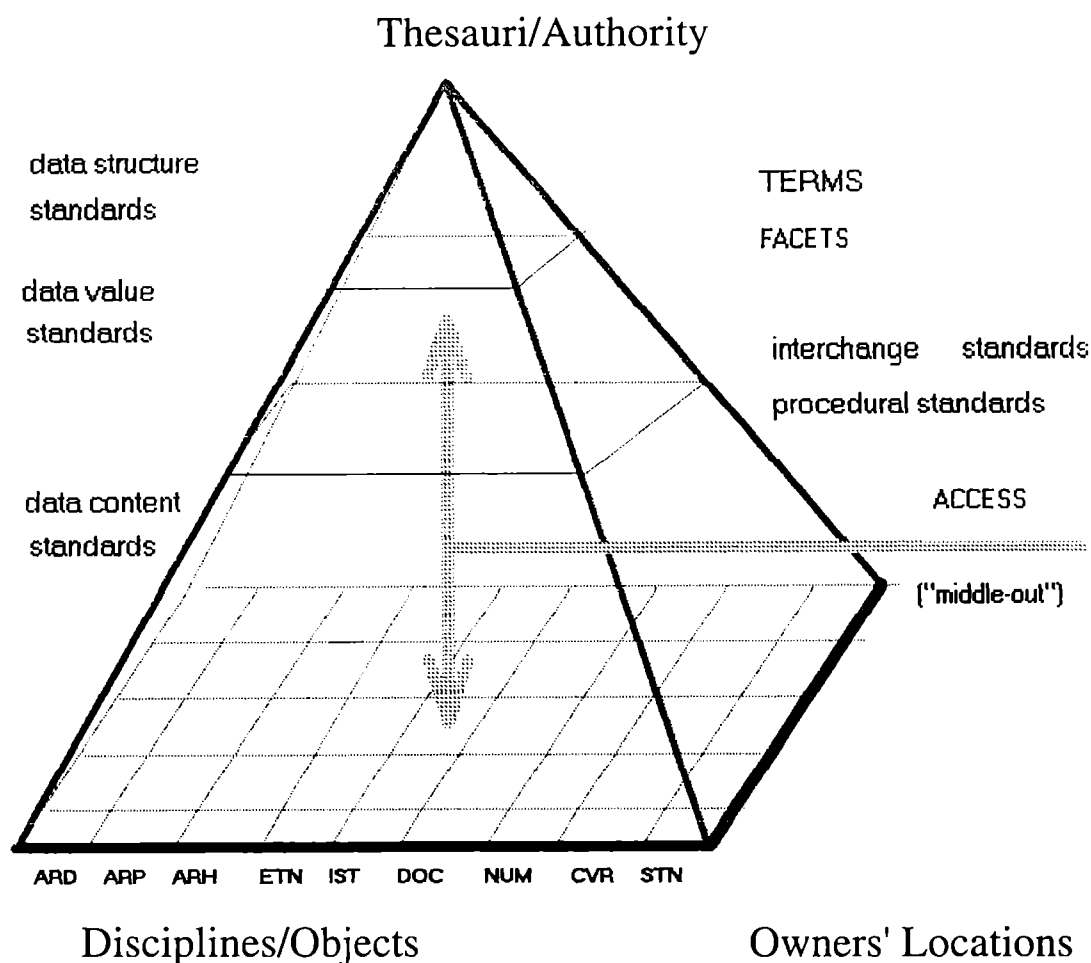
ARD	Decorative Arts	45,000
ARP	Fine Arts	65,000
ARH	Archaeology	75,000
ETN	Ethnography	40,000
IST	History	40,000
DOC	Documents	20,000
NUM	Numismatics	80,000
CVR	Rare Boks	60,000
STN	Natural Sciences	25,000

Total   450,000

41 Countries
Institutions:
MUSEUMS

12	national museums
123	town museums
260	country museums
158	village museums
5	department museums
9	educational museums
55	religious museums
15	others

CHURCH COLLECTIONS
PRIVATE COLLECTIONS
LIBRARIES
OTHERS

disputed conceptual scheme. Activities like passing data between collections, updating information, receiving information from other sources, and sharing information such as authority files to avoid ambiguity and duplication strongly rely on standardisation.

At present SI-PCN faces one of the most important tests of its data and procedure standards.

First, the whole collection of data is being ported from an obsolete platform to a new environment.

Then, it is being distributed, or decentralised and ported to museums that have contributed data.

Above all, SI-PCN has to preserve its most important feature: **unity**. For that we have developed a data manager dictionary with the following components: data structure, data content, data value, procedures, and gateways.

In the data manager dictionary, which is an open system, we tried to describe the whole domain, considering and logically structuring any possible item of information. Each term is defined, and the rules and procedures it implies are given, for both users and system managers. At the same time we specify the corresponding field name(s) for the same piece of information in other systems we know about. Thus we aim to build a gateway catalogue, understanding that diversity is very important but, at the same time, defending the usability of our data and system.

Of course, for this task we strongly need and rely on the support of:

- Cooperation, collaboration, and understanding between all the parties involved
- Standard principles and consensus on them
- Consent from the Museums and Collections Commission, as a central authority, for the definition and use of museum documentation standards.

The Object Cards

The current object card was adopted as a national standard in 1982. It was considered quite rigid, with its limited number of maximum characters per field, sometimes too many, now and then not enough, its writing in capital letters, its field order and denominations not always suitable for all disciplines. Nevertheless the disputed standard card offered important gains:

- A general form, suitable for direct data entry anywhere
- Easiness for curators to pass from one heritage discipline to another (not having to change the form)
- Economical to print
- Could be used for manual files too (unique size, printed on cardboard, encoded, photo of artefact attached on the upper side).

They had a total of 52 fields, of which only 20 were mandatory to fill in:

System identification fields
- The heritage discipline the object belongs to (e.g., ARH = archaeology)
- Card type (individual: describes one artefact per card; cumulative: describes more objects of a series per card; assembly: describes an assembly, hoard, closed archaeological complex or deposit, etc.)

32

- Identification number and territorial unit

Object identification fields
- Owner, accession number
- Object name, type, and category
- Object attributes: status (if copy or imitation), destination (votive, honorific, commemorative, funeral, cult), artistic style (Dorian, Ionic, Corinthian)

Assembly identification fields
- The name of the hoard, deposit, or closed complex (pit, dwelling, tomb etc.) the object belongs to

Chronology fields
- Epoch, period, culture, cultural context of the discovery
- Date (millennium, century, year, month, day)

Author/ producer fields
- Author's name, school, workshop, role

Provenance fields
- Production place (area, country, province, town/center, workshop)
- Place of discovery (country or geographic area, county, town or village, local name of the site and its antique name, if known)

Description fields
- Material and technique, colour, paste, and burning technique (for ceramics)
- Dimensions, weight and alloy title
- Title, image (for inscriptions and plastic representations)
- Inscriptions (and their language), marks, signature, stamps
- Current condition (very good, good, mediocre, bad)

Registration fields
- Photo or photo negative number
- Card number
- Cataloguer name and cataloguing date.

An example of an object record in English:

```
Record number:      ARH8MB000023
Owner:              MUZEUL NATIONAL DE ISTORIE A ROMANIEI
Object name:        PELIKE; FUNERAL
Group/Category:     ATTIC;RED FIGURE POTTERY
Epoch/Culture:      CLASSICAL GREEK
Date:               S:-4 2/4
Production place:   ATHENS
Material/Technique: CLAY;BLACK GLAZE;PAINTING
Dimensions:         I:196;DM:750
Place of discovery: CT;C:ISTRIA;S:ISTRIA;L:HISTRIA
```

33

Subject/Image: DIONYSUS
Inscription: none
Mark, signature: none
Current condition: GOOD
Accession number: 16835
Cataloguer name: Popescu Maria
Cataloguing date: 10/12/86

Thesauri

The SI-PCN thesauri, which are dedicated to object or specimen description and data retrieval, were designed by working groups of analysts and museum curators (using Mistral-2 software) and include synonyms and hierarchies (on three to five levels). A field approach was used to structure the terminology. There are about 28,000 terms.

The thesauri offer:
- A minimum for quick data retrieval: key words to those categories of data that were considered significant finding devices: classes of objects/specimens, historical and artistic periods, materials and techniques, iconography and decoration, associations
- At least one standard key word in a retrieval field (we accept both thesauri terms and others in the same field)
- Up-to-date scientific terminology, elimination of old-fashioned terms
- Easiness to work with: a reasonable number of basic terms for each discipline
- A working method
- Openness to development and enrichment.

The development of the SI-PCN thesauri: Precise definitions of each descriptor must be added as well as related terms. Additionally, terms used to index written text (scientific literature, archival records, slides, and photographs) must be included in order to cover other documentation fields for museums. We wish to establish translated versions of our thesauri—in English and French—to assure direct access to Romanian heritage information across language barriers and thus facilitate international information interchange.

Image Collection

A manual photo archive of 360,000 black and white photos of objects recorded in the national database, carrying identification data (county, card number, owner, accession number of the object), arranged alphabetically by territorial units, was gathered at CIMEC. It could be electronically recorded in the future.

People in SI-PCN

Curators

Curators are in charge of the scientific documentation of museum collections. In many museums, inventories are not complete, and many artefacts must either be determined and registered or their earlier entries updated. Documentation for each object is prepared in manual form (object cards) by curators, who examine and describe the objects. Museum people and librarians greatly resent the scarcity of modern investigative equipment, of up-to-date scientific catalogues and publications.

34

Museum curators were systematically trained to fill in cards for the national evidence system and have been initiated into computerised inventories through courses organised by the Center for Cultural and Arts Staff Training and CIMEC.

Analysts

They assure an acceptable degree of information accuracy, both in form and scientific content, before and after data entry; assist users in documentation requests, and special reports; identify priorities of data standards in their discipline; design and maintain thesauri; edit catalogues, newsletters, and handbooks. We used to say that they are the database content administrators.

Database administrators and programmers

They design system architecture and functions, applications and procedures, write programs, and solve technical and compatibility problems. They are responsible for data organisation, access policy, standardisation, upgrading, management and implementation, and data security.

The SI-PCN Lights and Shadows

It is a constant dilemma between "centralised and decentralised". Both approaches have advantages and disadvantages. Usually they are unequally emphasised by parties in dispute according to each point of view. Why keep a centralised system like the SI-PCN in an era of the spread of personal computers? Some reasons are the following:

1.   Protection of the national heritage depends on the existence of an inventory.
2.   Recovering of information in the new technological environment spares time, years of work, and money.
3.   Dissemination of standardised information is simpler by far than bringing together disparate (uncorroborated) local initiatives, which is the problem other countries face now. More and more people are aware of the need to have a common language.
4.   In Romania no one would start from scratch in developing local databases because at least part of the information is already in the computer and a copy can be transferred to each museum, as the nucleus of the institutional database. That establishes both the conditions for continuity in the museum's own registration activity and for information sharing among museums and the local-national databases.
5.   SI-PCN is a system that people got used to during ten years. Ten years in the life cycle of a system is not a short time! It is enough to provide a tool to judge what proved to be good, and what should be improved in the future.
6.   The feeling of continuity is an important psychological factor. It is unbearable for museum people to start again and again the same endless registration activity whenever any technological or administrative changes occur.

What are our priorities in the near future?

1.   More for local needs (now we are too far from users)
2.   Suitable software and equipment support for national databases
3.   Suitable software for Romanian museums
4.   More information dissemination, both through computer networks and in written form.

To have a future, two basic conditions are required: human factor and support from official bodies

35

The computerised heritage catalogues can be an effective and economical tool. "As with any other tool, though, it is the human factor in the man/machine equation that determines how effective and how economical it is. Data-banking, like writing books and papers, is tedious work that can consume enormous amounts of professional manpower" (Robert G. Chenhall, in *Museum News*, September 1974, p. 33). There is not enough excellent software and hardware to make a system good, as some might hope. The means are not the end. Collection and heritage documentation must be revalued as main professional and moral duties in the museum field and as the basis of cultural heritage protection policy. That implies proper legislative, organizational, and financial support.

It is true that we did so much, so long, with so little that some now believe we can do anything with nothing. It is hard to establish funding priorities in times of economic regression. But long-run activities such as a national heritage inventory must be among them. We are too poor to lose what we already have.

DB/Field	Type	Title	Epoch/ Authority Author	Material/ Technique	Theme/ Decor/ Iconography
ARH	*		*	*	in progress
ARD	*		*	*	in progress
ARP	*		*	*	in progress
DOC	*		*	*	in progress
ETN	*		*	*	in progress
IST	*		*	*	in progress
NUM	*	-	*	*	-
MED	*	*	*	*	in progress
DEC	*	*	*	*	in progress
STT	*		*	*	in progress

Czechoslovak Museums, Documentation of Collections, and Computers

Zdenek Lenhart
Programmer
Moravske zemske muzeum
Brno, Czechoslovakia

The Czech and Slovak Federal Republic (CSFR), with some 15 million inhabitants, consists of the Czech Republic (10 million) and the Slovak Republic (5 million), each having its own Ministry of Culture. There are altogether about 230 museums in CSFR. In the Czech Republic most museums belong to cities or communities; only the biggest five belong directly to the Ministry of Culture. In the Slovak Republic almost all museums belong to the Ministry of Culture. There are no private museums in CSFR. All museums and galleries should follow the guidelines of the respective Ministry of Culture.

Many different catalogues were used for the documentation of collections in earlier times. In 1963 the new collections management policy issued by the Czech Ministry of Culture prescribed a universal cataloguing card for all types of collections. Three copies were to be filled in for every specimen. The first copy should be stored according to the order of inventory numbers, and the second one in systematic order. The third copy served as a "dead" safe copy only.

The cards are very general and simple and give no guidelines for correct description of the particular type of object. The greatest part of the collections is registered on those paper cards now. There were no computers (with only few small exceptions) in Czechoslovak museums until the late 1980s.

Several theoretical studies of the computerisation of museum documentation were made in the 1970s and 1980s, mostly by museologists in the National Museum in Prague. None of them has had any practical results. Computers were extremely expensive and practically impossible to buy with Czechoslovakian currency until 1990.

The Moravian Museum in Brno, where the author works as a programmer, is the second biggest museum in Czechoslovakia. It has about 230 staff members and about 6 million specimens covering almost all museum branches except technology and art.

The need for rationalising and simplifying the documentation, as well as the economic agenda, resulted in the creation of a small computer group at the Moravian Museum in 1986. This centre later became a leading workplace for introducing computers to museums in Czechoslovakia. The Czech Ministry of Culture entrusted it with the task of developing the model users' system AISM (Automatizovany informacni system muzei). The essential part of AISM is documentation of collections. More than 20 museums with about 50 workplaces provide AISM at the moment.

We started our work on AISM without any contact with the international museum documentation movement. In spite of it we recognise now, when the contacts are increasing, that the main ideas of AISM are the same as those of other similar systems under similar conditions in other countries. This is a great satisfaction to us.

The main principles of AISM are based on an analysis of the general situation and basic needs of museums and museum staff.

Museums are poor and cannot immediately build large computer systems. They need to go step by step, using inexpensive machines and common flexible database systems meeting world standards to overcome the strong psychological barrier of "computer illiteracy" and ensure continuity during any future move to new, better technologies.

The computer should no longer be a huge inhuman deity behind a glass door with office hours. It should be a friend on your table. A user needs free and easy access to data at any time.

AISM is built on the dBASE relational database system which meets all the above-mentioned needs. We started in 1987 with the only available 8-bit machines under the operating system CPM and dBASE II. Thanks to this world standard system we had no troubles when moving to the IBM PC with MS-DOS and dBASE IV when it became economically possible.

Now the prices of computers in CSFR are a bit lower than world prices. It pays especially for IBM-compatible no-name PCs with MS-DOS. This is the only realistic chance for museums.

Image databases are a financial, not a technological, problem now. Instead of one computer enabling a spectacular image show, we prefer 10 simple stations saving much working time by text databases only. Nevertheless if some financial support comes, we are ready to catch the opportunity (see the last part of this text).

The most important task was to find a record structure suitable for all possible purposes, simple to use, and covered by dBASE. The starting idea (implied by museologists) was to make a universal record structure for all branches, from insects to paintings. We very soon realised that this was almost impossible. Nevertheless the need for unification is not only a theoretical demand.

The solution was found in stating several compulsory unified fields on the general level, some strongly recommended fields on the branch level (branch cataloguing minimum, different for every branch) and freedom to append more specific fields for the particular needs of the respective curator, scientist, keeper, special collection, scientific research, etc. In cooperation with branch committees or individual experts we have prepared the model record structures for all main museum branches. Any of the unified fields may be later transferred to central databases, either on the branch or the general levels.

Briefly, AISM is open, respects the variability and differences, but recommends unification. AISM provides many standardised helps, coding tables, and vocabulary files (e.g., list of districts and countries, list of European flora, archaeological list of object types, etc.).

Using common standards, codes, key words, correct names, thesauri, etc. is of essential importance for later powerful searching, indexing, and data sharing. One of our main tasks is to force and help the branch committees create (or surpass) such standards and introduce them for practical use. In this field we need more international cooperation.

38

A typical computer application of a well-described problem may be fixed, closed, and include strong fortification against the silly user. Museum collection documentation will never be an exactly defined task. The user should have all possible advantages of great flexibility of the original database system. AISM programs therefore have two main goals:

1. Make the first step for computer beginners easier by including all the typical activities (various standard forms of data input, editing, retrieval, print, and copies) formed into an easy menu system, independent of the data structure.

2. Provide all predefinable checks and evaluation of data, which depends partly on the data structure.

Discussing the AISM "open" approach, we see great psychological and practical advantages in being able to structure your own data according to unforeseen needs. The disadvantage of this approach is the danger of damaging the data. As we are at the beginning, the amount of data is relatively small, standards are not negotiated yet, and opposition to fixed systems (cards) is strong. We prefer this open freedom of AISM.

There are several alternative projects for museum documentation in CSFR, all of them based on dBASE or FoxBase (FoxPro). The biggest difference from AISM is in their fixed, predefined data structures for every branch. The structures are compatible, and data standards often similar or equal, so they may even be seen as special modifications of general AISM proposals.

It should be stressed that some of those projects are planned to be more complex then AISM; for some, data input will be easier, sometimes by means of more controlled data or data structure. The cooperation between the authors is unfortunately poor.

VMCL MELCO (Vlastivedne Muzeum v Ceske Lipe) has several applications in various Czech museums. The best-developed branch is probably zoology.

AMIS (Automatizovany Muzejny Informacny System) being developed in Mestske muzeum Bratislava tries to cover all possible museum and library activities, but the menu shell has still more empty items than operating ones.

MUZEUM made in Narodni Technicke muzeum Praha is dedicated to technology collections and stresses centralised acquisition.

PEAR—PREHLED SBIREK, made especially for Moravská galerie Brno, may be an example of several private or dedicated systems not used at more than one place.

The fall of the communist system resulted not only in positive changes. In the new situation the number of thefts of valuable objects from churches, galleries, and museums increased. In addition to primary security (bars, supervisors) a new security documentation project was started by the Czech Ministry of Culture and Ministry of Home Affairs in cooperation with Interpol.

The basic one-purpose description and high-quality image of every valuable object should be catalogued. Good financial support ($1.4 milllion) from the government, and computer firms' interest in entering the cultural arena, allow good equipment (Apple Macintosh Qadra,

39

color scanners, still videos) and rapid progress. About 200,000 objects are to be input in a short time by 14 regional workstations in the natural and human sciences museums only, not to mention art galleries, monuments, churches, etc. A great deal of text data will be made available on existing IBM PCs or transferred from existing databases. Macintosh machines will be used, preferably because of image processing.

All the data will be integrated into one central database in Moravske zemske muzeum. There will be no on-line connection to the "regional" Macintosh machines because there is no hurry at this stage and in order to reduce the danger of information loss. In the case of theft or other loss only the particular piece of information will be transferred by modem to the police computer network to be available at all police stations and customs offices immediately.

The equipment will be fully used by the museums; the simple security database information will be soon enriched by scientific description; and other specimen categories will be added and used for different purposes. In any case this project will take the documentation of collections a big step forward.

Larger Scale Systems Initiative (LASSI) Consortium Project

Jeremy Warren
Assistant Secretary
Museums & Galleries Commission
London, UK

When I was first invited to contribute a paper to this conference, I chose the theme of the Museums & Galleries Commission's Larger Scale Systems Initiative, known generally as LASSI. But when the time came to prepare the paper itself, I felt it might be more helpful if I were to broaden its scope, to discuss other ways in which my organisation, the Museums & Galleries Commission (MGC), is working to improve documentation standards in UK museums. As you will see, most of our activities involve collaboration to a greater or lesser extent.

First, I should like to say a few words about the way museums are organised and funded in the UK, and in particular the MGC's role. The approach is rather different from the position in Romania, and other Central and Eastern European countries, where you have central Ministries of Culture, which makes it comparatively easy to organise initiatives, and introduce new systems, on a national basis.

If I had been giving this talk one month ago, I would have been able to say that the UK had never had a "Ministry of Culture". In fact the new Conservative Government has, following its election victory in April, fulfilled its manifesto promise to establish a new Ministry, with responsibility for the arts, sports, environment and the heritage. But our new Department of National Heritage is unlikely to alter the essentially decentralised and independent structure of museums in the UK. Of the approximately 2,500 museums in Britain, only 19 national museums are funded directly by the central government. All of these national museums are funded through the so-called arm's length principle, which means that the government delegates the responsibility for running and managing the institution to boards of independent trustees. There are about 800 local authority museums, funded by municipalities, about 400 university museums and collections owned and financed by universities, and approximately 200 museums of the armed services, most of which are funded by the Ministry of Defence, through individual service units. The remaining 1,100 or so museums are the so-called independents: charitable trusts or companies receiving little or no public subsidy, and dependent on admission fees and other income for their survival.

This rather varied situation explains in part the importance of the role played by the Museums & Galleries Commission. Just like the national museums, the MGC is funded by central government, but enjoys autonomous status. Indeed, we defend our independence proudly, and do not hesitate to criticise government policy when we believe that the interests of museums are at risk. Our primary role since we were established more than 60 years ago has been to act as the government's expert adviser on museum policy and museum matters. We can do this because we are able to call on a wide range of specialist expertise, both within the MGC and from within the wider museum community. During the past 10 to 15 years we have extended our specialist advisory role to museums themselves, and the MGC is now able to offer museums high-quality advice on security, conservation, exhibitions, and other activities. The MGC itself is very small—around 40 staff in total—and so we use the

41

10 regional Area Museum Councils, most of which are financed by us, to provide advice and training to museums on a local basis. Finally, the MGC has at least £3m per year available to pass on to museums in one-off grants. This allows it to give some practical back-up to the advice it is giving.

The MGC's other main function is the development and raising of standards in UK museums. The MGC is currently working toward published guidelines and standards covering such diverse activities as specialised collection care, management of the museum environment, disabled access to museums, and museum security. And one of the key areas in which we seek to promote standards is museum documentation.

Perhaps one of the risks of a decentralised organisational and funding structure is that it can lead to widely differing standards and approaches in areas of museum work such as documentation. In many UK museums, significant proportions of collections remain inadequately documented or indeed not documented at all. This goes right to the top—a 1989 report from our National Audit Office severely criticised documentation and collections management procedures in the Victoria & Albert Museum and other important national museums. The MGC seeks through three main ways to improve this situation, the addressing of which we regard as a high priority.

First, we provide funding for the Museum Documentation Association (or MDA), an organisation with which some of you will already be familiar. The MDA is the central advisory and supporting body for documentation in the UK. It is directly involved in setting its own standards, such as the MDA Data Standard, and it has recently set up a working group led by Andrew Roberts to develop a new UK-wide data standard. The MDA has an established and growing outreach programme, which seeks through training and advisory visits to all parts of the country to encourage greater awareness among museums, especially smaller ones, of the importance of documentation. It has developed and successfully marketed a low-cost computer package, MODES, which has for the first time given many smaller museums the opportunity to introduce computerised documentation.

Our second initiative is the MGC National Registration Scheme for museums. This scheme differs from the rest of our standards work, which is based on best or at the least recognised good practice, in that it is a minimum standards scheme. We want Registration to be a scheme in which not only the British Museum, but also the well-run village museum, can participate. The 1970s and 1980s were boom decades for museums in the UK, with hundreds of new projects. Registration, which is a voluntary scheme, is intended to ensure that the limited funds available for museums from public and private sources are concentrated toward museums that can demonstrate that they have achieved certain basic minimum standards, or else are seriously trying to meet them. So to be eligible to receive grants from the MGC and other grant-giving bodies, UK museums must have achieved registered status. Collections management is one of a number of key elements in Registration.

Museums applying for Registration must provide a policy statement giving details of:

- The museum's acquisition and disposal policy
- The nature of the museum's existing collection
- Documentation of the collection
- Access to professional conservation advice.

42

The minimum documentation requirement is:

- The maintenance of a register with records about all accessions and long-term loans, each including an accession or inventory number and sufficient information for collections management purposes
- The marking or labelling of each accession and (where appropriate) each individual object with a unique accession or inventory number
- The maintenance of one of more indexes or equivalent information retrieval facilities including (where appropriate) subject, donor, and locations lists
- If documentation of the collection has not been completed as set out above, a statement of the museum's policy to eliminate this backlog within a stated timescale.

Although these requirements may seem simple, documentation has been the overall biggest single problem area for museums seeking Registration. The more positive news is that Registration has helped make more museums aware of the need for good documentation, and has enabled many to obtain previously unavailable funding to take on new specialist staff to tackle their documentation backlogs. I do therefore believe that Registration is already bringing visible and lasting improvements to basic documentation standards in the UK.

I said that Registration was a minimum standards scheme. By contrast, the Larger Scale Systems Initiative (LASSI) is a project aiming for the highest standards from the beginning. LASSI is a consortium of nine museums, seven of them major nationals, which have, together with the MGC, agreed to assess the feasibility of joint development of a new generation of computerised collection management systems, for use in medium-sized and larger museums. Both the Audit Office criticisms I mentioned earlier and the Registration Scheme have helped to convince many major museums that they should review their documentation needs. Of course, it is also in theory cheaper to develop one system jointly than to pursue separate paths, which is by and large what the UK national museums have done in the past. The consortium members are:

- Museums & Galleries Commission
- Imperial War Museum
- Natural History Museum
- National Maritime Museum
- National Museums & Galleries on Merseyside
- Science Museum
- Tate Gallery
- Victoria & Albert Museum
- The Manchester Museum
- Nottingham City Museums

As you can see from this list, the participating institutions cover a wide spectrum of collection types and requirements. And indeed one possible outcome of the collaboration might still turn out to be agreement that the needs of museums such as the Natural History Museum or the Tate are so different that each should go its own way. We do not in fact believe this to be likely, and the work done so far would suggest that there is substantial commonality among core functions.

43

The procedure adopted by LASSI has been to commission, from a firm of computing consultants, an initial feasibility study, which will:

- Assess the feasibility and extent of collaborative development
- Make recommendations as to how this should be done—i.e., from full in-house development through buying an existing system (if one can be found that meets all the identified needs), to commercial partnership
- Draw up a specification for a joint system, which is detailed enough for LASSI to be able to use it as a tender document, when inviting bids for the next stage of development work
- Identify key differences between museums' requirements, so that, should individual museums choose to go their own way, they are able to do so.

The consultancy work began toward the end of 1991, and I had hoped to be able to present the consultants' findings to you at this conference. But, as often happens, we have hit some delays and unforeseen difficulties, so that our report is not yet ready. The main conclusions do, however, already seem clear: that there is a remarkable degree of commonality among the nine participants, and that the consultants will advise us to avoid the expensive and risky option of developing a new system ourselves. Rather, it should be possible to encourage a commercial partner to invest in the project, especially since the MGC and LASSI would like the final system to be available for many more museums than the nine currently involved, perhaps even including museums in other countries.

In coming to the end of this outline of some of the MGC's activities in the documentation sphere, I have asked myself what common strands and guiding principles emerge that others might find useful.

The Registration Scheme has been enthusiastically welcomed by museums, over 1,400 of which have now applied for registration. Important contributors to its success must, in my view, be the facts that it is voluntary, and that it is, to a great extent, a collaborative initiative with the whole museum community. It is not the MGC itself which makes the decision whether to agree to register a museum, but our Registration Committee, which is composed not only of MGC staff, but also of curators, directors, and other museum professionals. We are currently preparing the second four-year phase of Registration, for which the range of activities covered by minimum standards will be extended. Again, this is being done in close consultation with the wider museum community.

LASSI is also a good example of specialists agreeing to work together, to seek a more comprehensive and cost-effective solution to a shared problem, one which it is hoped will eventually benefit a much larger number of museums throughout the country and abroad.

At the end of the day, collaboration is about communication and a willingness to share: not only the benefits, but also the risks. I can only second what another speaker at this conference has said about the vital importance of open communication to all museums, and to those who work in them. Where I believe the MGC has, at least to some extent, got it right is in maintaining an objective position—independent of central government yet being seen to enjoy its support; recognised by museums and government alike as offering expertise and good-quality advice. I believe it has also helped that we make clear our concern for all UK museums, from the largest to the smallest. None of the work we are engaged in, including our documentation initiatives, would be really successful were we to be afraid to listen to others' advice and expertise, and to learn from it when appropriate. Learning from others

44

cannot be confined to one's own country, which is one more reason why conferences such as RECOMDOC '92 are so important.

45

Arriving at International Collaboration

Jeremy Rees
Visual Arts Consultant, European Visual Arts Centre, Ipswich, UK (EVAC)
Coordinator, BRANCUSI Interactive Multimedia Project,
on behalf of the International Visual Arts Information Network   (IVAIN)

This paper discusses the logic, advantages, contradictions, and problems encountered in aiming for (and achieving) European and international collaborations on information systems that have the objective of both museum management and public access.

My background is not a conventional museum background—nor is it a background of information technology, so I will not be trying to sell you hardware or software, or systems management.

Some of the views that I will be expressing may be provocative or controversial in a museum curatorial or museum management context, but they are expressed from the point of view of someone who not only visits and uses museums, but who has also worked with the contemporary arts for many years.

I was involved in founding and subsequently directing (for 25 years) a major centre for the contemporary arts, with a particular emphasis on the visual arts—in Bristol, a large regional city in the southwest of England.

For the past five years I have been working as an arts management consultant, principally on a project for a new European Visual Arts Centre in Ipswich—a large town and inland port in East Anglia, 90 miles to the east of London.

I am going to speak specifically about image databases and interactive multimedia, primarily in relation to art museums, but much of what I will be talking about is equally applicable to museums of any type.

The Public Experience

I have for many years been concerned that organisers of exhibitions (or permanent displays), such as myself, spend a lot of time, effort, and money (and often, enthusiasm) on helping to create experiences in art galleries and museums, for a wide range of visiting publics—but have too little knowledge as to the quality of those experiences for the individual visitor.

We work from a "privileged position" of knowledge and experience with the objects we display. This is all the more the case with those of us who work with living artists—where we often have the benefit of dialogues with the artists that colour, develop, or transform our attitudes and enthusiasm for the work of a particular artist.

The majority of people visiting the exhibitions (for whose benefit we have arranged the exhibitions?) will have comparatively little background knowledge of the artists whose work they are viewing—or of the context in which that work was developed. It is **not** enough for an artist or a curator to say that "the work should speak for itself". It was not created in a vacuum; why should it have to be presented and viewed in a vacuum?

46

When I have been discussing with an artist the arrangements for an exhibition or hanging an exhibition, how often I have felt "if only this dialogue could be made available to each and every visitor to the exhibition." Like many others, I have used tape/slide sequences, videotapes, and, of course, various types of publications, but seldom do these in any way approach the immediacy and personal involvement to which I am referring.

Museum Conventions of Information

The "quality of experience" of visits to and general use of art galleries and other museums, and the limited role of exhibition catalogues, are subjects that have been surprisingly little researched in any depth. I think that most of us would be horrified to learn how marginal an impact much our work actually has—although, if we are honest with ourselves, we already at least have worrying suspicions.

What we need to be aiming to set up is the means and the encouragement to create a real dialogue between the visitor to the art museum and the museum's collection or individual works of art: that is, between the viewer and the viewed.

New Approaches to Public Information

Recent thinking and writing about museology indicate that there is an increasing amount of concern as to the shape and role of museums in the coming decades.

There is clearly a need for additional context and background which visiting publics should be encouraged to explore and use while they are in the art museum (or other types of museum). We have to find other, additional, ways of involving people. Traditionally, these have included tape/slide sequences, linear videos, and personal sound guides.

The image database and interactive multimedia resources (utilising freely explorable text, still images, film, video, and sound), represent an enormous and exciting potential by means of which we can activate and stimulate personal curiosity and encourage involvement and further exploration across a wide range of museum visitors—and provide valuable new information tools for researchers, museum curators, and management.

The Need for Museum Collaboration

I hold a strong personal view that the development of image databases in museums and art galleries should, from the outset, be as much concerned with their use by general visiting publics and for more formal education use (by teachers and students at all levels) as with their use for museum management.

To have any economic practicality, this assumes that we can achieve a greater dialogue and collaboration between art museums and a published base of material. More crucially, it requires a range of material that has common addressability—which does not currently exist to any useful extent.

The Next Generation of Art Museum?

I agree with Michael Ester when he said that the real need is the development of an intimate knowledge of cultural heritage, not the latest hardware and software.

In the feasibility study for the European Visual Arts Centre project at Ipswich (EVAC), carried out in 1987, I proposed a new (Kunsthalle-type) exhibition centre—but one in which

47

information about art (directly and indirectly related to the exhibition programme) would form an equally important partner with exhibitions, in the overall concept. Extensive use of image databases and interactive multimedia resources would complement more conventional information in the form of books, catalogues, periodicals, sound, and videotapes.

The objective is to provide opportunities for everyone visiting the exhibitions (whatever the nature of their interest and previous knowledge of the work on exhibition) to be able to explore, in their own ways, information about the work on show and its wider contexts—or other aspects of art that might interest them.

It is not intended that information (and images on screens) should be substitutes for experiencing art through looking at the originals, but rather that this extensive range of information should stimulate curiosity, interest, and enthusiasm—which would lead to a more informed viewing of original work on exhibition.

A European Visual Arts Information Network (EVAIN)

Research for the feasibility study for the EVAC proposal led to discussions in many Western European countries. This indicated that while a small number of individual art museums and cultural authorities were exploring, or thinking of exploring, the development of image databases (mainly for collections management purposes) there was, at that time, almost no development work on national collaborations and none on international collaborations. More particularly, there was very little interchange of information about planned and actual developments in the use of image-related information technology in art museums.

This led EVAC to set up a meeting in Amsterdam in March 1990, to discuss European exchange of information and possible collaborations and the concept of a European Visual Arts Information Network (EVAIN). As an open-ended consortium of organisations having a common interest in visual arts and design, with a particular emphasis on modern and contemporary art, EVAIN would provide services designed to maximise the potential development and effective use of image-based interactive multimedia applications within museums and galleries, including work on joint projects to increase the availability, commonalty, and addressability of image-based IT projects, for both museum management and public information.

It was agreed at this meeting of people from nine European countries that better access to information about what was being developed and what was being planned in this field internationally would help to maximise the effective investment of scarce resources (time and money); encourage the development of educational uses (both within and outside the gallery environment); avoid wasteful duplication of effort in the planning and implementation of projects; and encourage wider European collaboration.

The Current Objectives of EVAIN
* To increase knowledge of what is happening and being planned in the use of new image-based public and management information systems in art museums internationally
* To initiate clarification of the complex subject of intellectual property rights (copyright and moral rights) relating to all aspects of the development and use of image databases
* To initiate the development of an interactive multimedia 20th-century art information project that explores the opportunities, problems, and economic advantages of an international collaboration in this field and provide a practical way of exploring the

48

outstanding questions and problems associated with intellectual property rights in this area.

The ITEM Database

In pursuance of the first of the EVAIN objectives, the Information Technology in European Museums and art galleries database (ITEM) was set up in 1990. ITEM is a comprehensive information resource on uses of image technology to enhance the value of museum and art gallery collections and exhibitions for visitors and to provide better collections management and research resources for staff; it is the only publication of its kind, circulated on subscription every six months to many parts of the world. The third issue was published last month.

ITEM now has working links with the Clearinghouse on Art Documentation and Computerisation database at the Thomas Watson Library, the Metropolitan Museum of Art in New York.

The setting up of ITEM was made possible with modest financial assistance from the European Cultural Foundation in Amsterdam, the Gulbenkian Foundation in London, and the EC (DGX, Cultural Action) in Brussels. ITEM has already been a considerable success—with subscribers from all over Europe (from Finland to Spain), North America, Australia, and Japan.

Intellectual Property Rights

For the Amsterdam meeting, EVAC drafted a paper, in consultation with copyright lawyers and the Design and Artists Copyright Society in London (DACS), on the wider implications of intellectual property rights in the field of electronic publishing, as they relate to the development and public use of videodisc or digital image databases and interactive multimedia resources. This, far more than any technical development problems, is the most difficult problem facing anyone wanting to use images.

The EVAC paper has subsequently been used as the basis of presentations and discussions at conferences in many parts of the world and is being used as the starting point for this aspect of the BRANCUSI Interactive Multimedia Project.

Some Examples of Image Database Projects

The range of designed uses of image databases and interactive multimedia projects listed in ITEM is encouragingly wide, but the international collaborations (with the exception of the European Museums Network project) are principally concerned with conservation; there are apparently very few projects that have any form of education involvement in their design and development.

In his report *Interactive Multimedia Systems in American Art Museums*, for the Arts Council of Great Britain, Sandy Nairne quotes David Bearman of *Archives and Museum Informatics*, Pittsburgh, as saying that there are only three art museums in the United States that currently have interactive videodisc or multimedia displays available for public use—and that "everyone is doing model or pilot projects. No one is using anybody else's materials".

49

Currently, in terms of published image database/interactive multimedia material there is not much on offer, and what there is mainly on videodisc. A number of these were mentioned by Andrew Roberts in his paper.

The problem with videodiscs is that the consumer-base in Europe for laser disc players is infinitesimal and the market for videodiscs is almost nonexistent. The most successful European material is probably the ODA-Laser Edition's Videodiscs of the Musée D'Orsay and its three Louvre videodiscs—which can be purchased retail from the FNAC book/record shops in Paris and in the videodisc departments of Tokyo electronics stores, where recently someone counted over 200 videodiscs on art. It has to be added that most of these are re-issues of arts television programmes, which are also available on videotape, and are very limited in terms of interactive use, although databases have been written for a few of them.

ODA-Laser Edition is currently working on a videodisc on Picasso, based on the collection at the Picasso Museum in Paris, but also bringing in work from many other sources. This is due to be published in the middle of this year. Interestingly, it also plans to publish a CD version, utilising much of the same material, but with the advantages of additional facilities possible in the digital format.

Enterprisingly, the first phase of the development of the image database of the National Museum of Denmark, which will be used for both curatorial and visitor use, is described in a videotape that can be purchased from the Museum, in Copenhagen.

The French VIDEOMUSEUM project of videodisc image database of c. 20th art in French public collections is now at an advanced stage of development and represents the most interesting collaboration between art museums in any European country.

On the initiative of the Swiss Academy of Humanities and with the involvement of the Swiss Museums Association, Switzerland is now working on The Database for Swiss Cultural Heritage (BDBS). This promises to be an exciting development in its scope and its technical specification.

The digital-based Micro-Gallery interactive image database of the National Gallery, London, which opened in the middle of last year, is to date the most ambitious and extensive art museum public information system, covering the whole collection of the National Gallery. The continuing enthusiasm of the entries in the public comments book makes for fascinating reading.

On data standards and the desirability of gateways between stand-alone projects—a description that covers nearly all the projects already referred to—the work of CIDOC and now of CIMI (Computer Interchange of Museum Information Committee) in the USA must be of crucial importance in (at the very least) narrowing down problems.

There has been very little done by museums on multilingual production—even in terms of introductory screens for public information systems. The most ambitious example is likely to be the EC-funded European Museums Network project.

An International Interactive Multimedia Collaboration

Following the success of the ITEM database and the initial discussion paper on the implications and problems relating to intellectual property rights and the development of image databases/multimedia projects (most particularly in relation to 20th-century and contemporary art), EVAIN has now taken steps to implement other objectives that were discussed at the 1990 Amsterdam meeting.

In a paper I gave at the CIDOC (ICOM) conference in Copenhagen in May 1991, I outlined the EVAIN plans for a European collaboration in the field of information technology and public information systems, including the development of initial work already undertaken by EVAIN on intellectual property rights and image databases / interactive multimedia.

Interest expressed by Romanian delegates at the conference, for Romania to become involved in a pilot interactive multimedia collaboration among European art museums, led to the decision to make the subject of the EVAIN project the major 20th-century sculptor Constantin Brancusi, who was born and lived his early working life in Romania and subsequently moved to live and work in Paris for the rest of his life, finally bequeathing his studio and its contents to the French nation.

This had the advantage that it broadened the proposal from a European to a European/ USA collaboration; gave scope for realising the full potential of utilising film and video as an integral part of the underlying image database (ideally to be developed into a catalogue raisonné) and in the overall resource; would result in a significant public information, education and publishing (as well as curatorial and specialist research) resource on a major figure in the history and development of 20th-century art.

With the Musée National d'Art Moderne, Paris, the Romanian Ministry of Culture, Philadelphia Museum of Art, and EVAC as the principal development partners, EVAIN has now set up the first phase of a three-phase development project and is changing its name to International Visual Arts Information Network (IVAIN).

The BRANCUSI Interactive Multimedia Project

The BRANCUSI Interactive Multimedia Project will combine a text and image computer database (catalogue raisonné), with wider-ranging text and sound, film, and video ("multimedia") to explore the whole span and wide contexts of the work of Brancusi. It will bring together extensive material on his background, influences, the critical response at the time the work was first shown, how it is shown now, views of those who knew him personally, and subsequent writing on his work and its influences on the work of others.

The individual users will be able to consult and explore, in their own ways, a wide range of material in this large multilingual (English, Romanian, and French) resource in many different ways and relationships ("interactively"). Combining existing knowledge with new and previously unpublished research, it will be of considerable value for curatorial and specialist research and general information use in art museums and galleries.

This new multilingual interactive multimedia resource will complement existing books and other publications on Brancusi and will create innovative contexts and opportunities for the exploration of his work. It is not intended to be a substitute for looking at the original works

of art, but to enhance such contact and to provide new opportunities where the original works are not available.

Are We Able to Grasp the Opportunities?

The BRANCUSI Project has already brought into the light the interest/willingness/ unwillingness of art museums to create or enable greater public access to works in their collections and greater access to information about the works in their collections.

In his 1991 report *Multimedia in the 1990s* for the British National Bibliography Research Fund of the British Library, Tony Feldman writes about the annual growth rates of electronic information as compared with books in the USA during 1987-91: "books show an average annual growth rate of 8.25 per cent while electronic information shows a rate of 20.3 per cent. If this continues, electronic information in the United States will be generating greater revenues than books by 1996." The same analysis for the UK seems to suggest a similar picture. "The book will at last be plainly evident for what it is: one option for the delivery of information among a range of possibilities, rather than the unquestionably natural platform."

For art museums (and museums generally), this suggests that there will need to be a re-ordering of information priorities and attitudes toward European and international collaboration if we are not to miss out on the market potential.

Providing a sensible resolution of the real (and very complex) problems associated with intellectual property rights can be achieved, the opportunities for museum-based collection information systems; interactive multimedia in relation to permanent collections, temporary exhibitions, and their wider contexts; on-site and other information technology publishing; public library information systems; distance learning; and the whole formal education field offer a huge potential for informing and inspiring our many publics (of all ages and existing levels of interest and knowledge) and considerably extending the range of these publics.

Surely an opportunity and challenge to be taken very seriously by museums?

CHIN: The Evolution of a National System

Barbara Lang Rottenberg
Director, Museum Services
Canadian Heritage Information Network
Ottawa, Canada

In 1992, the Canadian Heritage Information Network (CHIN) celebrates its 20th anniversary. CHIN, a programme of the Canadian government, was set up to create a national inventory of collections. During the 20 years of its existence, CHIN has had its share of successes. It has also made mistakes. The purpose of this paper is to share those successes and failures in the hope that other institutions or national systems may benefit from our experience. This paper will describe the evolution of the CHIN programme and will conclude with a description of what we consider to be the most important lesson we have learned.

Early Assumptions

CHIN's first system was set up based on a number of assumptions. After initial consultations with Canadian museums, it was believed that collections were well documented; that records were complete and consistent; and that museum documentation rarely changed. It was also believed that museum databases should follow traditional disciplines. From the viewpoint of manual systems of documentation, these assumptions may have been correct. From the viewpoint of an automated system, they led us to make our first mistakes.

Based on these assumptions (and also as a result of very real limitations in existing technology) we set up a centralised system. Because we assumed that records were consistent and rarely changed, we acquired a system with excellent entries and retrieval capabilities, but with limited editing capacity. In reality, once museums learned how the computer could be used to track changes to information and the movement to artefacts, they immediately wanted to be able to edit their records. We then compounded our difficulties by deciding to develop our own programmes to accommodate their needs. The result was that a tremendous amount of staff energy was now used to maintain this new system.

Other difficulties arose from the decision to maintain disciplinary databases. Although from the viewpoint of establishing standards it makes perfect sense to follow disciplinary lines, we found there was a real inconsistency from institution to institution in how disciplines were defined. The public, as well, did not restrict their questions along disciplinary lines. The result was that searches had to be conducted in a number of databases to ensure that they were complete. (In keeping with our desire to avoid disciplinary lines, we have since divided the world into two: man-made and occurring in nature.)

The main lesson we learned from this experience was that, for the purpose of museums, an inventory was inadequate. The computer opened the potential for collections management, which is what Canadian museums required. We also learned that a centralised system just didn't work, that we had to give control back to the museums. Finally, we learned that we had to place a greater emphasis on standards.

The New Mandate

The result was that in 1982 CHIN acquired a new mandate. In addition to our responsibility for creating a national inventory, we were also asked to provide a collections management service to museums and to advise them on new technology.

How does our collections management service work? Each museum possesses one or more institutional databases, for the humanities, the natural sciences, or both, located on our Ottawa-based computer. The museum communicates with our computer by means of its local microcomputers and the telecommunications network. Collections records are entered into the institutional database, which the museum uses to manage the activities of its collections. Although each database is tailor-made to meet local needs, it is also based on common standards. Therefore each museum can meet its own requirements while maintaining consistency from institution to institution. At some point, we expect museums to transfer their databases to their own collections management systems, but to date most have been content to maintain their databases in Ottawa. Access to these institutional databases is for the museums to decide; generally access is restricted to their own staff, but some museums now allow outside researchers to access nonsensitive data.

CHIN's mandate has also charged us with creating a National Inventory. We accomplish this by means of several National Databases, one each for the humanities, natural sciences, and archaeological sites. In these databases is recorded public information about the collections of Canadian museums participating in CHIN. This information is extracted from the institutional databases, loaded into the appropriate National Database, and then made available for inquiry by the public and by museums. CHIN clients are also able to communicate amongst each other by means of electronic mail.

The problem of standards was dealt with by setting up an internal documentation research group as well as disciplinary working groups amongst our clients. These working groups help us to set directions for our work. They also evaluate any results and, in some cases, conduct their own research projects. CHIN clients also represent us from time to time on such projects as CIMI, the Computer Interchange of Museum Information Committee. The result is that standards evolve consistent with museums' changing needs. The user group has also become very sophisticated and informed.

In the recent years, CHIN has branched out. One example of this is the Conservation Information Network, a collaborative network which disseminates information pertinent to conservation internationally. CHIN's partners in this venture are the Canadian Conservation Institute, the Getty Conservation Institute, the Conservation Analytical Laboratory of the Smithsonian Institution, The International Council of Museums, The International Council of Monuments and Sites, and the International Centre for the Study of the Preservation and Restoration of Cultural Property. The Conservation Information Network provides access to databases on conservation literature, materials used in conservation, and suppliers. Subscribers to the network are also provided with electronic mail. Currently approximately 500 institutions in 23 countries access the network.

It has become apparent over the years that museums can benefit from other professional information. This is accomplished by means of reference databases that contain a wide range of information of interest to museums. Some example of databases to be disseminated this way include:

54

- Inventory of American Sculpture, the Smithsonian Institution
- Museological Bibliography, ICOM, the Canadian Conservation Institute
- Bibliographic Database on Heritage Legislation
    - Dr. Patrick O'Keefe
- Canadian Heritage Directory
    - Heritage Canada
- Canadian Society of Zoologists Collections Database
    - Canadian Society of Zoologists

Certain databases may be also disseminated on CD-ROM.

CHIN's commitment to research also remains high. In recent years, two new programmes have been instituted: the Technology Assessment Centre and the Fellowship Program. The former conducts research into new technology in order to provide better advice to clients and to develop standards against which museums can measure commercial products. The Centre's primary focus at present is imaging technology. The focus of CHIN's Fellowship Program, on the other hand, is research into documentation standards. Fellows are funded for a period of up to two years. Current projects include an exploration of the use of documentation of contemporary art.

A final area of development is the expansion of the network. CHIN plans to make more databases available to a wider range of institutions internationally. Within Canada, we hope to increase access to the network by establishing regional networks in cooperation with regional authorities and museum associations.

Lessons Learned

What have we learned in the past 20 years? Our lessons can be summarised in four categories: service, managing expectations, standards, and partnership.

Service

As an organisation that plays a service role, CHIN has had to face the issue of service versus control. Our choice has been to emphasise service. For example, in the area of standards we have tried to respond to our users' needs rather than unilaterally set standards and force compliance. Participation in CHIN is strictly voluntary. Our clients are funded by other levels of government, not by us. We're not in the position to force anyone to do anything, nor is that our wish. We genuinely believe that it is our role to respond to our clients' needs. This means that development time is sometimes slower than it would be if we were more directive, but it also means that our clients are committed to the final product.

Managing expectations

Twenty years ago, the task of building a National Inventory of collections seemed quite straightforward. It was easy to believe that computers would solve all our problems. Where we failed was that we did not understand the information needs of museums. By oversimplifying the complexity of museum information, we created an expectation within the museum community for a service that could not be provided.

Today people are more computer-literate and the need to manage expectations appears to be less. Unfortunately, with each new breakthrough in technology, we want to jump on the

55

bandwagon to solve all our problems. An example of this is imaging technologies. There is a tendency to downplay the importance of documentation now that we have electronic images. What we really need to do is to determine how images can help us to record and disseminate information, and to look at our needs and processes to see where images can best fit in.

Standards

In the area of standards we have learned two main lessons. The first is the requirement that standards be flexible. They must respond to client needs and they must evolve over time as those needs change.

The second lesson is that they should not be developed in isolation. Where possible, it is important to learn from the work of others. It is very human to feel that one's needs are unique and to want to develop a distinct product, but certainly at CHIN we have learned that this can be a very difficult and time-consuming process. More and more now we are trying to benefit from the work of others. An example of this is our efforts to promote the use of the *Art and Architecture Thesaurus* among Canadian museums.

Partnership

The museum community is large and varied. No one museum holds all the collections or all the information on any one subject. It is increasingly important to look beyond institutional boundaries to satisfy the public's need for information.

As with collections information, so with networks. Their development cannot be achieved by any one organisation. The greatest success that CHIN has experienced has been in partnership with others: for example, our partnership in the Conservation Information Network.

The essential ingredient in the success of a national system is cooperation. National systems exist to share a common goal: the creation, use, and dissemination of information. Only with good will and cooperation amongst members can national systems hope to succeed. But with good will, they can create something far beyond original expectations.

56

A Software System for Romanian Museums

Dan Matei
Director
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

Why Do We Need Specific Software Now?

After the events of 1989, data processing in Romania has changed suddenly. The PC (finally) entered the Romanian market and overnight made obsolete the old Romanian mainframes and the Romanian PDP-11-compatible minis: that is, practically all the pre-1989 Romanian computers. Our Information Centre for Culture and Heritage (CIMEC) was no exception. From 1981 we maintained the Romanian heritage databases (the SI-PCN system, described in another paper). Our heritage databases used to be managed under the old French retrieval system Mistral-2, on an old mainframe.

Before 1989 plans were made to transfer the heritage databases (now having more than 400,000 records) to a minicomputer, in order to manage them with a Romanian-made retrieval software, mainly because both the mainframe and the software were not able to cope with the files and thesauri dimensions. Early in 1990, it became clear that this Romanian-made PDP-11-like platform had no future. We were able to get a few PCs and we used the minicomputer only to transfer the data from the mainframe to the PC. In a sense it was a step back, from a database organisation on the mainframe to simple, flat ASCII files, in a simple format, easy to import in any database software. In another sense, it was great progress. Now, using a simple file editor, our specialists can interactively maintain and retrieve the information.

Initially SI-PCN was conceived as a central database connected with county databases. These county databases were meant to be maintained in the "territorial computer centres" (a kind of computing service bureau, commercial institutions operating during the 1970s and 1980s, in the main Romanian towns). The idea was abandoned due to the lack of funds, so only the central databases ware implemented. After 1989, the museums started to acquire their own PCs; thus now we have the possibility of decentralising our national databases—that is, to set up local databases. The role of the central databases is not diminishing. We still have a backlog of about 350,000 cards to enter: that is, more than four years at the current entry rate of about 80,000 records per year. Many museums also have large backlogs of cards, and even those which have a computer will not soon be able to enter all the object cards they produce, by themselves.

As for the central database, the platform problem has not yet been well solved. For the not so distant future. PCs are not really adequate. We need a multi-user platform, mainly because we have to make multiple access possible. Later, even the museums—at least the large ones—will face the same problem: that is, they will have to adopt a similar solution. We think that a UNIX platform is more adequate than a DOS-based LAN, because we have to offer multiple-access not only for local stations, but for remote stations as well (the public data network will be operational next year!). Moreover, it would be great to accept both local and remote dumb terminals. Unfortunately it is unlikely that we could raise soon the needed

57

funds (about $20,000),—that is, we will have to live with our DOS PCs for a while. At least if we have an adequate number of them!

As for the software, in the last two years we did not find—I mean, on the Romanian market—a suitable product. No big surprise! Should we find software (even if not perfect) on the Western market, would it be affordable for CIMEC? Moreover, even if it would—an unlikely event—would it be affordable for the majority of the Romanian museums too? We are afraid not. Besides, we have to add the language (and character sets!) problems with Western commercial software.

Actually, we have one possible choice: the UNESCO-distributed micro CDS/ISIS. Functionally, it is not really adequate, but could be forced a little to do the job. But it is not robust and user-friendly enough for the average Romanian curator (beside the language problem).

What We Plan to Do

Taking these factors into account, we decided to develop a specific software system (for the time being code named PATRIMOSCOP). With the current software tools available now on the Romanian market, the task of writing new, complex software is not so frightening.

The main reason behind this decision is that we want to offer museums not only cheap software but also an inexpensive solution to their collections management problem and at the same time to build into the system features that will serve our interests as well, i.e., to enrich and improve the national databases. In order to achieve that, the system will consist of two subsystems: the "central" one and the "local" one.

The "local subsystem" will be a package containing, in addition to the software, a set of authority lists: the standard thesauri for all the domains and all the facets, Romanian geographical names and territorial units (including historical regions), proper names, institutions, periods (i.e., Romanian chronology), and so on. These authority lists will not be frozen. The user will be allowed to extend them with "proposed" terms and links.

The record structure for each domain (arts, archaeology, numismatics, ethnography, natural sciences, rare books, and so on) will be predefined, having the standard fields as used in the national databases. In addition, the local user will have a set of "local" fields to choose from. In order to maintain consistency, the system will have a built-in data dictionary.

Connections with related databases (bibliographic files, museum personnel, and monuments) will be encouraged, via predefined "containers" for such auxiliary records. These records will be periodically imported into the corresponding databases.

Aims and Main Features

First of all, the system has to be simple and easy to use. Here, I think, is the biggest challenge: to design a user interface intuitive and friendly enough to avoid the need for a user handbook. A manual—beside the fact that now it is very expensive to print—could be an inhibiting factor (for many Romanian curators this will be the first software they work with!). If we are able to incorporate a good and flexible help mechanism, then a pocket guide will be enough.

58

From a technical point of view, the object-oriented paradigm seems to offer the most natural way of handling our records. The much-used relational model is not quite appropriate here because our records are natively in the so-called "non-first-normal" form, i.e., they have repetitive fields. The normalisation implies a proliferation of the tables and a significant loss of performance. Besides, the relational DBMSs usually do not handle the variable-length fields well and they do not have mechanisms to deal with "inverted files". The implementation of these data structures is very space-consuming.

The system will have all the usual features of information retrieval software. The unusual feature is that it will have no distinct retrieval module. The latter will be replaced by a "database browser". The user will be able to browse the catalogue of the collection in the same way that users of an on-line public access catalogue do. Here we face the sorting order problem. Three standard sorting orders will be predefined: systematic (i.e., "governed" by a thesaurus), chronological, and lexicographic. Each domain will have a different, specific, by-default sorting order. Of course, the user will be able to switch easily between the sorting types.

As a consequence of this browsing paradigm, the selection query will be seen more like a means to identify a subcatalogue within the collection's catalogue.

We will have to pay attention to the characteristics of our records, a reflection of the characteristics of the Romanian heritage: mainly the vast proportion of uncertain data. The retrieval mechanism has to handle this kind of data well.

The "catalogue browser" will have the usual built-in "thesaurus browser". There will be three predefined presentation forms for the catalogue (both on the screen and on paper): scientific catalogue, exhibition catalogue, and inventory.

The record structure is hierarchical, i.e., simple and aggregate fields, on several levels. Moreover, signed (and dated!) alternative (i.e., even contradictory) values will be allowed for most of the fields.

Special attention will be paid to the editor. Being meant for the curator, it will have to be very flexible and easy to use, with many look-up facilities. Besides, it will allow only extremely controlled updating, i.e., practically no deletions will be allowed and each update will be recorded as a (signed) alternative value.

Finally, the system will have an administrator module that will produce statistical reports about the files and the records.

How Do We Plan to Facilitate the Link Between the Local and the Central Databases?
Until we have a public data transmission network in Romania, we plan to exchange information on diskettes. We will need a carefully designed mechanism to absorb into the national databases the records newly entered from the local databases.

An authority term proposed by a curator can either be accepted (and, in this case, will become "standard") or be rejected; in the latter case the system has to replace it with the corresponding "standard" one.

59

On the other hand, we plan to transfer to the national databases only the standard fields of the object descriptions and ignore the local fields. The (locally) updated standard fields will be added to the records in the national databases as (signed and dated) alternative values. To achieve that, there will be a communication mechanism between the local and central subsystems, a kind of specific import-export module. The newly entered records in the local subsystem will (automatically) get a "local" identification number. Periodically, the new records (and the updating of the old ones) will be entered in an "export file," which will be imported into the central subsystem. There, the new records will get their central identification number and a special file with the central-local identification number, mappings will be created. This file is then sent back to the local subsystem and each record gets its final identification number.

Final Remarks

We will use (at least for the beginning) as software tools Borland C++, TurboVision, and Paradox Engine. They are good tools and—very conveniently—we don't have to pay royalties for the resulting software product.

We do not think—for the moment—about dealing with images (at the national level), despite the fact that we have about 300,000 photos. Neither we nor the large majority of our potential clients have the needed resources (i.e., computers, storage capacity, scanners). Under current conditions, it is not at the top of our priority list. However, a linking field for the image will be kept in the record.

We plan to sell the local subsystem to the museums at a symbolic price. Of course, it will be developed gradually, so the museum community will not have to wait until it is accomplished. As soon as a module is ready, it will be delivered. So the museums will have an operational tool as soon as possible.

For the moment we are practically finished with the design of the basic Paradox files. We hope to deliver the first module by the end of 1992.

The Danish National Record of Sites and Monuments

Henrik Jarl Hansen
Curator, Documentation Department
The National Museum of Denmark
Copenhagen, Denmark

In 1984 two central EDP records were established in Denmark by law: *Kunst Index Danmark (KID)* (Art Index Denmark) and *Det kulturhistoriske Centralregister (DKC)* (The Cultural Historical Central Register or The National Record of Sites and Monuments). These were placed at the National Art Gallery and the National Museum in Copenhagen, respectively. These records are relatively young, but both of them have their roots solidly planted in Danish museum tradition. This tradition can be traced back to the early 17th century, which saw a growing interest in the heathen past. For example, the first collection of information on Danish ancient monuments was instituted in the 1620s on the initiative of Ole Worm. He also created the Museum Wormianum, which was later incorporated into the Royal Danish Cabinet of Curiosities, where rare archaeological finds were kept together with zoological and ethnographic rarities, as it was the custom then. The foundation stone of the modern museum had been laid.

However, the proper archaeological basis of DKC was created only in 1873, when the Danish Rigsdag (Parliament) appropriated the funds for the systematic recording of finds and ancient monuments all over the country, the so-called *parish survey*. The project was carried out as a consequence of the progressive demolition of the relics, resulting in particular from the increasing cultivation of the land. Through the years, construction work has also played its part in the removal of building materials from the monuments. Parish by parish the whole country was combed, and information on still visible monuments and the principal archaeological sites were recorded. This systematic recording took place in the years from 1873 to 1932 and again from 1937 to 1956. In the latter period the background was the preservation of the monuments that had survived the continued destruction. The collection of information on Danish monuments has continued progressively since then, always increasing the record files of the National Museum.

As computers gained ground in Danish society, it became a matter of course to introduce them into the more conservative world of museums, and by the end of the 1970s the task was begun which was to result in 1982 in the creation of an EDP office at the National Museum, the forerunner of the Danish National Record.

The field of work of the Danish National Record of Sites and Monuments comprises in principle all cultural-historical finds and monuments from the earliest times to the present. In order to ensure this basis of work, the Museum Act imposes on state-supported cultural-historical museums the obligation to report to the common register. However, it has been a practical necessity for DKC to record first the information connected with the parish survey and the related files in the National Museum. In practice this means the implementation of a nationwide central recording of localized archaeological finds and monuments. But in principle DKC's field of work is far wider. Therefore, work is now in progress for procuring resources for recording also more recent finds as well.

Consequently, DKC is in a constructive phase, and will probably continue to be so for many years to come, in step with continuous changes of objectives and conditions. At the outset the goal was to create a nationwide record for administrative purposes, because there was an increasing need to use the archaeological maps for planning purposes, both at the museums and at counties and municipalities.

For this purpose the approximately 105,000 points of the national parish survey were transferred in 1980-81 to a computer from the National Museum's 1:20,000 map material. The coastlines and the administrative boundaries on the maps of Denmark were also digitalised.

When DKC was established as an electronic record, it was effected by using files in a sequential structure stored on a small four-user computer. In 1985 this structure was reorganized and all data were transferred to a relational database. Today DKC uses a Danish-built UNIX machine (DDE) and the Oracle database (Version V) for storing the extensive information of the Record. In addition, we have developed a number of programmes ourselves in the Pascal and C languages—used in this connection, of course, with Oracle's own SQL-based interfaces.

The information in the database is stored in relatively few main tables, to which a number of auxiliary tables are linked. The structure of the Record is presently undergoing a change, and therefore the structure up to now will be explained only briefly.

The Contents of the Record

Today DKC comprises basic information on all mapped sites, including the approximately 13,000 new finds added during the last ten years as a result of the obligation of the museums to report. A total of approximately 130,000 points are involved. Each point comprises a location in the form of a set of UTM coordinates (Universal Transverse Mercator Grid). Normally the location consists of only the point itself, but a small number also have an area polygon. For use with marking on maps each point is provided with a sign indicating roughly the date and type of the find. These data can also be used for simple searches in the Record, for example for the printing of maps of Bronze Age mounds or single finds from the Stone Age. The point data are all listed in a separate table, and therefore they are one of the cornerstones of the DKC database.

When the first registration of all the points of the parish survey had been finished, the next and far more time-consuming phase was begun in 1982. It consists of the registration of the cultural-historical information linked to the individual points, where each point may represent one or several finds. Incidentally, a find may represent anything from a single object to a larger complex such as an Iron Age village with many houses and wells or a mound with several graves. Each find is identified within a parish with a serial number, a system we have taken over from the old manual parish survey. Furthermore, each parish survey number in the database is identified by a unique ID number, which is recorded in a special table.

The subsequent text recording and the related detailed classification of each individual relic on the basis of data in the museum records have at this point been completed for nearly

60,000 sites. This subset of the database can therefore be the object of far more sophisticated searches than is the case with the 130,000 finds recorded in the database.

The procedure involves transcription of the original parish survey texts, which are kept as free text in a special table. In addition, references are made in the other records of the museum in order to provide additional information for the purpose of identifying the installations in connection with the site in question, the causes leading to the registration of the find, and subsequent activities on the site. Whereas the texts are transcribed as they are, codes are used to record the remaining data. In general in abstract form the DKC database reflects the entire train of events taking place through the years in connection with the site, in such a way that the record can function as an overall index, with many angles of incidence and pointers to registers or databases of other institutions.

In this way, and on the background of the total volume of information from the files of the museum, a classification is made of the find itself as for example: *single find, grave mound, village, windmill, etc.* The possibilities are numerous. At each locality one or several sites can be recorded as required, and for each site a date is recorded. Depending upon the accuracy of the data a graduation can be made of these dates from a general level to a more detailed one. In the database the data about the sites and their dates are listed in the *site (or feature) table*, which is therefore one of the principal tables in the DKC database.

In the same way a classification is made of the causes leading to the discovery or the registration of the find or monument concerned. For example, it may be of the type: *antiquarian activity, agriculture, or railway construction.* Also the subsequent museum activity can be registered, for example as *observation, excavation, protection, etc.* This type of information is assembled in another principal table, *the case table*, which contains references to the journal numbers of the museums, years, and museum persons. The many varied pieces of information in this table are therefore suitable for searches in connection with research regarding the year of discovery, excavators, or travelling inspectors as well as the causes why finds are brought to our knowledge and their future fate.

In addition to a number of auxiliary tables the DKC database also contains tables which may contain preservation data, inventory numbers, and scientific analyses. Also, information about illustrations in the form of old photos or drawings with relation to each place of find may be added.

Of course the database is built up so that relations are established between the tables by means of the unique ID number. In the structure, facilities are also opened for future links with other databases, for instance with more detailed information about preservation, inventory numbers, marine information, or single objects in the collections of museums, whether at the National Museum or at some local museum.

Thesaurus

For the purpose of classifying the finds and monuments at the cultural-historical locations a thesaurus has been prepared, covering in principle all types of monuments and finds ranging from a Palaeolithic single find to modern, complex buildings. From the thesaurus 259 different types have been used up to now, spread among 31 main groups. However, the main portion of DKC contains data of prehistoric finds only; the types of monuments and finds

from recent times have not yet been sufficiently tested, and later corrections and additions will doubtlessly be made.

The same applies to the hierarchically designed dating codes, which by their nature are more sophisticated at the prehistoric periods. A revision is just now being made, among other things as a result of the ongoing registration of objects at the National Museum and the implementation of the DMI program in the Danish museums (see page 107).

The Use of the Record and Changes in the Record Structure

Like corresponding "Sites and Monuments" records in other countries, DKC was initially seen as a tool for the planning, a source of actual and updated information, for example before large building projects were carried out. However, in step with the steadily mounting number of locations being entered, the potential of the research value of the Record has increased. Until now this has mostly been in the form of relatively general questions where the database is used as an advanced reference work with references to other sources. However, the database can be used for far more complicated searches than the ones normally encountered. Beyond doubt this more scientific side will represent one of the very important challenges to DKC in the next decade. Not least in connection with our own use of the Record has it become clear that the response is not equally satisfactory for all types of queries[1]. This has led to deliberations about revising the database structure and the way the data have been added to the database up to now. It is of course a big question: how much it can be changed without creating excessive problems with the compatibility of the locations recorded up to now and the ones still missing. Our deliberations have not yet been concluded, so the result cannot be presented on this occasion.

The Future of the Record

During the coming years efforts will be spent in several fields in connection with the future development of DKC. It is first a question of completing the registration of the Danish finds and monuments (the parish survey), so that the whole country is brought up to a uniform level regarding prehistoric finds. In Denmark this means the period up to around 1000 A.D. It will also be desirable to add data about finds from the Middle Ages and modern times more systematically. In particular, this must be seen in the light of the fact that among recently reported finds there are quite many especially from these periods. The extension includes also a marine register which has been coming for a number of years[2].

In parallel with this, new and user-oriented programs must be developed, from which museum and university people and (in the longer term) the public may also gain access to the DKC database. At the moment we are preparing a PC-based program from which the user may access DKC's data via the geographical angle of incidence. The program will most likely be based on "Windows" and "DataEase," and it will mark the beginning of a geographical information system (GIS). For this purpose two complete maps of Denmark are being scanned in at the scales of 1:100,000 and 1:25,000, respectively. The digital maps will be available on CD-ROM. The new user interface shall first and foremost be used internally at the Record in connection with the entry of data and searches in the record data. But the finished program will also be made available to the local museums, so that they have access to data from their own area of responsibility. In the long view it is also intended that both these museums and other institutions shall be able to update the DKC database directly by means of this or a corresponding program, as for example Danish Museum Index (see page

64

107). At the moment all data are stored centrally, and only by using notifications of finds on paper.

International Cooperation

After a few years it must be expected that the DKC database will be accessible via national and international networks. In Denmark a high-speed network has recently been installed, which is already now part of an international network that can be used for data transmission, also in connection with data from museums.

The technical aspect of the matter may be difficult enough to master, but the greatest challenge will be the agreements about guidelines and international standards for this data traffic. An important step on the way will be the exchange of experience with foreign partners. Of course the international exchange of data is more important between neighbouring countries, since present-day borders meant nothing to the people of past times. In Denmark's case it will be of primary interest to have connection with data in the North German and the Swedish territories. But since some of the prehistoric objects have often travelled a long way before they were buried or deposited in the ground, all of the European territory is interesting, of course. As a small curiosity in this connection it may be mentioned that some of the earliest "Danish" bronze finds originate in reality from the Carpathian area, so contact with one or several databases from that region will absolutely be interesting also from a North European point of view.

In some years it is hoped that DKC will be able to establish such a contact. But with these promising perspectives we must not forget that present-day records actually build on a very long antiquarian tradition. Therefore it is a great responsibility for us to carry on quality-conscious registration, even if it is time-consuming, now that computers are becoming a part of everyday life at many museums. Patience has always been a virtue in the archaeological world.

Notes

1.   Henrik Jarl Hansen, "Content, Use and Perspectives of DKC, the Danish National Record of Sites and Monuments," in Carsten U. Larsen (ed.), *Sites & Monuments*. National Archaeological Records (Copenhagen 1992), pp. 23-42.

2.   Jørgen Christoffersen, "The Danish National Record of Sites and Monuments, DKC," in Carsten U. Larsen (ed.), *Sites & Monuments*. National Archaeological Records (Copenhagen 1992), pp. 7-22.

Workshops Made Possible by
The Getty Art History Information Program

Workshop on Planning for Museum Automation

Margaretta Sander and John Perkins taught a half-day workshop, "Planning for Museum Automation," at the invitation of Eleanor Fink of the Getty Art History Information Program and the organisers of RECOMDOC '92.

The workshop offered tools and strategies for planning a full range of museum information management projects. Workshop topics included comprehending the planning process, understanding a system's life cycle, defining and developing "statements of requirements," creating the "Request for Proposals," and evaluating responses and options before implementing a system. These topics explained how to prepare for automation and demonstrated the progression from planning to implementing a project. They also illustrated the importance of carefully defining the project at hand and provided guidance for arriving at that definition.

The instructors believe that lectures are more effective when they are combined with exercises. The group exercises, while teaching how projects can be approached, also enable participants to experience first-hand the principles being discussed.

After a brief introduction to the workshop topics, particularly the planning process, the class worked on a group exercise. The 30 participants split into five groups of six people, each with their own table. Each table had a mix of museum staff, government staff, and systems planning staff as well as people of different nationalities. The workshop was conducted in English, but table discussions used several languages.

The first exercise was designed to create a feeling of "teamwork," an essential component in establishing group rather than individual dynamics. Each person interviewed the person next to him or her about their professional experience, reasons for attending the conference/ workshop, and some personal information. The group appointed a speaker to whom they all reported their interview information. The speaker synthesised the individual information and presented "the table" to the whole workshop with a general summary of the group's backgrounds and goals for the workshop. This exercise provided practice in extracting, synthesising, and presenting information while also promoting a feeling of familiarity among participants.

After introducing the concept of planning, the instructors asked each table to create a museum organisation chart taking into account the following considerations:

1. Identification of the activities of each department in the museum

2. Identification of how those departments use information about:
    • People
    • Objects
    • Places

3. Demonstration of the relationships among the departments and their needs for information about the object, i.e., how obtaining that information often depends on the relationships among the departments.

After prompting and encouragement by the instructors, the class began to understand that it did not matter that they were from different museums, professions, or countries. There are issues that every museum has in common when they handle objects, people, and events. However, although each museum may deal with the same issues, often there is no clear idea of each department's function and relationship to other departments. They began to see the importance of discussing each person's (and therefore each museum department's) perception of their position within the museum organisation. Only after these perceptions were clarified could work begin on defining each department's information needs.

Each table drew its organisational chart on a large sheet of paper. All the charts were hung on the wall and each table selected a spokesperson to explain their chart to the rest of the workshop participants.

They all had the same assignment instructions, but each chart was unique. The resulting organisational structure was influenced by their discussions of how the "museum" should function. Each person's concerns were considered and then the group reached agreement about the functions of and relationships among the museum departments. All of the charts contained the same departments: curatorial, administration, public relations, education, conservation. Each chart included information about the object, the events surrounding the object, the treatment of the object, and the exhibition of the object.

The expertise of the group influenced how that information flowed through the museum. Several groups had primarily curatorial experience and placed the curator in the centre of the information distribution system. Other groups had database or administrative expertise and placed those concerns in the primary position. It is important to note that although the charts displayed different organisational hierarchies, all included the same functions somewhere on their charts.

The act of writing down complex information, and diagramming how that information moves within the museum, enabled a group of people with very different backgrounds and ideas about how a museum functions to reach agreement. This mirrors what happens when an single institution is embarking on an automation process. Individuals involved in the planning process often have very different ideas about who needs what information, and everyone thinks they have the same understanding of how the institution works. Only with discussions and diagramming can a project be truly defined and support gained for its implementation. This workshop illustrates why the planning process is crucial to the success of the project. All phases of the process contain an element of planning and must be built on a foundation of cooperation. Each table had to discuss the topic, reach agreement (cooperation), and diagram its results. As the organization chart exercise demonstrated, communication builds cooperation.

The remaining time in the workshop was spent briefly reviewing how to create documents to support the planning process. We discussed charts for creating and maintaining schedules, charts for tracking information flow, understanding project management structure, the Request for Proposal document, and contract negotiations. Those in the group who had experience in any of these areas responded with personal accounts and advice.

Response to the workshop and written evaluations gave it top ratings.

Workshop on the Art and Architecture Thesaurus

The 22 people taking part in Susanne Warren's workshop dedicated to the Art and Architecture Thesaurus (AAT) had the opportunity to learn "from the original source" the history and the purposes of the project, i.e., what the AAT is: "a data value standard, an indexing language, a list of single concepts arranged within facets, displayed hierarchically and alphabetically, designed for indexing and retrieval, an evolving language that is open to user suggestions, application- and media-independent, a coordinator of vocabulary for art, architecture, archives." They also learned what it is not: not a data structure standard, not a cataloguing or indexing system, not a glossary or dictionary, not an authority list of personal names, corporate names, building and institutional names, geographic names, or historical events. In short, Susanne Warren told us, "We are not the container, we are the content".

After a quick view of the variety of media in which art information resides —original works, visual surrogates, written media—as well as the problems with the language of art and architecture, the role of the "access point" in a computer-based information storage and retrieval was underlined—that is, "a field designated as a means of access to a record or file".

After a very useful theoretical approach to the field—definitions of standards, controlled vocabularies, thesaurus, their characteristics, methodology, and benefits—we were introduced to the structure of the AAT: facets, hierarchies, conventions, and the way to use it. All participants enjoyed the group exercises, slides, and an interactive search in the AAT for indexing terms. These were continued late in the evening of the same day. The workshop was structured like an ongoing dialogue between the instructor and the students. Several questions were enthusiastically discussed: Is the cataloguer sometimes more expert than the user? How to solve retrospective indexing? How often to distribute new versions of a thesaurus, knowing that a thesaurus is never ended? How much to translate from the AAT into other languages, and how to solve the problems of the equivalencies in different languages? What steps should be considered in developing a collection records automation policy?

The workshop helped us become more familiar with this huge, wonderful project in the art and architecture documentation field and eager to work with it. Fresh ideas came to our minds and future projects were encouraged. Thank you, keep in touch, and come again!

**Documentation
and Collections
Management Projects**

*Arts, Ethnography,
Rare Books,
Slides, and Photos*

Système informatique pour le Répértoire Théâtral National

Camelia Savu
Programmateur Principal
CIMEC—Centrul de Informatica si Memorie Culturala
Bucarest, Roumanie

Motto: " Pour nous, le théâtre a été une chance de survivre. Aujord'hui nous découvrons que la scène de théâtre était devenue une église où les gens se redécouvraient".

Le Centre d'Informatique et de Mémoire Culturelle met à la disposition des personnes intéressées à connaître l'histoire des représentations théâtrales une riche documentation concernant les spectacles présentés sur les scènes roumaines dès 1944 jusqu'à présent.

Tenant compte du fait que chaque représentation théâtrale constitue un acte de culture irrépétable, que les témoignages matériaux d'un spectacle (affiches, cahiers, programmes, chroniques) sont répandus dans beaucoup d'institutions culturelles (bibliothèques, musées, théâtres), que leur partiel inventaire est réalisé seulement en système classique manuel et, non pas en dernière instance, tenant compte du besoin d'information des spécialistes, des institutions théâtrales et du goût du public, on a considéré qu'une gestion centralisée et automatisée des données concernant les spectacles de théâtre serait de très grande importance et utilité.

De cette manière dans notre Centre on a projeté un système de stockage et de traitement automatique des informations concernant le spectacle dramatique, système qu'on a intitulé "STAR". Ce système, initié en 1982, a employé les téchniques et les facilités du logiciel existant à ce moment-là dans l'ordinateur de type IRIS.

Grâce à la compréhension exacte du but proposé et au professionalisme de ceux qui nous ont fourni les informations—les secrétaires littéraires des théâtres—on est arrivé à présent à posseder des données concernant 10.000 premières théâtrales, mises en scène après 1944 dans les théâtres de Roumanie, base de données qui s'enrichie chaque année à 100 fiches de premières.

En passant par la période difficile et compliquée du stockage des données (nous mentionnons qu'à present le fond de données actuel représente quatre parties de la cinquième du total des premières estimé à avoir eu lieu jusqu'à présent), notre attention s'est dirigée vers l'ouverture du système STAR vers les utilisateurs, pour la mise en valeur au maximum des informations disponibles et pour l'imposer comme instrument util au monde théâtral.

Pour la réalisation de cette aspiration une nouvelle action s'est necessairement imposée: le transfert du fond documentaire du système de type IRIS et un logiciel physiquement et moralement dépasé, dans un nouveau materiel et logiciel. La solution pour laquelle nous avons opté a été l'ordinateur IBM-PC et le logiciel (dans une première étape) Paradox. Cette action s'est aussi imposée grâce à l'extraordinaire développement des bases de données. Nous ne pouvions plus rester fidèles à un système conçu en 1982 seulement pour le fait que cette activité de reprojéction et implicitement de transfert du fond documentaire avait constitué une opération difficile à réaliser. Mais les avantages d'une pareille action ont été multiples,

71

tenant compte des facilités offertes par le nouveau système que nous avons projeté dans le nouveau matériel et logiciel:

- Tout d'abord en utilisant un système spécialisé de gestion des données nous avons obtenu: la réduction du temps nécessaire à l'introduction, au traitement et à l'interrogation de la base de données; l'accès rapide aux informations comprises; la réduction des coûts pour l'introduction et le traitement des données; l'accès interactif aux informations et l'accès en ligne par les utilisateurs.

Qu'est-ce que nous avons intentionné par la reprojection du système STAR?

- Tout d'abord, que les informations stockées aient un contenu adequat aux nécessités des divers bénéficiaires, qu'elles soient correctes du point de vue du contenu, confirmées et validées.

- Deuxièmement, pouvoir offrir des informations complètes sur les spectacles à une entropie correspondente, assurer la possibilité de retrouver d'une manière interactive des informations selon des divers critères et de suivre le phénomène théâtral au long des années.

Qu'est-ce que la modernisation du système STAR a supposé?

- Tout d'abord, le nouveau système STAR a tenu compte de toutes les caractéristiques de l'ancien système pour preserver ce qui s'est montré, utile et fiable et pour assurer une cohérence des données transférées dans le nouveau système.

- Deuxièmement, du point de vue des informations:

  - les données ont été organisées de façon qu'on puisse bénéficier de la facilité de représentation et de structure offertes par le nouveau système développé à l'aide du Paradox, ainsi que les règles de l'ancien système ne soient plus valables

  - on a aussi analysé et défini les procédures par lesquelles on peut intervenir sur le contenu de la base de données pour pouvoir perfectioner sa qualité.

- Troisièmement, la necéssité de la coéxistence de plusieurs types de documents dans la base de données.

Qu'est-ce qu'on a réalisé jusqu'à présent?

Puisque jusqu'à présent nous avons seulement stocké des informations concernant la première théâtrale, pour le commencement, nous avons réalisé le transfert du fond documentaire dans la base de données de type Paradox, activité qui a supposé:

- Là définition d'une nouvelle organisation de la structure de la base de données

- La définition des corréspondances entre l'ancienne structure et la nouvelle

- Des programmes de conversion de l'ancienne structure

72

- La conversion effective du fond de données constitué

- L'enregistrement des informations dans la base de données de type Paradox.

Les bases de données contiennent les suivants types d'informations définitoires pour la première théâtrale:

- Des données d'identification de la première théâtrale

- Des données concernant les réalisateurs de spectacle, le spectacle même, et l'institution théâtrale

- Des informations techniques

- Des données du type dictionnaire concernant les possibilités d'encadrer le spectacle dans des genres, types, et thématiques préétablies.

L'unité définitoire du système est la première théâtrale pour la caractérisation de laquelle on a utilisé 43 éléments déscriptifs, ordonnés dans 5 zones (éléments qui forment la structure du formulaire réalisé pour la collecte des données):

A. La zone d'identification de la première théâtrale, qui contient: le code unique pour une première et le titre du spectacle (original et/ou traduit)

B. La zone d'identification de l'oeuvre dramatique, source d'inspiration du spectacle, qui contient le titre de l'oeuvre dramatique (original et/ou traduit)

C. La zone d'attribution de la typologie, qui contient: la thématique abordée, le type du spectacle, et le genre dramatique

D. La zone des informations téchniques qui contient: saisons théâtrales, nombre de spectacles, nombre de spectateurs, encaissements

E. La zone du générique qui contient 37 éléments définitoires parmi lesquelles nous citons: l'auteur, le traducteur, l'adaptation à la scène, le metteur en scène, le scénographe, le compositeur, le chef d'orchestre, le corégraphe, les acteurs, etc.

En ce qui concerne le générique, il faut préciser que le nom de chaque acteur est suivi par le nom du rôle interprété.

Les données sont analysées et vérifiées dans des dictionnaires (dictionnaire d'auteurs, dictionnaire de genres dramatiques, dictionnaire de types de spectacle, dictionnaire de thématique de la dramaturgie); l'inclusion dans des dictionnaires est faite d'une manière contrôlée par l'administrateur des bases de données en collaboration avec des spécialistes du domaine.

Puisqu'on emploie plusieurs variantes des noms dans les sources d'information, dans la zone du générique, pour que les interrogations puissent répondre le mieux possible aux exigences des utilisateurs, on a réalisé des procédures de normaliser les variantes de noms à une invariante standardisée (ce qui correspond en bibliologie à la rubrique uniforme).

73

Pour le commencement, étant données les informations dont nous disposons, nous avons opté pour la solution de l'existence de deux principales bases de données:

• L'une, qui contient des informations concernant la première théâtrale (titres, source d'inspiration, date de la première, genre et type du spectacle, thématique, localisation)

• La deuxième concernant les réalisateurs des spectacles, la liaison entre ces deux bases étant représentée par le code de la premiére uniquement définie.

Par l'interrogation de la base documentaire existante, on peut obtenir les suivantes types de réponses:

• Le répertoire d'un théâtre (en détail ou résumé)

• La fiche de création du réalisateur

• Le répertoire théâtral structuré conformement à une certaine thématique, un certain genre ou type de spectacle.

Qu'est-ce que nous nous proposons dorénavant?

Pour obtenir une information aussi complète que possible sur le spectacle de théâtre, nous nous proposons d'enrichir l'information dont nous disposons avec de nouvelles données comme les suivants:

• Des données concernant le réalisateur (des données biographiques)

• Des références critiques

• Des données sur l'oeuvre dramatique

• Des données sur l'histoire de l'institution théâtrale

• Des données techniques sur la salle de spectacle (types, caractéristiques, instalations techniques)

• Des données statistiques sur la perception du spectacle par le public.

De cette manière, nous allons pouvoir mettre à la disposition des personnes intéressées (critiques de théâtre, specialistes, institutions théâtrales) les instruments nécessaires en vue de:

• Établir les répertoires conformement aux exigences du public, aux disponibilités artistiques et téchniques des théâtres

• Suivre l'audience du public spectateur d'un certain spectacle

• Analyser la réceptivité du public vers un certain créateur de théâtre (dramaturge, metteur en scène, acteur, etc.).

74

An Answer to "Why the BRANCUSI Interactive Multimedia Project?"

Ecaterina Geber
Systems Development Department Chief
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

Although Romania's extended information system for cultural heritage is comprehensive in comparison with those in Central and Eastern European countries, we have been isolated for many years and delayed by the limitations of available technology. Now, as one can see, we have an open door, but we do realise that it will take a long time, effort, and financial support to make our system meet requirements—more accurately, our dreams.

So, Why the BRANCUSI Interactive Multimedia Project?
We naturally want to re-establish our position in Europe and the international community as quickly as possible, by looking ahead, rather than spending all our time and energies in catching up.

Our experience enables us to look ahead and cope with new human thinking which is directly or indirectly connected with leading-edge technology.

Like anyone else, we have limited financial possibilities. It is particularly important that we develop and be involved in projects with other countries, projects that have a special relevance to Romanian as well as universal cultural heritage. This is an opportunity to have a major role and make a significant contribution to the development of the European and international cultural information thesaurus.

Following the discussions of the development of image databases and interactive multimedia, in Copenhagen, May 1991, at the CIDOC conference, Romania has been involved as a development partner in a multilingual, interactive, multimedia resource: the BRANCUSI Interactive Multimedia Project, focusing on the work and context of the major 20th-century sculptor, Constantin Brancusi. Our fundamental objectives are to create innovative contexts to complement the existing books and other publications on Brancusi, for research by curators and specialists as well as more general informational use in art museums and galleries, education, distance learning, reference libraries, and other locations by means of international electronic publishing. The scope of the content extends to text and sound, image database, film, and video relating to Brancusi's work, background, influences, critical response, views, photographs, exhibitions, museum documentation, commentary by artists, art historians, and others.

The first and very rightful question one might ask is: "Why Constantin Brancusi?"

75
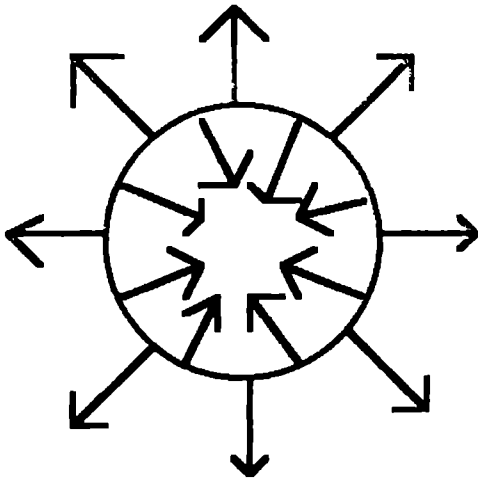
Figure 1

Constantin Brancusi, with deep roots in Romania, a major part of his creation achieved in France, represented in many public collections in Europe and extensively in the art museums in the United States, is the appropriate subject for a practical European/international collaborative interactive multimedia project based on the work and contexts of a single artist. He is a key 20th-century artist: because he was a sculptor, interactive multimedia, with its ability to incorporate film and video, is ideally suited to maximising information possibilities over and above the potential of books, catalogues, videotapes, etc.

The second question which reasonably follows is the problem of priorities. Is this the top priority for cultural information systems in Romania? The answer is simple: It is an opportunity to look ahead and cope with new human thinking and new technologies: multimedia, interactivity, and image (still and moving) processing.

The first thing to face was the complexity of the challenging and ambitious project. The initial discussions in Bucharest in August 1991, followed by discussions in Great Britain, the United States, and France led to the setting up of the project and the beginning of work on Phase One: research and production of an interactive multimedia "Demonstrator" using biographical material on Brancusi and "in depth sampling" of material related to the Maiastra Series, to investigate a multilevel interactive approach and range of content.

We decided to approach it using the so called "middle-out" technique and go both ways as far as we could.

Some of our purposes are:

Figure 2

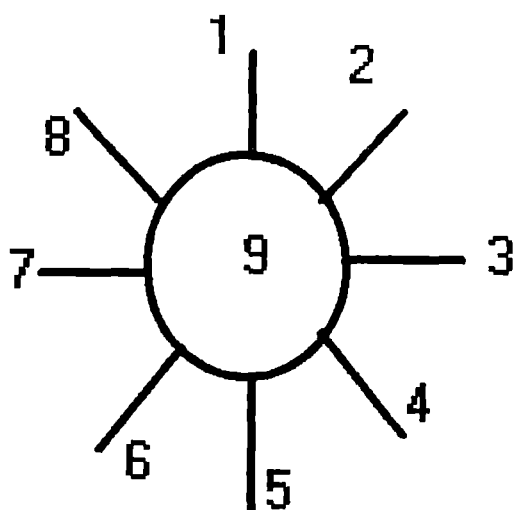1. Range of content: A project of this scope can be achieved only through collaborations among a wide range of participants (art museums, cultural authorities, art historians, cultural historians, artist as commentators, educators, end-users, information technology partners, computer hardware companies, computer software companies, telecommunications companies, data standards organisations, intellectual property rights organisations)—this width is an open door to the future.
    Access to culture for a large number of publics
    Better information
    Pluralism of points of view
    Variety of approaches and experiments.

2. Collaboration and "across the board" approach are two of our main aims: to investigate and demonstrate that action carried out jointly, on the basis of consensus, is more efficient and more effective than what could be done by the members individually.

3. Information sharing: Information interchange leads to both innovative and pragmatic solutions.

4. Multilingual: This new interactive multimedia resource will enable end-users to explore in their own ways a wide range of material in English, French, and Romanian, broadening access in a multicultural society but at the same time protecting cultural diversity.

5. Museums, art galleries, and cultural centres: One of the major aspects investigated by the project is the way it will be used in museums and art galleries to enhance their role and make them become an active element of everyday life, centres for leisure learning and research, and at the same time to maximise the need to see and experience the original works as distinct from copies and images.

6. To foster interchange of technical information: Between current participants and prospective users in order to establish the basis of a future network.

7. Make use of existing materials looking forward to better arts/economy interchange.

77

8.   Use of international standards, thesaurus, lists of authorities, regarding text, image (still and moving) and sound. Standards—not as an end, but as a means of communication and data interchange, a model for future other collaborations.

9.   Openness regarding the range of participants, users, organisations, and countries as well as technology is probably one of the most important features of the project, especially as we (those from Eastern Europe, especially from Romania) are able to evaluate the consequences of the isolation in which we used to live.

Back to our "middle-out" model:
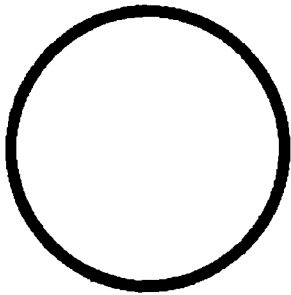
Figure 3

Is it too simple or too complicated?

This could be everything or nothing. A whole world of hopes for one coming from Romania, an Eastern country and all that it embodies. If we are able to achieve only a part of it, it will be, for us, a large step ahead. Our conclusion strongly reminds of Constantin Brancusi's words:

"Simplicity is not an end in art, but one arrives at simplicity in spite of oneself, in approaching the real sense of things. Simplicity is complexity itself, and one has to be nourished by its essence in order to understand its value".

78

Informational System of the Village Museum: CAMUS Programme

Iuliana Ciotoiu
Documentation Department Chief—Village Museum, Bucharest
Mihaela Dâmbu
System Administrator—Village Museum, Bucharest
Florin Patrascu
Programmer—Royal Ordnance
Bucharest, Romania

Since 1936, when the Village Museum was established, it has acquired an impressive patrimony of monuments and objects dating from the 17th to the 20th centuries, as well as a rich inheritance of ethnological information related to rural architecture, ceramics, textiles, costumes, decorations, icons, furniture, rites, household appliances, and installations demonstrating traditional crafts, etc.

This information represents the "Scientific Catalogue" of the institution, structured in a record card system which allows manual retrieval, and which consists of 100,000 photo cards with negatives and photographs, 30,000 object analytic cards with photographs, 200 cards of the monuments, 2,500 cards for the preservation and restoration of the patrimony, and 500 cards for contemporary folk craftsmen.

Another category of information included in the "Scientific Catalogue" contains 28,000 glass negatives, 23,000 slides, 4,000 plans and drawings for a number of architectural monuments in the Village Museum and in the country, 900 survey reports, files for households and exhibitions, 15,000 volumes and journals, and 10,000 archive documents.

The continuous enrichment of the patrimony with objects and ethnological information made necessary a coherent record system implementation, carried out since the 1950s in the form of object and photo cards, to which specialists brought structural and content revisions.

It was considered useful to implement a project for the complex exploitation of this important patrimony of information, which should include an informational system of scientific interest, accessible to both specialists and interested members of the public.

The project, which was called "Scientific Catalogue of the Village Museum" (CAMUS), offers the storing, conservation, and administration of information, as well as the setting up of a complex system for data retrieval and their reorganisation at all user levels.

CAMUS is a documentary, relational database, including both documents and pictures regarding the whole ethnographic collections of the Village Museum, recorded by a scientific listing as a result of identification, typology determination, classification, and grouping according to specific criteria. The CAMUS project was designed as a unitary system of databases and image type information, correlated with a thesaurus of terms classification.

The CAMUS system itself does not exclude the manual recording used so far, but adjusts the manual recording (cards) to automatic data processing, thus facilitating rapid information

79

retrieval, as well as the possibility of interconnections to other informational networks, both national and international.

An efficient implementation of the CAMUS system required the restructuring of certain primary documents (photo cards, object analytic card, monument card) and, respectively, the drawing up of new types of cards (ensemble of monuments card, elements of a monument card, correlative card, topographic card, movie type card, thematic card, audio-video card, etc.). This extremely complex activity is under way and will be carried out in several stages with the participation of many specialists from the Village Museum.

The museum cards used for the project will register various aspects of the historical-temporal, ethnic, social-economic, spatial, functional, typology determination, as well as the analytic description of the researched phenomenon, thus ensuring a secure scientific foundation for the operations entering the catalogue.

One of the main functions of the CAMUS information-documentary system is the use of the thesaurus of terms (the controlled vocabulary). Taking into account that the thesaurus of terms is an essential working tool, it was suggested that the specialists of the Village Museum should re-examine the existing 15,000 thesaurus terms (conceived in 1982-1986) that were used up to now in the national inventory system for ethnographic heritage, co-ordinated by CIMEC, the Information Centre for Cultural Heritage of the Ministry of Culture. Such an activity, to reconsider the thesaurus of terms, will be a complex and lasting one, because in ethnology, the classifications involve more connections than in other research fields.

A series of objectives regarding the thesaurus of terms were identified in the project:

• Definition (redefinition) of the thesaurus of terms
• Completion of the thesaurus of terms
• Positioning of terms
• Drawing up of a trilingual version of the thesaurus of terms.

Having in mind the various ranges of information offered by the "Scientific Catalogue of the Village Museum," the CAMUS system suggests an interactive approach to the numerous specific requests, offering the following facilities:

• Consultations of the databases on various subject criteria
• Conversational examination of the databases and image display
• Indexing and inventory of the collections
• Administration of the collections and patrimony acquisitions
• Selection and administration of the heritage exhibitions
• Administration of the preservation and restoration operations for the patrimony.

Taking into account experience acquired in other countries regarding databases composed of text and images, as well as existing information in specialised magazines, it was thought necessary to improve utilisation possibilities for the documentary databases in the cultural field by attaching the image to the object description.

In this way, more complete data makes possible a scientific approach to research, as well as more information available to the general public. Images can show drawings, maps, photographs, monuments of architecture, ethnographic objects, original documents, etc.

The results that can be obtained from a database depend on requirements, design, and, of course, the hardware and software used. At any rate, access to images is direct, differing only in storing and display mode.

The implementation of the objectives suggested by the CAMUS project determined the endowment of the Village Museum with high-quality equipment from the technical point of view:

- Microcomputer compatible with IBM-AT sub. MS-DOS Version 5.0
- Scanner
- Laser printer

The CAMUS system becomes functional with such a configuration together with adequate software. This was designed as a relational database substantiated by the dynamic and response speed of three renowned programming languages, the most recently recommended in the development of the rapid databases (C++, CLIPPER). The CAMUS software could be single-user or multi-user.

Here are some characteristics of this software:

- 1 million recordings per DBF type unit
- 128 recording fields
- Image fields that can reach a colour resolution of 1024 x 768 x 256 pixels
- A powerful system of reports generated by means of a "user-friendly" dialogue
- A powerful set of macro-instructions for data retrieval, numerical or character type.

The transfer of images on the computer makes it possible to display the image in a simple and very appealing manner with proper resolution.

The CAMUS product has powerful information retrieval mechanisms. In fact it is not a so-called "turnkey" application, but an examination and maintenance frame for the databases; with its help specialists can examine a large volume of data and can create intermediary study points, yet always be able to save the working session and everything connected to it (filters, logic relations, images, types of reports, etc.)

Such generated databases could be used simultaneously, and to carry out computerised research work. The databases of the system could be approached on request by cross-references and/or synchronistic retrievals, as they are designed as separate entities.

The system designed by the specialists of the Royal Ordnance according to the programme-scheme presented by the specialists of the "Scientific Catalogue" section of the Village Museum is in the testing stage with end-users.

During the cooperation for the CAMUS system design, as well as the tests carried out, it was found that under optimal conditions it meets the specific requests of the museum's activity for which it was designed.

81

Taking into account technical performance and different ways of use, CAMUS can become a competitive product for cultural databases designed to create and administer documentary databases of different kinds under exchange of local, regional, and international information.

Computerised Management for Photo and Slide Collections

Lucia Cusnir
Programmer
Museum of Folk Civilisation
Sibiu, Romania

Automation has penetrated culture in our country for more than 10 years. An information system (The National Cultural Heritage Information System) is in use. A national database was designed, structured on heritage fields, with regional or local distribution possibilities. This system includes the main items of museum collections and was performed by the specialists of the Information Centre for Culture and Heritage.

Since last year some of the greatest museums in our country were equipped with IBM-compatible PCs. This made it possible for these museums to perform some specific projects of their own. These projects should simplify and make easier the laborious work of curators and custodians and should offer modern technologies for data retrieval.

Because of its narrative-descriptive nature, which involves subjective interpretations, the cultural information is difficult to adapt to the standards and strictness demanded by automation. So, the experience that was accumulated by those who have been working for the National Cultural Heritage Information System is very significant and constitutes an important reference point for designing other projects.

Most of the museums own (beside objects) many other collections, like photos, slides, designs, books, and documents. All this represents a huge volume of valuable information that should be organised using modern techniques, thus offering modern ways for superior re-evaluation.

The basic problem is structuring these collections by taking into account the quality of information contained, as well as retrieval requirements.

I will present a suggestion for managing a collection of photos and slides, an application that works at the Museum of Folk Civilisation in Sibiu, where I work as a programmer.

Our museum owns a collection of 10,000 slides and 50,000 photos as a result of the local research work performed by the curators during the last 50 years.

After studying this collection and also the object cards (each photo or slide has an associated object card), I considered that the following data processing structure would be suitable:

1. The catalogue of themes file, created from the beginning with possibilities of editing it during data entry as well. It contains the main themes (subjects) represented in the collection. Its records contain the following fields: the code of the theme (subject) and the name of the theme.

    The main most frequent themes are national costumes (for women, men, children, old men, ornaments), pottery, trades, customs, architecture (images from villages and

towns, historical monuments of art), foreign ethnography, folk musical instruments, and many others. Such a collection of photos and slides spans many domains: ethnography, history, geography, and also art and architecture. In exchange, the project simplifies the work during data entry; it is consulted during data entry and also during data retrieval. By means of these records, one can classify all the records of the main database, the photo or slides files, according to the desired subject.

2. The main files used in this project are the photos and the slides files. The principal content fields are the inventory number, the size, the code of the represented theme (as in the catalogue file), the content (explanations, details on the theme), the ethnic origin, the locality and the district of origin or the country (if necessary) of the object represented (it can be a museum, an exhibition, or a special collection).

Using the "holder" field of the photos or slides files we make connections with the collections of films (for photographs) or with the collection of museum objects (if the represented object is in our own collection) by the inventory number.

Structured in this way, data are processed under Paradox, a fast, full-featured, and easy-to-use relational database management program that permits us to select information in many ways using on-screen query forms and many other facilities.

84

Public Cot

Authors:
Lena Varga, art historian
Alina Rucai, mathematician
Mariana Velicu, Chief of Documentation Department
Victoria Anghelescu, Deputy Director
Cotroceni National Museum
Bucharest, Romania

Introduction to the Psycho-Sociological Study

Cotroceni National Museum, open at the end of December 1991, is a museum that raises a high interest both by reintegrating a historic structure into the public circuit and by exhibiting less-known aspects of old and modern art and history (including the monarchic period).

It is presumed that these two reasons for visiting the musuem will disappear, or, in any case, become less powerful. That is why we had the idea of getting information on the museum's public from a psycho-sociological point of view—information that will allow us in due time to develop a museum marketing study and an educational strategy aimed at the formation of a specific audience on a long-term basis.

We developed a questionnaire with items divided into four groups, depending on the purpose of the questions:

1. Social-professional structure
2. The cultural standard (school instruction and level of cultural experience)
3. Frequency of visiting museums
4. Sources of information concerning our museum and the points of interest about it.

Technically, there are two types of possible answers: formalised (encoded, dichotomous, or quantitative) and free-form (those which cannot be formalised). After a first analysis the results will be quantitative and statistical. We decided to use the computer because the most important and interesting thing for us is to obtain conclusions from the correlation between the answers, either grouped two by two (e.g., age/interest in museum; address/interest in museum), or in groups having a basis item (e.g., cultural standard/age, sex, job; interest in museum/school, age, job, sex, etc.).

We presume that the results of this first study will give us not only the answers to our already-mentioned interests, but also new ways for promoting this research.

For this study we collaborated with a mathematician who developed special software (the first of this kind in a museum in Romania), named "Public Cot" as follows.

Statistical Processing By Computer
The sampling

The first problem that arose in working out this sociological study is to acquire a sample that is expected to be representative of the population of visitors.

This was realised by planning four periods of sampling during one year: 19 May - 29 May 1992, 18 August - 1 September 1992, 25 October - 3 November 1992, and 21 January - 1 February 1993. All our visitors—except children younger than twelve—are to be questioned in each period mentioned above.

These periods were set and considered as representative ones, by taking into account our computer database that consists of a previous evidence of the number of visitors per day, during one year.

We estimate that the number of subjects per period will be about 1,000, so we would obtain a sample with an initial volume of about 4,000 subjects for the whole research. In this case, the permissible error of representation is 1.549 percent for every dichotomous characteristic that is associated with the variety of the cultural behaviour and which has a maximum variance of 95 percent for the confidence level. This is calculated by:

$$n = p*q*t2/dx2$$

where:

 n = the volume of the sample,

 p = q = 50 the weight of the population in each of the value of dichotomous characteristic,

 t = 1.96, which is the value of the t-test corresponding to the significance level alpha and

   ~ degrees of freedom, and

 x = 0.05%.

So, dx = ± 1.5495 = the permissible error.

We emphasise that the equality between p and q shows the maximum of variability of a dichotomous characteristic.

The sample of the 4,000 subjects was distributed in four smaller samples, according to the population distribution from the four periods. (Note: The word "population" is used in its statistical sense.)

The Encoding of the Questionnaire

The questions are formulated in everyday language and are placed on one page only. Everything was done on a psychological basis and linked with financial possibilities.

The questionnaire consists of three types of questions. The first is formalised and analysed using statistical support. The second has an informative character (e.g., "What suggestions for our museum do you have?"). The third type is to determine a certain psychological state of the subject (e.g., "What is your name?").

The formalising of the first type of questions (in which each question was given a code) was done in order to perform the information processing by computer. Thirty-three variables were achieved this way, structured according to the interest of our research.

So, many of them are dichotomous variables. Others have different scales (e.g., "occupation" has the largest scale—it has 17 possibilities, four of them reserved for categories of artists with whom our museum has close contact).

86

Statistical Processing Goals

In order to perform a general survey for each item in the questionnaire and to use it in further analyses, we need to obtain the absolute and relative frequencies (upon each of the options) per question, as well as means and standard deviations and histograms (the images of the relative frequencies).

We are interested in what degree of association or correlation exists between the answers to some questions, and, if any, how could it influence the answer given for the "key-item" of the questionnaire ("Will you return to visit our museum?").

In order to calculate this correlation, we decided to use the "Pearson" coefficient.

First of all, we suppose that dichotomous variables are measured on an interval scale. But then, we shall analyse them according to their special features, using the tetrachoric coefficient (in fact, an estimation of it—the r cos coefficient).

In case one variable is a true dichotomy consisting of two levels on a nominal scale and the other is measured on an interval or ratio scale, the point, bi-serial correlation coefficient, r p b, provides a measure of association. If the variables are approximately normally distributed, we may use the bi-serial, r b.

We intend to realise contingency tables for providing a chi-square test of association where the number of degrees of freedom is greater than or equal to two. In other words, for 2x2 tables, we shall obtain the o coefficient.

The statistical significance of the coefficients will be checked with a Z-test (test of significance of the difference between those binomial proportions) or a t-test (test of significance of the correlation coefficients).

Statistical Processing by Computer

Our statistical goals will be worked out by "Public Cot" software especially created for this research. It is designed in Turbo Pascal, Version 6.0, and it consists of a main program which calls some procedures, each of them including (or not) other local procedures.

At this moment (the software is not finished) it has these main procedures:

1. Input Data: This procedure creates a data file and file record type. Every record consists of information on one subject only.
2. Statistics: This procedure reads the data from the previous created file and processes them statistically. It calculates absolute and relative frequencies, means, and standard deviations on each item.
3. Histograms: This procedure provides images of the relative frequencies per question.
4. Correlation: This procedure performs the Pearson coefficient for each of the two questions required and displays the critical value of the t-test from tables for the level alpha = 0.001 and alpha = 0.005
5. Contingency: This procedure will produce contingency tables for each of the two questions required and will calculate the chi-square formula.

87

When we have all the data, we analyse which of the special correlation coefficients will be used (depending on the distribution—normal or not normal—of the variables) and we introduce another procedure that will perform them.

Obviously, we offer the possibility of printing out the information obtained after processing.

If it is necessary, depending on the course of the research, we will modify either the software or the statistical goals.

Le système de traitement automatique des livres anciens

Mariana Iova
Directeur de projet
CIMEC—Centrul de Informatica si Memorie Culturala
Bucarest, Roumanie

Le livre, dans sa double fonction d'objet d'art et d'instrument de recherche et d'éducation, a toujours joué un rôle important, devenant la condition fondamentale de la vie culturelle.

Dans une bibliothèque, la mission du livre est essentielle dans le développement de la vie intellectuelle et, comme objet de musée, le livre devient l'instrument qui exprime le niveau de civilisation d'un peuple, tout en contribuant à son éducation.

En associant à la bibliothèque et au musée l'informatique, on a créé la possibilité, disposant des moyens électroniques de traitement des données, d'obtenir, à un maximum d'opérativité, d'informations nécessaires à la mise en valeur du livre bibliophile.

En Roumanie, il y a eu une constante préoccupation pour l'accumulation, la protection et la mise en valeur des biens culturels qui représentent tant la création du peuple roumain que de la culture universelle.

Le livre appartenant au patrimoine national—c'est à dire les livres roumains entre 1508-1830 et c'est à dire les livres étrangers imprimés jusqu'à 1800—qui sont conservés dans les bibliothèques, les musées, les archives, et les dépôts spécialement organisés par le Département des Cultes de tout le pays, constitue le principal objet de recherche dans ce domaine.

Le Centre d'Informatique et de Mémoire Culturelle du Ministère de la Culture a, jusqu'à présent, créé une base de données qui contient environ 35.000 descriptions d'exemplaires de livres anciens roumains et environ 5.000 descriptions d'exemplaires de livres anciens étrangers. On a réalisé cela par la création d'un système national dans lequel on a enregistré tous les possesseurs de livres anciens (bibliothèques, musées, archives, institutions de culte, etc).

La standardisation internationale dans le domaine de la description bibliographique du livre ancien (l'ISBD[A]), élaborée par l'IFLA (International Federation of Libraries of Art), le format d'enregistrement des données bibliographiques à vocation internationale (MARC), mis en oeuvre sous les mêmes auspices, ainsi que le travail concernant le Format Commun de Communication (le CAF), ont constitué des documents qui nous ont énormément aidé dans l'élaboration du format d'enregistrement des données concernant le livre bibliophile. Puis, les spécialistes ont tenu compte des besoins nationaux dans le domaine concerné, aussi bien que de ceux imposés par le transfert des données au niveau international.

Les éléments de données inclués dans la description assurent les informations nécessaires pour une série d'activités concernant le livre susceptible d'appartenir au patrimoine culturel national: la sélection, l'analyse, la reconstitution et l'interprétation des documents,

89

l'organisation des systèmes de référence, la constitution des instruments a caractère collectif de recherche, des thématiques d'expositions, etc.

Dans le cas des enregistrements dans le format, les champs correspondent tout d'abord aux grandes catégories d'informations bibliographiques: le sujet du document, sa description, la responsabilité intellectuelle, son identité, etc. L'enregistrement sur ordinateur est réalisé par le groupement primaire des champs conformément à ces catégories fondamentales, en plusieurs blocs fonctionnels:

Le *bloc d'identification* contient les numéros qui identifient l'enregistrement du livre (le numéro de la fiche, le numéro d'enregistrement, le numéro de la séquence, le numéro d'inventaire, etc.).

Le *bloc des informations codifiées* contient des éléments de données codifiés nécessaires à certains triages, classifications, informations (la catégorie du document, l'alphabet, la langue du texte, le pays d'édition, le statut de publication, la forme physique, la marque typographique, la provenance, l'état de conservation, les critères de bibliophilie, etc.).

Le *bloc de relation de l'enregistrement* contient des indications standardisées de liaison de l'enregistrement respectif à d'autres enregistrements (la relation entre les livres liés ensemble, entre les tomes du même livre, ou bien la liaison au fichier d'art).

Le *bloc descriptif* contient les éléments de description proprement dite du document (l'image intégrale de la page de titre, le titre, l'édition, les dates de publication, la description physique du document).

Le *bloc des notes* contient des informations sous forme de texte libre, qui décrivent des différents aspects de l'ouvrage destinés à amplifier la description formelle du document (*notes générales*: des références bibliographiques, des références supplémentaires concernant les éléments de description, le contenu; *notes spécifiques:* celles se référant seulement a l'exemplaire décrit, l'état de conservation, la reliure, l'ex-libris, des notes manuscrites, les ornements).

Le *bloc de la responsabilité intellectuelle* (ou le *bloc des vedettes*) contient le nom des personnes et des collectivités responsables de la création du livre décrit, en faisant la distinction entre la responsabilité primaire et celle secondaire.

Le *bloc de l'analyse du sujet* contient des champs d'identification du sujet tant à l'aide d'un système numérique C.Z.U. que par des descriptions ou du texte libre.

Ces fonctions concourent, par des programmes adéquats, à retrouver les informations et à créer les instruments de recherche et de références tels que: des statistiques et des inventaires de bibliothèque, des listes d'acquisition, des bibliographies de références ou rétrospectives, des catalogues collectifs par types de documents, des bulletins de signalisation des documents susceptibles d'appartenir au patrimoine national par domaines, siècles, éditions, possesseurs; des études concernant l'état de conservation, la restauration, la circulation des livres; des fichiers d'autorité, des index, etc.

À présent, la section des livres bibliophiles du Centre d'Informatique et de Mémoire Culturelle reçoit et enregistre sur l'ordinateur les informations complétées dans le format par des spécialistes de tout le pays sur les livres anciens roumains et étrangers conservés en Roumanie. Elle met en même temps en valeur la base de données créé par l'élaboration des ouvrages tel que: le Bulletin informatif "Livres anciens"; des fichiers d'autorité, des catalogues collectifs organisés par les départements du pays, la Bibliographie de références des livres anciens, et des listes de biens culturels protégés.

Dans les années à venir on se propose de réaliser: le fichier national d'autorité et le catalogue collectif national du livre ancien aussi que la finalisation de la Bibliographie de références.

**Documentation
and Collection
Management Projects**

*Archaeology, Numismatics,
History, and
Natural Sciences*

Computer Assistance in Archaeological Chronology: Realities and Prospects

Constantin Scorpan
Analyst, Archaeological Database
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

I have conceived my paper as a plea for both national and international cooperation in the attempt to develop a computerised archaeological-chronological system, a possible challenge in order to initiate a Southeastern European project.

The national archaeological database in Romania has been built and integrated into an information system for national cultural heritage. The system was founded in 1982, but came into being slowly. The archaeological database includes only movable archaeological items, not monuments and sites. Unfortunately, since 1990 we have met with some difficulties generated by the transition from communism to democracy and a free-market economy. Once these impediments have been overcome, the database may enable our Centre to implement new activities and edit useful and interesting materials. In the same time we plan to approach new projects.

At present I am busy with the controversial problem of the division into periods and establishing the relative and absolute chronology of Romanian archaeology. The archaeologists are too well aware of the many-sided and complex aspects of the chronology—within the same zone, since the differences from one province to another are easier to explain. Every year archaeological excavations, as well as random findings, enrich archaeological knowledge extensively. Many of them concern the division into periods, and relative and absolute chronology. As new data and aspects appear, they change the generally accepted parameters (phases, cultural variants, cultural facies, theories, and hypotheses). The alteration of the data concerning even one single civilization or cultural aspect brings about a new approach to the other cultures as well, and changes the whole.

In my position I have come across quite different and divergent data delivered by the museums and supplied to the database. Here are some examples of such numerous and contradictory data regarding prehistoric archaeology:

The Cris-Starcevo culture	between 5500-4500 or 5500-3800 BC.
The Linear Pottery culture	5000-4500 or 4500-4200 BC.
The Hamangia culture	5000-4500 or 4400-3800 BC.
The Petresti culture	4000-3400 or 2500-2300 BC.
The beginning of the Bronze Age	2000/1900 or 1700 BC.

The radioactive-carbon method (C14) as well as other modern technologies have been scarcely used in Romania during the latest period. But even such methods may often generate errors and surprisingly different data. For instance, the above-mentioned Boian culture in the Spantsov phase was estimated by means of the C14 method to range between 4036 ± 100 and 3600 ± 100 BC. The same settlement provided different dates for the Gumelnitsa A2 culture, i.e., Gumelnitsa A2 = 3915 ± 150 ; 3725 ± 100 ; or even approaching 3500 BC (identical with Spantsov phase). However, the beginning of Gumelnitsa A2 phase

93

cannot be earlier than the Boian-Spantsov phase, and moreover we may not neglect the Gumelnitsa A1 phase, whose beginning is established at about 3450±100 BC (Dumitrescu and Vulpe, p. 55).

Differences are even more striking between chronological hypotheses of the scholars in neighboring countries regarding a culture that covered a territory which is now divided.

The consequence was the need to create a consistent, single chronological system to be used on the computer, with operating alternatives, a new distinct and specific database with special programs that make it possible to record and re-record new information or hypotheses. The stratigraphical and typological data for each archaeological site of a given culture may thus be permanently considered in order to reach generally valid conclusions.

I hope that the computer may help us achieve agreement or even consensus. So we have made an imagined archaeological division into periods by form of alive, dynamic schema, a whole mechanism exhibiting the succession of cultures (vertically), as well as horizontal spreading within geographical areas. My project is apparently simple, but its implementation in Romania requires much time, patience, and complex programs.

This project suggests two main stages: A and B. In stage A1 a reference library comprising the basic data as well as the latest bibliography becomes essential. This documentary store will be the very core of the real database. Stage A2 will be the collaboration with specialists for establishing a consistent database. The database proper will involve the extensive information gathered from analytical cards filled in by the specialists in the distinct subject areas relating to one or another civilizations. Their signature will guarantee the scientific standard of the database.

The collaboration will have two directions:

1. Talks about epochs and cultures
2. The filling in of the standard card (this card is an analytic questionnaire on archaeological chronology, with fixed and even compulsory fields), which will represent the uniform format for data gathering and processing as well as inquiries in the chronological-archaeological database. A final meeting of archaeologists in order to reach an agreement, and a compromise among conflicting opinions, would be desirable.

Considering the large amounts of information, a number of theories and hypotheses, and the reticence of some of our archaeologists to use the computer, stage A will probably take a long time.

Here is a suggestion of how an analytical-chronological standard card and its compulsory fields should look.

analytical-chronological archaeological card
Name of the author:

general data
NAME of the culture (civilization, tribe)
  Name in Romania:

Name in the neighbouring country where it spread (if any):
EPOCH:
PERIOD:
DURATION (DATES):
Established by:
- typological-stratigraphical methods:
- radioactive-carbon (C14) method (if any):
- dendrochronological method (if any):
SOURCES (and laboratories) of determinations:
TERRITORY occupied:
    Country:
    Province:
    Zone
    Geographical limits (streams of water, mountains):
    Localities of the maximum dispersion (on the basis of
    which a map can be drawn):
CULTURAL PHASES:

emergence of culture; beginnings
The CULTURE previously existing in about the same geographical area:
The ORIGINAL culture (mother-culture)
Name:
Phase:
Zone:
SYNCHRONISM
NEIGHBOURING cultures which influenced the emergence of the new civilization:
ZONE of the birth:
Absolute CHRONOLOGY:
SOURCES (and laboratories):

development of culture
Each stage and phase should be mentioned. For example, on the first phase (A or 1 or ...) the following fields should be filled in:
The AUTHORS of the theses and hypotheses.
ZONE:
DURATION:
SOURCES:
NEIGHBOURING cultures with influences and cultural exchanges.
NEIGHBOURING cultures without influences and exchanges:
ENEMY cultures:

the end of culture
LAST phase:
ZONE:
DURATION (dates):
SOURCES:
NEIGHBOURING cultures
with influences:
without influences:

95

ENEMY cultures:
The NEW culture that causes the end of the former:
Is this a foreign culture or a local, inheritor one:
The WAY the replacement occurs (peacefully, violently, by assimilation and continuation):
Other data and remarks:

Stage B will be in fact the accomplishment of the chronological-archaeological database proper.

A preliminary selection, a final study, a synthesis is required, followed by the recording of the data in computer storage.

Simultaneously with stage B or even A, a program or several complementary ones will have to be developed in order to sort, select, and organize the data so that it might be displayed and consulted on the screen.

The program will assist the user in consulting the chronology or division into periods in at least two ways: vertically and horizontally.

Vertically, that is following the temporal occurrence from old to recent times, observing the relative order of the periods, giving a scheme according to absolute chronological data and with interchangeable relations.

Horizontally, the information is presented observing geographical criteria, in a certain area or moving from one zone to another, mentioning the names of provinces, epochs, cultures, tribes, years, or centuries and also the relationship between cultures (within suggestive forms like maps).

The interrogation may be accomplished in at least four regular ways:

1.   We may ask a definite zone in a definite epoch (culture, phase, period, century, year, millennium)
2.   We may ask a specific epoch in a specific zone; the answer will be identical with the first
3.   We may ask a year or a century clearly specified in a definite zone
4.   We may ask a culture, a civilization (or a tribe), clearly specified.

We shall also be able to get the general sequence of division into periods from Paleolithic to LaTene. Alternatively we can ask:

•   The name of the culture = division into periods
•   The name of the culture = relative chronology
•   The name of the culture = absolute chronology
•   The name of the culture = synchronous cultures = comparative chronology.

The answer will be displayed in the form of a text and figurative forms or synoptical tables together with maps of cultural spreading, contacts, and intermingling. Each set of answers and each group of data will be accompanied at the same time by:

•   Name of the archaeologist-author

96

- Hypotheses (unconfirmed or not generally accepted yet) with the names of the authors
- A rubric with the main and most recent bibliography.

The answers, texts, and figurative elements will be displayed vertically, in a column readable downward, similar to the flow of time, with the antecedent (on top of the display) and the subsequent element (at the bottom).

This column will display a complete scheme of the division into periods. The main culture stem will simultaneously display the branches of kinship, the influences and interferences, or just casual contacts with neighboring tribes. It becomes obvious that we plan a unitary system which should display the complex ethnic relationship at a given time in a given zone.

The same four regular ways of interrogation (above) will be used for the horizontal display. The answers will have the same display pattern, in a spatial manner, within a geographical zone. In this case, the whole image will be more complex, providing texts as well as colored maps.

More particular situations appear once we move from the archaeology of prehistory to ancient history. The last phase of LaTene is synchronous with the Roman Empire civilization. While Dacia existed in to-day Transylvania and Dobrudja was part of Moesia Inferior, the rest of the tribes were living in the last phase of LaTene, greatly influenced by the Romanization process.

After the foundation of the chronological information system it will be permanently brought up to date. The system will provide assistance in accomplishing numerous processes and proceedings (besides those already mentioned). Here are some of them.

- Checking the relative and absolute chronological dating which refer to a group or all the items in the archaeological database
- Checking and making actual the dating of the items in catalogues or seriations
- Statistical and comparative analyses
- Emphasizing the zones with the least modern methods of dating
- Checking and making actual the dating of the recorded archaeological sites; changing a site from one phase to another, and so on.

Here is an example of an analytical card. The question-fields on the card are compulsory, and the answers refer precisely to Cucuteni culture. Also given are some reasons supporting the assertions and information selected on this card.

AUTHOR: Silvia Marinescu-Balcu, Institute of Archaeology in Bucharest.

general data
NAME of the culture
   in Romania: CUCUTENI
   in the neighbouring country where it spread: TRYPOLIE
EPOCH: Neolithic.
PERIOD: Eneolithic (Cuprolithic).
DURATION: From the second quarter of the fourth millennium BC until the beginning of the third millennium BC.

97

Probable years: 3800-2800 / 2700 BC.

Established by typological-stratigraphical method and by the C14 method. Of course, C14 data themselves admit many corrections by dendrochronological "calibration." Unfortunately, in Romanian Neolithic all C14 data are noncalibrated.

SOURCES (laboratories) C14: Berlin (Bln) and Groningen (Grn). For instance: Bln 801,1060,3005,705 et al: Grn 1985,1892,4424 et al.

TERRITORY occupied

Country: Romania and Ukraine.

Zone: The South-East corner of Transylvania, Moldavia (excepting its maximum South-Eastern limits), Bessarabia, and a great part of Ukraine (except the Black Sea coastal zone).

GEOGRAPHICAL limits: From the Oriental Carpathians crossing the rivers Pruth, Dniester, Bug, to Dnieper.

LOCALITIES of the maximum dispersion:

In South-Eastern Transylvania: Feldioara, Harman (Brasov district), Pauleni (Harghita district).

In South: Bontesti (Cucuteni A), Sarata-Monteoru (Buzau district), only in Cucuteni B phase.

In North: Nezvisko, Kudrintzy, Pekiora (Ukraine).

In North-East: Trypolie, Kolomiscina (Ukraine), Evminka (over Dnieper).

PHASES of Cucuteni culture:

Cucuteni A, corresponding to Trypolie B I

Cucuteni A-B, corresponding to Trypolie B II

Cucuteni B, corresponding to Trypolie C I

emergence of culture

The culture previously existing in about the same geographical
area: Precucuteni

The ORIGINAL culture (mother-culture): Precucuteni

PHASE: Precucuteni III

     "it is quite clear that the new culture emerged in South-Eastern Transylvania where from it crossed the Carpathians into West-Central Moldavia" (Dumitrescu and Vulpe, p. 33).

SYNCHRONISM

NEIGHBOURING cultures which influenced the emergence of Cucuteni civilization: Petresti culture (in Transylvania), Gumelnitsa A1 culture (through the mixed cultural aspect called Stoicani-Aldeni occupied a contact zone between Gumelnitsa A and Precucuteni III)

ZONE: South-Eastern Transylvania and West-Central Moldavia.

Absolute CHRONOLOGY: around 3800/3700 BC.

development of culture

According to the Cucuteni culture phases.

CUCUTENI A

Subphases: Cucuteni A1-2, A2, A3, A4.

Zone: South-East Transylvania, Moldavia, Bessarabia, Ukraine to the Dniester. Only in its phase A4 it spread over the Dniester river (Dumitrescu and Vulpe, p. 36).

Duration:

Cucuteni A1-A2 = 3800 - 3600 BC.

Cucuteni A3 = 3500 - 3400 BC.

Cucuteni A4 = 3400 - 3300 BC.

SOURCES (C14 dating): Cucuteni A2 = Margineni 3560±55; 3595±60; 3675±50 BC.

Cucuteni A3 = Leca Ungureni 3395±100 BC (Bln 795); Habasesti 3360±80 BC (Grn 1985).
Cucuteni A4 = Draguseni-Ostrov 3405±100 (Bln 1060).
NEIGHBOURING cultures which influenced the subject culture:
Petresti culture; Stoicani-Aldeni culture as well as Gumelnitsa A1-A2; Romanesti-Tiszapolgar; penetrations from the Eastern zone of Dniester and from North-Pontic area (Srednyi Stog II culture).
CUCUTENI A-B
Subphases: Cucuteni A-B1, A-B2, A-B3.
Zone: From Transylvania to Ukraine, crossing the river Dnieper.
Duration: 3400/3300 - 3000/2900 BC.
SOURCES:
Neighbouring cultures with influences: Gumelnitsa B1, Gornesti-Bodrogkeresztur, and very probably Cernavoda I culture in its initial phase (Dumitrescu and Vulpe, pp. 37-38).
Subphases: Cucuteni B1, B2, and (probably) B3.
Zone: The same as in the previous phase A-B but no longer in South-Eastern Transylvania (where it was replaced by Romanesti-Tiszapolgar culture and then by Gornesti-Bodrogkeresztur culture).
Duration: 3000/2900 - 2700 BC.
SOURCES (C14): Valea Lupului 3000±60; 2980±60 BC (Grn 1892).
Neighbouring cultures with influences: Gumelnitsa B, Cernavoda I, Gornesti-Bodrogkeresztur (the last phase).

the end of the culture

The last phase: Cucuteni B2. Very likely a last phase Cucuteni B3.
Zone: Moldavia, Bessarabia as far as Ukraine.
Duration: 2800 - 2700 BC.
NEIGHBOURING cultures with influences and exchanges: Gumelnitsa B2, Cernavoda I, Horodistea-Foltesti, Cernavoda III (Dumitrescu and Vulpe, pp. 47, 49, 64).
The new cultures that causes the end of the former: Horodistea-Foltesti and the steppe-cultures.
The replacement of the Cucuteni culture: it initially occurred through influences, sporadic penetrations, and advancing by infiltrations and then in a violent manner. We no longer refer to the continuation of a local tradition but to a forced replacement with a foreign culture.
About the end of Cucuteni-Trypolie culture, the dates are questionable: 2700 BC or 2600, or even 2300.

If we ask the Neolithic in Moldavia or the year 3600 BC in Moldavia, the screen will display the answers in following forms:

Moldavia   5500 - 2700/2500 BC Neolithic

    Early Neolithic   Cris-Starcevo

                                   5500-4500 BC

    Advanced Neolithic   Music-Note Linear Pottery

	4500-4200 BC	
	Precucuteni Phases: I, Ii	
	4200-3900 BC	
Eneolithic	Precucuteni Phase: Iii	
	3900-3700 BC	
	Cucuteni Phases: A, A-B, B	
	3700-2700 BC	

Moldavia	3600 BC

Main Culture	Cucuteni A1-A2 = Trypolie
	Stoicani-Aldeni (South-East Moldavia and North-East Muntenia)
Neighbouring Cultures	Petresti (Transylvania)
	Gumelnitsa A1 (Muntenia)

As for the maps showing the spreading of the Cucuteni culture, presenting any drawings now would be premature and risky, since complete and certain information is not yet available.

Note

1.   Dumitrescu, Vladimir and Vulpe, Alexandru, *Dacia before Dromichaites*. Editura Stiintifica si Enciclopedica, Bucharest, 1988.

Realisation d'un catalogue numismatique sur l'ordinateur

Ernest Oberländer-Tarnoveanu
Conservateur
Musée National d'Histoire de la Roumanie
Bucarest, Roumanie

Les collections numismatiques constituent une partie assez importante du patrimoine des musées archéologiques et d'histoire du Sud-Est et du Centre de l'Europe. Dans les musées départementaux de la Roumanie, les monnaies, les médailles, les plaquettes, et les sceaux représent au moins 15% des objets catalogués, mais maintes fois le pourcentage peut attendre même 25%. Selon mes connaissances, la situation est semblable en Bulgarie, en Yougoslavie, et en Grèce. Dans le Musée d'Histoire Nationale de la Roumanie, où je travaille, la collection numismatique occupe une place tout à fait spéciale car, avec ses plus de 500.000 pièces, elle représent presque la moitié de l'inventaire de cette institution.

Brève histoire du catalogage des collections numismatiques en Roumanie

Avant de discuter les problèmes surgis par la réalisation d'un catalogue numismatique sur l'ordinateur, je veux présenter un bref historique de l'évidence du patrimoine numismatique en Roumanie.

Les plus anciens inventaires numismatiques dans nos musées ne dépassent pas, à l'exception du Musée Brukenthal de Sibiu et quelques autres collections de Transylvanie, 125 années. Jusqu'à 1973, chaque musée avait eu la possibilité de librement choisir le type de ses fiches pour inventorier la collection et chaque conservateur était libre de les compléter selon sa bonne volonté et son niveau de spécialisation dans le domaine.

En 1974, à la suite de l'adoption de la loi du patrimoine culturel national, on a adopté un formulaire unique pour ficher toutes les collections numismatique du pays. Les conservateurs ont été instruits pour les compléter d'une manière presque unitaire, mais malheureusements, sans l'élaboration d'un vocabulaire contrôlé et sans tenir compte des normes internationales de catalogage numismatique. Les instructions prévoyaient qu'une copie de chaque fiche soit envoyé à l'Office départemental du patrimoine culturel et à Bucarest, à la Direction du Patrimoine culturel national. Depuis 1975 jusqu'à 1982, quand le système a été changé, plus de 30.000 fiches se sont accumulées dans le fichier de la Direction et d'autres encore sont restées dans les musées. Les données scientifiques qui y sont contenus sont presque inutilisables, parce qu'on n'avait pas prévu une modalité efficace pour les retrouver.

En 1982, à la suite des critiques de spécialistes et des difficultés constatées dans l'exploitation des informations concernant les biens culturels, un nouveau type de fiche a été introduit, cette fois unique pour tous les objets des collections des musées. Elle est complétée à l'aide des thesauri pour chaque domaine et des normes corrélées avec les normes internationales de catalogage.

Cette nouvelle fiche a été conçue pour le traitement électronique des données et elle est toujours en service aujourd'hui. Elle comprend 52 champs (dont 48 numérotés); 21 champs doivent être obligatoirement remplis. Ceux-ci sont:

101

1) La dénomination de la monnaie, suivi par un astérisque (*) pour les monnaies qui font partie d'un trésor; 2) Indication du catalogue de référence, avec les abréviations usuelles; 3) Le nom et la date de découverte du trésor, si les monnaies en font partie; 4) L'état et le suzerain émetteur; 5) L'atelier, l'officine, le nom des fonctionnaires responsables de l'émission; 6) La date de l'émission (siècle, année(s), mois, jour(s)); 7) Place de la découverte (pays, autre que la Roumanie, département, municipe/ville/commune/village, lieu— toponyme local, nom antique ou médiévale); 8) Le métal, avec les abréviations usuelles, la technique (seulement si elle est autre que celle usuelle, la frappe, par ex. coulage); 9) le poids (en grammes), le diamètre (en mm), le rapport des axes (selon les heures de l'horloge), le titre de l'alliage (en millièmes); 10) La langue et l'alphabet de la légende; 11) L'existence des marques (des officines, des fonctionnaires de l'atelier), des signatures, des surfrappes; 12) Le nombre total des pièces composantes d'un trésor (seulement pour les fiches collectives des trésors); 13) Le degré de rareté ou l'importance documentaire; 14) le numéro du cliché photo; 15) L'état de conservation; 16) Le code numérique du musée ou de propriétaire et le numéro d'inventaire; 17) L'auteur de la fiche, la date de complètement, et la signature.

On peut aussi ajouter: la date et les conditions de la découverte, les noms des collections dans lesquelles la monnaie est passée, la description des pièces qui n'ont pas des références aux catalogues, le statut juridique de la monnaie et la modalité de l'entrée dans la collection (propriété par acquisition ou donation, custodie), la date de l'entrée dans la collection, le lieu de conservation (exposition ou dépôt), si elle a été restaurée et/ou conservée, les modalités de mise en valeur muséales ou scientifiques, bibliographie de la pièce, mentions spéciaux.

Tous les conservateurs ont suivi périodiquement des cours d'instruction et professionnels pour l'utilisation du système. Le fichage des objets était imposé comme une activité prioritaire des musées et des Offices départementaux du patrimoine culturel national. A cause du système politique de l'époque, cette opération, autrement nécessaire et bénéfique, est devenue une corvée, quelque fois absurde, qui ne tenait compte ni de la manque des spécialistes en numismatique, ni de l'absence des catalogues de référence de chaque musée ou pour chaque domaine de la numismatique. Entre 1983 et 1989, chaque numismate—et maintes fois de conservateurs pas de tout spécialisés en numismatique—employés dans ces institutions avait comme norme annuelle de travail 800 fiches. Jusqu'à la fin de 1991, le Centre d'Informatique et de Mémoire Culturelle du Ministère de la Culture (CIMEC) avait traité 80.000 fiches numismatique et il y a encore d'autres en stock, en attendant l'introduction des données. Le rythme du traitement est maintenant limité, plutôt par la nécessité de les vérifier avant l'introduction, aussi que par les restrictions budgétaire, à presque 20.000 fiches des monnaies par année. Au moins 100.000 fiches sont encore restées dans les musées et Offices départementaux pour le patrimoine culturel national, en attendant le feu-vert pour être envoyées au Centre d'Informatique et de Mémoire Culturelle.

Même tenant compte des observations critiques déjà mentionnées, le bilan de ces dix années de traitement électronique des données concernant le patrimoine numismatique des musées et collections de Roumanie est plutôt positif. Selon nos informations, une telle expérience est jusqu'à présent unique en Europe Centrale et du Sud-Est et, de ce point de vue, notre travail peut épargner nos collègues des pays de la zone de beaucoup de difficultés et d'erreurs de début. Le principal gain reste, sans doute, dans la grande quantité des données scientifiques concernant les découvertes monétaires, souvent pas encore publiées, qui est rassemblée maintenant à Bucarest. Elle concerne les plus importants trésors monétaires (en tous métals et de toutes les époques) et les monnaies en or et argent dans nos musées. On a totalement—

ou en très grande partie—catalogué des collections très importantes comme, par exemple, celle de Constantin C. Orghidan, léguée à l'Académie Roumaine, qui peut être comptée parmi les grandes collections du monde.

Le matériel numismatique fiché est extrêmement divers de point de vue chronologique et comme provenance: des monnaies antiques grecques, romaines, daciques, et celtiques, des monnaies byzantines du Ve au XIVe siècles, des monnaies du Moyen Age frappées par les principautés roumaines ou les états balkaniques, les pays de l'Europe centrale et occidentale, des monnaies orientales (de la Horde d'Or et ottomanes), des monnaies modernes. Pour cataloguer une telle diversité de pièces, nos numismates ont été obligés de surmonter toutes sorte de problèmes scientifiques et techniques.

Bien que l'opération fut à l'époque conçue plutôt comme destinée aux besoins de la gestion muséale, elle peut devenir, grâce à l'utilisation de l'ordinateur, la source d'un travail scientifique extrêmement important. Nos fiches contiennent toutes les informations nécessaires pour les catalogues numismatiques de toute sorte (des collections, des trésors, des découvertes de sites archéologiques ou de régions, des découvertes de certaines époques, émitents, ou de certains types monétaires, etc.). Voilà la structure de certains répertoires de découvertes et de catalogues numismatiques qui peuvent être réalisés à partir des informations de la base de données numismatique:

A.   Répertoire des découvertes par unités administratives ou par sites archéologiques:
1. Nom de l'unité administrative (département, municipe, ville, commune, village) ou du site archéologique
2. Condition de la découverte
3. États et suzerains qui ont fait frappés la monnaie (nombre des exemplaires du même type, pour la description sommaire des trésors, abrégé plus loin avec "No")
4. Chronologie de l'émission (No)
5. Atelier (No)
6. Dénomination (No)
7. Catalogue de référence (No)
8. Lieu de conservation—numéro d'inventaire (No)
9. Littérature (pour les pièces déjà publiées).

B.   Répertoire chronologiques des trouvailles:
1. État et suzerains (No)
2. Atelier (No)
3. Dénomination (No)
4. Chronologie de l'émission (No)
5. Catalogue de référence (No)
6. Place et condition de la découverte
7. Lieu de conservation—numéro d'inventaire (No)
8. Littérature.

C.   Catalogue des découvertes (trésors ou découvertes isolées d'un site):
1. État et suzerain
2. Dénomination
3. Atelier
4. Métal; Poids; Axe; Diamètre

103

     5. Catalogue de référence
     6. Lieu de conservation—numéro d'inventaire.

D)   Catalogue de collection:
     1. État et suzerain.
     2. Atelier.
     3. Dénomination.
     4. Avers: légende—description.
     5. Revers: légende—description.
     6. Métal; Poids; Axe; Diamètre.
     7. Catalogue de référence.
     8. Datation.
     9. État de conservation.
     10. Numéro d'inventaire.

Les répertoires ou les catalogue des découvertes peuvent être réalisés directement à partir des données déjà existantes dans l'ordinateur. Pour les catalogues des collections, il faut aussi ajouter les légendes et la description complète des monnaies. La réalisation d'un tel type de catalogue pose encore d'autres problèmes, ceux de l'édition des textes des légendes. Le logiciel pour le traitement des textes CHIWRITER 3.5 permet la représentation des légendes écrites à caractères latins, grecs, ou cyrilliques contemporains. Pour la transcription fidèle de certaines formes des lettres, monogrammes, ou des ligatures utilisées sur les monnaies grecques, romaines, byzantines, ou du Moyen Age, il faut créer des caractères spéciaux, ce qui n'est pas toujours très facile ou rentable, spécialement pour un seul catalogue. Très compliquée est aussi la représentation graphique des symboles non-littéraires qui se trouvent sur les monnaies anciennes. Leurs description littéraire n'est pas toujours suffisamment compréhensible pour ceux qui utiliseront ces catalogues. Les musées de la Roumanie n'ont pas pour le moment que des ordinateurs modestes (PC-AT 286 IBM compatible, 1 Mb RAM, 40 Mb hard disk, moniteur VGA). Des grandes complications techniques pose aussi la réalisation des catalogues des collections des monnaies orientales musulmanes, à cause de l'absence chez nous des logiciels pour le traitement des textes capables d'utiliser simultanément des caractères arabes et latins. La translittération, même celle d'après les régles de *L'Encyclopédie de l'Islam*, ne peut constituer une solution pour les éditions vraiment scientifiques.

Un problème très important pour la réalisation des répertoires sur l'ordinateur est celle de la propriété intellectuelle. Tous ceux qui ont réalisé les fiches ont le droit de l'auteur, bien que le contrôle scientifique et l'uniformisation de la terminologie, comme la préparation pour l'édition, peuvent être faits par un autre chercheur. L'édition d'un répertoire est un travail collectif et il ne peut pas être décidé sans un préalable accord des conservateurs des musées qui ont complété les fiches. La réalisation des catalogues des découvertes ou des collections est d'habitude une création individuelle ou d'un petit collectif d'auteurs, bien que l'édition implique aussi l'apport des spécialistes en informatique.

Nous avons expérimenté l'édition des catalogues numismatiques à partir d'une base de données avec le logiciel Paradox 3.5. La forme finale pour le catalogue a été rédigée après avec l'aide d'un logiciel du traitement des textes.

104

Museum Documentation in Denmark and International Exchange of Data

Henrik Jarl Hansen
Curator, Documentation Department
The National Museum of Denmark
Copenhagen, Denmark

The fall of the Berlin Wall on the evening before the 10th of November, 1989, was both an unexpected and an unforgettable event. For most people it was at once a firm proof of the end of the Cold War and a symbol of the possibility of a new Europe.

Now, nearly three years later, the New Europe still has difficulty in coming into existence, and international contacts at all levels are of great importance. It is therefore essential to retain such cooperation as has been successful and intensify the exchange of ideas and experience across the previous borders. This is one way we can try to ensure that new and still stronger borders do not grow up around the previous European castle of the Sleeping Beauty. Our common culture and history should play a decisive role here.

However, successful and meaningful international collaboration requires well-organized national infrastructures, also in museum documentation.

In Denmark, as in the other Scandinavian and North European countries, we have a very long antiquarian tradition, which includes among other things the description and recording of national cultural history. In the museum world this tradition had right from the beginning a centralised character, which in recent years has been increasingly counterbalanced by a strongly decentralised museum structure. A visible result of this has been that since the 1960s many regional museums have been able to appoint academically qualified people in all museum subjects ranging from archaeology or recent ethnology to the history of art.

We have also been active for a good many years in the use of computers in museums and the documentation of collections and archival information. A clear case is the two central EDP records, *Kunst Index Danmark (KID)* (Art Index Denmark) and *Det kulturhistoriske Centralregister (DKC)* (The Cultural Historical Central Register or the Danish National Record of Sites and Monuments), for art and for cultural history, respectively. The setting up of the two records was in a way a continuation of the old centralistic tendency. However, it was done at the wish of the museums as a whole, and should be understood as expressing the need for the propagation and with it democratization of information. KID and DKC were officially established in 1984 with the passing of the Museum Act, which among other things imposed on the state-supported museums the duty to report to the central records. The future development of the data registers will probably show that they can build further on the best elements of both the centralised and the decentralised principle by combining breadth with universality.

The art galleries' register, Art Index Denmark, has its home in the National Art Gallery, while the National Museum accommodates the National Record of Sites and Monuments (the Cultural Historical Central Register), whose history, structure, and contents are described elsewhere in this volume (see page 61).

105

Ever since it was established in 1807, the National Museum has for better or worse been a worthy representative of the centralised principle in the Danish museum world. It has accumulated important collections and recorded invaluable information that would otherwise have been lost.

In 1982 began a project called *The National Museum and the Future*, which resulted in the institution in 1986 receiving a large grant from a combination of private and public contributions for the reconstruction and extension of the museum in order to bring it up to date, not least in relation to the public. Buildings were to be renovated, storage space for reserve collections established, and new exhibitions opened to the public. The renovated museum has just been re-opened in June 1992. It is important for museum documentation that part of the money was from the beginning set aside to introduce modern information technology as an everyday part of the museum.

At that time computers had already been in use at the National Museum for a number of years for the National Record of Sites and Monuments, so that a good deal of specialised knowledge was available. Not unnaturally, the Record became the nucleus around which the National Museum's Documentation Unit developed. Subsequently the new information technology came to be used at the museum in many ways. The first major project was a registration in text and photographs of the huge ethnographic collection, which had to be taken down and put away while building work was in progress. To do this a simple but very efficient system of photographic registration was developed and bar codes introduced[1]. The many colour diapositives taken were initially transferred to analog videodiscs, but we are at the moment working on digital image storage. Later similar registration of objects was started in other departments of the museum, and the intention is that all the collections will be dealt with this way. The primary purpose of this registration at present is internal administration of the collections, but in the long run it will be possible to use the information for other purposes, i.e., communication to the public. A first example is found in the recently opened ethnographic exhibition. A minor part of the exhibition takes the form of an open store with no accompanying texts in the cases. Instead, a touch-sensitive computer screen has been placed in each of the three rooms in question, on which pictures of the different cases can be obtained. Further information can be obtained by pointing to the objects in them, and one can proceed from there to further images and information on the subjects.

An obvious long-term possibility will be to combine information on the museum collection with information on finds and monuments now available in the National Record of Sites and Monuments. This work is just beginning, and it will be several years before it has got so far that it can be used to any great extent. When this happens it will markedly increase the research potential of the EDP registers.

The National Museum's Documentation Unit has also been involved in the production of two interactive videodiscs. The first is on the subject of the Danish resistance movement during World War II, and is based on one of the museum's special collections[2]. The videodisc is available in (among other places) the newly opened *media-gallery* in the National Museum, where the public now has access to various interactive videodiscs and CD-ROM productions. At present (summer 1992) the Documentation Unit is working on the more ambitious project of an interactive disc on the Vikings, which is proceeding in collaboration with English archaeologists from York. Images and other data have been obtained from many Danish and foreign museums for this videodisc.

106

The experience of recent years in such things as the compiling of large databases, analog and digital image processing, the installation of electronic networks, etc., has given the National Museum something the role of a "locomotive" in practical knowledge of the use of computers in museums, again a central role for the National Museum.

But this field is being developed elsewhere in the country also, i.e. at Århus University Archaeological Institute, where work is in progress on programs for structuring excavation data and on statistical program packets for archaeological analysis[3]. This institute and the National Museum's Documentation Unit have jointly received a grant from the Research Council for the Humanities to establish an information network for the benefit of the museums of cultural history. This has not the meaning of a physical cable network, but primarily of the collection, exchange, and dissemination of knowledge, including holding seminars.

The issue in 1991 of a new registration program for Danish museums called *Dansk Museums Index (DMI)* (Danish Museums Index) can be seen as combining the centralised and decentralised principles in Danish museums. The program was developed specifically for museums, and was initiated and paid for by their joint organizations. DMI is intended for all museums regardless of type. It is an object-oriented program, in the sense that it records in an approximately hierarchical structure objects such as files, artefacts in the museum collections, photographs, names of persons, etc. Simultaneously it maintains an internal list of linkages between the objects. The idea behind DMI is that registration can be adapted to the needs of the individual museum and still follow the same governing principles. This makes both data transfer to the central records and exchange of information between museums easier and simpler. So far about 70 art galleries and cultural historical museums have acquired the program, but as it is still very new we know little about its daily use. In practice the DMI program works by opening a main window (frame) to which basic information about any matter pertaining to the museum can be written or read. New windows can at any time be linked to the main window as required, i.e., for administrative history, the museum objects, correspondence, or for other information in the form of pictures, sound, or data. It is also intended that data transfer to the two central records should proceed electronically from DMI and not (as now) by filling out forms. Management of digital images in DMI is another wish of Danish museums, especially the art galleries, and will be available in a future version of the program.

We will in the coming decade see the intensified collection of data, whether as text, image, or sound. This will occur both at the large central institutions and in the small regional museums. The challenge to those of us who work with central databases will be to co-ordinate, maintain, and develop the bases so that they become easier to use, whether for administration, research, or for the visiting public.

It will also be expected of us that we can establish relevant contact with related databases in other parts of the world, especially in neighbouring countries. We will do this not only to search in the data of other countries, but to make our own data available.

Networks that can exchange museum data on a large scale are still only to a limited extent available in Denmark. A high-speed network intended primarily for business is being set up, and the museums may be included in it if it is cheap enough. Otherwise it is primarily via the universities that access exists to national and international data networks and functions like

electronic mail and international data transmission. This will probably change in the coming years with the rapid development of communications. Perhaps in the foreseeable future it will even be possible to link oneself to the big data banks for art or cultural history from one's armchair or writing desk.

But the technical possibility of exchanging museum data is one thing; agreement on how and why is another. Problems are only to be expected in this respect. Museum databases are of very different characters, ranging from the small and highly specialised to large and generalised. Whether a country has a centralised or a decentralised structure it can be difficult to agree on lines for data exchange even at the national level. That data is collected and treated according to different traditions in different countries will not make international exchange of data any easier, but it ought at any rate to be tried.

International data exchange has been tried out in a pilot project named *European Museums Network* (EMN). Eight museums from Denmark, Holland, Germany, France, Spain, and Portugal have joined around the theme *Discoveries—Traces of Europe's Cultural Integration*. The central idea of EMN is while following one's own associations of ideas to explore the collections of the museums involved using images and information.

Another field where international exchange of data would be a natural thing is archaeological finds. In Denmark the National Record of Sites and Monuments has for ten years been building up a national database (see page 61), and corresponding projects have been proceeding in many other European countries[4]. Large databases already exist and would be a natural starting point for such an attempt. Although the national databases have much in common in their contents, they are structured differently. Standards will therefore have to be agreed upon with respect to exchange of data, and translation or interpreting programming will be necessary.

A possible further development could work on the same principle as EMN, i.e., the linking of images with their associated attributes. This could make it possible to use search criteria such as type of site (like barrow or occupation site or finer details of these), datings, cultures, persons, etc. An important search criterion would naturally be location, so that the use of some agreed-upon coordinate system would be necessary.

By using EDP in museums we can hope to bind European art history and cultural history together in a new way in the public consciousness. International cooperation should be given a high priority despite the difficulties in the way of rapid advance. By doing this we can help to move international understanding in the right direction. Europe should not be united only around the inner market of free trade and mobility of labour. We should also be concerned with culture and the free movement of museum data. This is a responsibility of us all.

Notes

1.   Lars Kann-Rasmussen and Carsten U. Larsen, "Photography and Image Databases," *Archaeological Computing Newsletter* 26, 1991 (Oxford), pp. 1-7.

2.   Tine Wanning, "Image Databases for Museum Staff, Visitors and the Outside World: The Same Basic Material?" *Hypermedia & Interactivity in Museums.* Proceedings of an International Conference. Archives and Museums Informatics Technical Report, No. 14 (Pittsburgh 1991), pp. 57-61.

108

3.   Jens Andresen and Torsten Madsen, "Data Structures for Excavation Recording. A Case of Complex Information Management," in Carsten U. Larsen (ed.), *Sites & Monuments*. National Archaeological Records (Copenhagen 1992), pp. 49-70.

4.   Carsten U. Larsen (ed.), *Sites & Monuments*. National Archaeological Records (Copenhagen 1992).

109

Proposals for Setting Up a Computer Network for the National History and Archaeology Museum of Constantza

Simona Suceveanu
Curator
Muzeul de Istorie Nationala si Arheologie
Constantza, Romania

The Museum of National History and Archaeology of Constantza stores a rich collection of archaeological, numismatic, decorative art objects and documents, manuscripts, books, rare books, photographs, and films: approximately 447,000 pieces.

One-third of the collection is on show in the museum rooms or in the open air. The rest of the collection is kept and preserved in stores specially arranged and organised according to heritage field types and dimensions.

The task of organising and dealing with the administration of these stores belongs to the curators. Records of the objects are held in an inventory-register (in brief) and on analytical object cards as well. The analytical object cards are kept inside an unique manual file, organised on fields and according to the name of the curators who catalogued the objects.

The analytical object card, a national standard since 1982, contains 48 fields in which every object is described using a controlled vocabulary and fill-in rules. The information on these cards is in great part recorded on computer at the Information Centre for Culture and Heritage (CIMEC) in Bucharest.

A total of 37,000 objects in our collection have already been recorded in the national database at CIMEC; part of the rest is to be loaded at the museum. These records, in ASCII files for the moment, represent only the cards for heritage objects of national importance. The other scientific information will enter the database after the priority stock of cards comes to an end.

The museum collections have been enriched every year with approximately 1,000 objects for every discipline through archaeological discoveries, acquisitions, and donations. The record of these in the inventory-register is possible only after the analytical object cards are done. We have a rich archaeological heritage, but its cataloguing sometimes takes a long time because our archaeologists are extremely busy with their archaeological diggings almost all the year long, due to the pressure of many building projects in sensitive archaeological areas during the last years.

The whole archive of photo negatives (102,000) belonging to the museum is registered on another type of card, in which information concerning both the negative and the object photographed are included. The realisation of a programme to enter these cards in a database has been stipulated as well, in order to retrieve the valuable information they contain more easily.

110

The museum library is made up of 28,423 volumes of contemporary books, scientific reviews, and newspapers. The record of these books is held in an alphabetical card index and in an inventory-register by the librarian.

A different type of analytical card was created for the rare books. In our museum collection there are a few copies of rare books printed between the 18th and the 19th century and rare foreign books from the 18th century.

At the museum's Documentary Office we have a collection of plans and maps. There is no type of card for these yet.

As you see, in addition to the databases for the national heritage assets, other documentary databases should be created for the museum. Consequently, a computer network should be set up to:

1.   Maintain the data concerning the national heritage assets and other objects
2.   Meet the demands of different users and answer to queries on such criteria as field, category (within a certain field), chronology, place of discovery, statistic analyses
3.   Facilitate quick access to information in the databases
4.   Make it easy to access data among museums
5.   Bring together the various documentation archives in the museum.

The above-mentioned computer system should fulfil the following functions, which I shall describe briefly.

Database Administration

As a user, I do not yet know which technical solution will be implemented to process the information concerning the objects of our museum: therefore, I am not in a position to say whether one or more databases are needed. We recently began to work on an IBM-compatible PC, using WordStar for texts and data entry. CIMEC offered us a copy of all the records of our museum in ASCII files on diskettes and is expected to design or recommend a database management system, not expensive, easy to learn to work with, and suitable to meet the demands of the Romanian museums (ours as well). We wait for a solution to respond to both European standards and Romanian ones, particularly because their functions are similar:

•   Maintenance of databases (addition, deletion, and modification of records)

•   Quick access to files by one or more users

•   Transfer of recorded material to other computers of a similar or different type.

Operation

The system should be easy to use and maintain. Software programmes (frendly menus in Romanian are preferred) will make exploitation easy.

A reliable computer is needed, taking into account the number of records, which take a long time to enter. To access a file or a database on another computer, a network should be set up.

111

A local area network would facilitate communication of data between computers within a unitary framework.

We have a lot of work to do but hope the results will deserve the effort.

112

Considération concernant l'évidence sur ordinateur des collections de cartes anciennes (XVI-XVIII siècles) de la collection du Musée de Brasov

Mariuca Radu
Conservateur
Muzeul de istorie
Brasov, Roumanie

L'une des plus importantes activités des conservateurs des musées est représentée par la recherche scientifique rejointe à la mise en valeur du patrimoine. Elle est concrétisée dans la publication des études, des répertoires, des catalogues de collection et aussi dans l'organisation d'expositions. Mais, jusqu'à la finalité d'un thème il faut dépenser beaucoup de temps pour accumuler des connaissances théorétiques doublées par le travail dédié à l'évidence du patrimoine. Dans l'étape actuelle, quand l'information est très riche et diverse, il est absolument nécessaire de faire appel à l'ordinateur.

Dans notre exposé nous abordons le domaine de la cartographie parce que dans nos musées, bibliothèques, archives, et même dans les collections privées il y a un grand nombre d'atlas et cartes anciennes peu étudiées et mises en valeur.

D'ailleurs, dans le monde entier, l'étude des cartes anciennes est considéré avec grande attention déterminée d'un côté par la rareté de celles-ci et d'un autre côté par le changement de l'autre continuel des frontières. Chaque état ou petit état nouvellement formé désire argumenter les territoires d'autrefois.

"La carte—disait Pierre Rat—est aussi un langage, un moyen d'expression et de communication pour un public donné, à une certaine époque, dans un certain environement. Comme une langue, elle est l'expression d'une culture".

Personnellement, je travaille depuis dix ans dans ce domaine et j'ai réussi à publier un catalogue de cartes anciennes appartenant à notre collection. Dans cette période j'ai compris la richesse des informations contenues dans une carte: historiques, géographiques, ethnographiques, démographiques, économiques, artistiques, héraldiques.

À présent mes recherches se déroulent sur la collection de l'Archive de l'Église Noire de Brasov, où il y a entre autres un exemplaire de l'atlas d'Ortelius (la variante allemande éditée en 1572) et une perspective sur les autres collections existantes dans ma ville.

Après les évènements de 1989 j'ai commencé à correspondre avec des spécialistes d'Allemagne (quelques-uns originaires de Brasov-Kronstadt) qui m'ont envoyé des bibliographies, des catalogues d'exposition et la fiche internationale d'évidence nommée RAK. J'ai combiné cette fiche avec ma propre fiche et de cette combinaison a résulté un instrument de travail complexe où la carte est découpée "anatomiquement". En même temps nous élaborons aussi un dictionnaire ou thesaurus des mots spécifiques et nous completons les fiches des cartes conformément aux normes RAK.

Voici maintenant les rubriques de la fiche utilisée pour l'évidence du matériel cartographique de nos collections:

1. Le nom et le prénom de l'auteur (dans toutes les situations le nom du graveur)
2. Le titre entier de la carte, dans la langue originelle
3. L'échelle (ou "sans échelle");
4. L'année du relief topographique. Le nom du topographe;
5. L'éditeur;
6. L'édition;
7. Si elle est annexée ou si elle a des annexes à son tour;
8. Le lieu de la parution; la maison d'édition, l'année;
9. Les dimensions intérieures;
10. Observations;
11. Le numéro d'inventaire, la côté, l'institution où elle se conserve aujourd'hui;
12. Les types de carte:
    a). selon le territoire:
        - générale
        - régionale
        - plan de ville ou stampe
    b). selon le contenu:
        - militaire
        - géographique
        - économique
        - documentaire
        - historique
        - religieuse
        - de navigation
13. Le contenu de la carte:
    a) le plan de la situation:
        1. quelle province est representée; l'identification du territoire;
        2. les symboles du contour: les lacs, les mers, les océans, le réseau hydrographique et des routes, les zonnes des frontières (pays, province);
        3. les symboles des lieux:
           des localités, des constructions en général, des fortifications, des stations de poste, des champs de bataille, des douanes;
        4. les symboles des surfaces:
           des terrains, des sols couverts par la végétation, population, des sujets distincts;
    b) la présentation des terrains:
       les montagnes présentées comme des petites collines; les lignes du relief, la plastique spécifique des couleurs;
    c) types de l'écriture des cartes:
       des endroits et toponimiques des zones et des noms des unités géographiques, population; caractères italiques, romaine, rondes, en bloc; la langue; (ou "sans inscription");
14. Des délimitations: la succesion N,E,S,O
15. Des réproductions: des dessins originaux, gravures en bois, gravures en cuivre, lithographies; couleurs: blanc/noir, entièrement aquarellée ou seulment le contour des frontières ou des cartouches;
16. Le support: papier plié, pas plié, tiré sur toile plié, dans une cassette de carton, dans une mappe, support sur carton etc.
17. Verso: imprimé, pas imprimé, le titre dans la marge, text;

114

18. Catégorie de l'édition: carte unique ou faisant partie d'un atlas, d'une oeuvre unique cartographique comme supplément ou contenue dans une autre oeuvre; les dates des éditions, des caractéristiques; (si elles ne sont pas datées, on met: "vers...");
19. L'état de conservation: très bon, irréprochable, bon, médiocre; mentions: des plis; des plis normales; des lacunes; des interventions ultérieures (des collages), des taches jaunes ou brunes; des moisissures;
20. La provenance: acquisition par achat, par donation, en custodie illimitée ou limitée à une certaine période; des propriétaires antérieurs; l'année de l'acquisition; le prix;
21. La littérature: le nom du cartographe/de l'auteur, de l'éditeur, du typographe ou du graveur sur la carte même;
22. Observations: cartouche, des particularités dans l'image de la carte, la légende, des informations statistiques, des listes de localités, des écritures manuscrites, des cartes latérales, des détails, des curiosités etc.
23. Le nom des catalogateurs, la signature, et la date du catalogage.

Fauna Database from the "Grigore Antipa" Natural History Museum

Dorel M. Rusti
Curator
"Grigore Antipa" Natural History Museum
Bucharest, Romania

The zoological collections in the "Grigore Antipa" Museum of Natural History are an important database for Romanian and foreign fauna. There are important collections of mammals (about 4,000 specimens), birds (about 1,300 species, more than 6,000 specimens), and shells (5,500 species, 28,000 specimens), but the insects are the most numerous taxa, with 500,000 specimens: (7,500 species, 9,500 specimens), bugs (3,000 species, 30,000 specimens), butterflies and moths (20,000 species, 250,000 specimens), bees and wasps (3,000 species, 26,000 specimens), flies (1,800 species, 11,000 specimens), etc.

Based on an older project, the fauna database from the "Grigore Antipa" Museum of Natural History, Bucharest (MINGA) started in 1989 on dBASE II and continued on dBASE IV. Now it is being translated into Paradox. The MINGA database has six types of fields: system fields (4 fields), taxonomic fields (11), locality fields (10), collecting time fields (6), documentation fields (21 fields), and remark fields (2): a total of 54 fields. The system fields contain information about the database record (identification number, operator, and cataloguer names, and date of the last change of the computer record). The taxonomic fields contain the zoological classification of the specimen: kingdom, class, order, family, genus and genus authority, species and species authority, and three fields for the infraspecific categories (taxonomic status, scientific name, and authority). There are three types of records for the locality fields: terrestrial habitats (continent, country, province, locality, and terrestrial site of collection), freshwater habitats (river drainage and aquatic site of collection), and marine habitats (ocean, sea, and marine site of collection). The collecting time fields contain information about the precise time (day, month, year) when the collecting started and ended. The scientific literature, zoological collections, and field notebooks are the sources of fauna information from the MINGA database. According to the three kinds of documents, there are three types of documentation fields: bibliographical fields (publication author, date title, volume, page, and illustrations), collection fields (collection owner, name, identification number of specimens, collector name, collecting method, conservator name, preparation technique, identifier name, specimen nature, specimen status, number of specimens, and price of specimens), and notebook data fields (author of notes, source of notes, and notes text). The last two fields contain remarks about specimens.

The MINGA fauna database represents a beginning for a modern catalogue of the large zoological collections from the "Grigore Antipa" Museum of Natural History. This database was also very helpful for ecological projects concerning biodiversity, ecological regions' determination, and wildlife preservation.

Fields of the Minga Fauna Database

System Fields
01   record identification number
02   operator name

03   cataloguer names
04   date of the last change of the computer record

Taxonomic Fields

05   kingdom
06   class
07   order
08   family
09   genus
10   genus authority
11   species
12   species authority
13   taxonomic status of the infraspecific categories
14   scientific name of the infraspecific categories
15   authority of the infraspecific categories

Locality Fields

(terrestrial habitats)

16   continent
17   country
18   province
19   locality
20   terrestrial site of collection

(freshwater habitats)

21   river drainage
22   aquatic site of collection

(sea habitats)

23   ocean
24   sea
25   marine site of collection

Collecting Time Fields

26   day of collecting started
27   month of collecting started
28   year of collecting started
29   day of collecting ended
30   month of collecting ended
31   year of collecting ended

Documentation Fields

(publication fields)

32   publication author
33   publication date
34   publication title
35   publication volume
36   publication pages

117

37   illustration

(collection fields)
38   collection owner
39   collection name
40   identification number of specimens
41   collector name
42   collecting method
43   name of curator
44   preparation technique
45   identifier name
46   specimens nature
47   specimens status
48   number of specimens
49   price of specimens

(notebook fields)
50   author of notes
51   source of notes
52   notes text

Remark Fields
53   remark code
54   remark text

Standards and Interchange
Formats in Museum Documentation

Nouvelles possibilités dans la gestion de la base de données pour les musées

Anisoara Burlacu
Analyste
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

Le projet d'une base de données pour les musées est né en 1990, les institutions impliquées dans sa réalisation étant le Ministère de la Culture par sa Direction Générale de Mémoire Culturelle, la Commission des Musées et des Collections, le Centre d'Informatique et de Mémoire Culturelle.

Le but du projet: une modalité moderne et efficace d'information sur l'éxistence et l'activité de tous les musées de la Roumanie, ayant la possibilité de mettre en relief les éléments généraux communs à tous les musées, aussi que les éléments particuliers, spécifiques à un musée ou à une catégorie de musées.

Les réalisateurs du projet désirent que les informations mémorisées dans la base de données soient utiles tant aux musées, pour leur information réciproque, aussi qu'aux institutions qui ont la mission de coordoner et de financer l'activité des musées, offrant une base scientifique aux décisions managérialles prises à divers niveaux hiérarchiques.

Par "musée" selon la définition du Conseil International des Musées (ICOM), on entend "une institution permanente, sans but lucratif, au service de la société et de son développement, ouverte au public," et qui fait des recherches concernant les témoins matériels de l'homme et de son environnement, acquiert ceux-là, les conserve, les communique et notamment les expose à des fins d'études, d'éducation et loisirs".

Le Projet a été conçu sur trois principaux modules:

1. Le musée—informations générales
2. Le personnel du musée
3. L'activité dans le musée

ayant la suivante structure des données (dans une présentation synthétique):

1. *Le Musée—Informations Générales*

Nom
Adresse
Sièges - Nom
        Adresse
    Proprietaire
    Assurence de la sécurité
    Espaces (m)
    D'expositions - dans des pavillons en plein air
    Dépôts
    Laboratoires

120

Administration
  Assurence du micro-climat
Activité avec le public
  Nombre de visiteurs en group, individuel
Situation financière
  Revenus - activité propre
  Subventions
  Dépenses - courentes
  Investissements
Bref historique
Accès
Programme de visite

2. *Le Personnel du Musée (spécialisé et auxiliaire)*

Données biographiques
  Nom, prenom, pseudonyme
  Date de naissance
  Études
  Lieu de travail
  Fonction
  Spécialité
  Ancienneté dans le musée
  Salaire

et pour le personnel spécialisé:

  Titres scientifiques
  Cours terminés
  Prix / diplômes
  Bourses / stages de documentation
  Activité de recherche
  Activité avec le public
  Participation aux conférences
  Publications, travaux scientifiques

3. *L'Activité dans le Musée*

Recherche scientifique
  Sujet, domaine, participants, résultats, etc.
Inventaire et la documentation—collections
  Photothèque
  Clichothèque
  Restauration / conservation
  Planches, cartes
  Manuscrits
  Fiches bibliographiques
  Bibliothèque
  Cassettes audio-video, films
    (nombre, système d'inventaire existant et préconisé,

121

    nombre de fiches existantes et proposées a réaliser)

Acroissement du patrimoine
    Acquisitions
    Dons
    Transferts
        (nom, auteur, datation, provénance, source)
    Restauration/conservation
    Patrimoine mobil
    Monuments
        (nombre, période, dépenses, commentaires, etc.)

Développement du réseau des musées
    Reparations / restaurations des edifices des musées
    Réorganisations des expositions de base
    Éspaces pour de nouveaux musées
        (nom, travaux, motivations, dépenses, periode)

Mise en valeur du patrimoine
    Expositions
    Manifestations scientifiques
    Manifestations culturelles
    Publications
        (sujet, responsables, participants, date, financement)

Spécialisation et perfectionnement du personnel
    (nom du participant, sujet de la specialisation,
     periode, organisateurs, etc.)

Relations culturelles
    (nom et type de collaboration, personnes impliquées)

Nouveautés

La collection des données a été réalisée par la téchnique du questionnaire, notre tâche étant beaucoup simplifiée par le spécifique du réseau des musées de notre pays "au moment 1990," un réseau totalement centralisé, à une structure organisationnelle semblable.

Les catégories d'informations présentées dans le schema ont été collectionnées à l'intermède de trois questionnaires:

"Des données synthétiques concernant les musées"
"La Fiche d'evidence du personnel spécialisé des muséees"
"La Fiche pour le bulletin informatif des musées"

Ces questionnaires, contenant 15 pages, constituent le fruit des initiatives d'un group d'analystes de notre Centre.

Nous mettons à la disposition des personnes intéressées un exemplaire en détail de ces questionnaires.

Le fait que nous avons initialement choisi ces catégories d'informations et non pas d'autres est le résultat de l'analyse, de notre propre expérience, aussi que des demandes des bénéficiaires.

La base de données est conçue comme un système ouvert dans lequel la sphère des informations reprises dans la base de données peut être continuellement élargi grâce au dialogue avec les musées, aux besoins d'interrogation des bénéficiaires, et à la collaboration avec d'autres collectifs du Centre d'Informatique et de Mémoire Culturelle. Ce fait va imposer tant des modifications dans l'organisation des données existantes dans la base, aussi qu'une communication assidue avec les musées. De là, la nécessité du choix d'un logiciel performant et flexible qui puisse permettre des adaptations aux exigences ultérieures.

Du point de vue téchnique on a adopté la solution de la création d'une base de données du type relationnel (Paradox) conçue en corrélation avec les deux autres bases de données développées dans notre Centre: la base de données des objets du patrimoine culturel et la base de données des monuments.

Des réponses reçues aux questionnaires, nous avons constaté qu'après les changements politiques et sociaux survenus après 1989 on a eu aussi des changements dans le réseau des musées: certaines sections des complexes des musées départamentaux ont manifesté le désir de devenir autonomes et d'autres musées ont changé leur nom en vue de trouver un identité propre. De nouveaux musées sont apparus (surtout des musées spécialisés), même une nouvelle catégorie de musées—les musées privés. Dans ces conditions, un système national d'évidence s'est avéré très util, comme mesure supplémentaire de protection dans des situations d'instabilité.

Dans le dialogue avec les musées du pays on a constaté le désir des spécialistes et des musées mêmes de connaître et d'établir des liaisons avec d'autres personnes ou d'autres institutions similaires—aussi que de faire connaître leurs préocupations et leurs réalisations.

En même temps, l'apparition de l'ordinateur dans beaucoup de musées a aussi mis le problème d'un personnel spécialisé, ainsi que l'existence d'un cadre coopératif—en dépit de la diversité de leur activité—cadre qui puisse permettre l'échange d'informations. Le musée doit se présenter, se faire connaître, faire sa publicité pour attirer le public à l'aide de l'ordinateur aussi.

A présent en Roumanie il y a plus de 600 musées, parmis lesquels:

- Des musées nationaux (2%)
- Des musées départamentaux (41%)
- Des musées des villes (19%)
- Des musées des communes et des villages (25%)
- Des musées religieux (9%)
- Des musées du système éducationnel (1%)
- D'autres musées (3%),

La base de données contient à présent près de 50% des informations et nous espérons un encouragement des fourniseurs d'informations par la popularisation des résultats partiels obtenus.

Ainsi, dans l'étape actuelle du travail on a édité:

Le répertoire des musées de la Roumanie dans une variante bilingue (roumaine-anglaise) contenant des informations d'identification (nom, adresse) et la description des collections;

123

Le répertoire des spécialistes des musées de la Roumanie: Données biographiques, ayant l'intention de réaliser ensuite un dictionnaire des spécialistes qui contient, dans une forme synthétique l'activité de recherche, les travaux publiés et d'autres activités dans les musées; à présent, le tome est enrichi par des graphiques qui représentent (sur un echantillon de 1000 personnes) le profil du personnel spécialisé des musées—par domaines d'activité, par catégorie d'âge, de sexe, et d'ancienneté dans les musées.

Le calendrier des activités des musées en 1992: Contenant des chapitres concernant la recherche scientifique, des manifestations scientifiques, des expositions, des manifestations culturelles, des publications.

Conclusions

Il s'agit donc d'une évidence synthétique, au niveau du réseau des musées relevant la diversité en ce qui concerne les problèmes des espaces, de la sécurité, du micro-climat, du personnel, etc.

Elle peut constituer un point de départ dans l'établissement de certains normes dans la constitution d'un collectif, qui puisse mettre en valeur d'une manière supérieure son potentiel culturel et éducatif, aussi en ce qui concerne les services offerts au public.

Beaucoup de musées considèrent le nombre des visiteurs comme degré de la réalisation de leur activité culturelle et éducative. Or, ce fait est valable seulement si la méthode d'enregistrement est correcte. Supsosant que oui, les performances peuvent être évaluées sur plusieurs niveaux (par example la comparaison avec une autre institution similaire). La recherche peut établir la fréquence des visites répétées dans un musée, la moyenne du temps y passé, ou les raisons pour lesquelles les gens visitent ou ne visitent pas un certain musée.

Il y a un désaccord entre les possibilités matérielles d'un musée (édifices, instalations de micro-climat, moyens, etc.) et la disponibilité professionnelle du personnel spécialisé dont la qualification assure un niveau correspondant de l'activité du musée.

La réalisation de la base de données présentée ici à créé la possibilité du dialogue et de la collaboration avec des institutions similaires du réseau de l'UNESCO et ICOM, et jusqu'à présent, les catégories d'informations existantes aussi que leur manière de les structurer nous ont permis de répondre avec succès à toutes les interrogations. Et cela, dans le contexte où les comités internationaux du domaine désiraient completer leur manque d'informations sur les pays de l'Est de l'Europe.

124

National and International Museum Information Standards Initiatives

Andrew Roberts
Chair
CIDOC, the International Documentation Committee of ICOM
Cambridge, UK

Introduction

This paper provides a brief introduction to standards for museum information. Standards are agreed-upon statements which help control an action or the form of a product. In our context, museum information standards are agreed definitions of the form of museum information and the documentation procedures we follow when caring for and using collections.

We need standards as the basis for effective systems, to support information interchange, and as a focus for the museum documentation profession. They are fundamental to our work to demonstrate accountability for collections and provide access to these collections by the public and researchers.

Information standards are part of the wider move toward a family of museum standards. The museum community is a business, and like any other business we need agreed-upon rules to govern our work. In organisational terms, museums can be thought of as professional bureaucracies, where highly qualified specialists control the actions of the organisation. Organisations of this type work by consensus, conforming to widely recognised norms.

In this paper, I shall consider three issues:

* Standards principles
* An outline of relevant museum information standards
* Reference to some of the major data standard initiatives.

The paper is based in part on a report being prepared by the International Documentation Committee of ICOM (CIDOC) and the Getty Art History Information Program (AHIP), following a planning meeting help in Canterbury, England, in September 1991.

Standards Principles

Sources of standards

Standards may be created to establish consistency within an organisation, a group of organisations, a country, or globally. In many cases, they may actually arise without any formal agreement or through adopting the practice of a leading institution in the field, in which case they can be described as de facto.

For institutions such as museums, relevant standards may be developed outside the profession, by national or international standards bodies. These bodies include the British Standards Institute (BSI), Association Française de Normalisation (AFNOR), Deutsches Institut für Normung (DIN), and the International Organisation for Standardisation (ISO).

One task in museum documentation is to identify appropriate existing standards and encourage their adoption. As computerisation and information management is one of the most important and rapidly evolving areas for national and international standardisation efforts, museums are well served in this field.

However, there are specific issues which are of limited relevance to other professions. This is where it is necessary to establish internally developed standards. One significant example is the different fields of information that make up a record about the items in a collection and the appropriate terminology to use within those fields.

If national and international information standards are to be effective and relevant, they must be developed with the full support and involvement of the community to which they apply. There must be a formal process whereby representative bodies work by consensus to produce draft standards; consult with the community over the details of these standards; and then seek the public endorsement of the standards by their potential users.

Basic standards concepts

A Working Group of the Society of American Archivists advised the U.S. archive community on the importance of a formal standards process in a report published in 1989 (Society of American Archivists Working Group (1989), *The American Archivist*, 53 (1)). This report identified six primary standards concepts:

- Standards are not ends in themselves, but means to an end
- The successful development and implementation of standards requires cooperation and collaboration among all affected parties
- Cooperative efforts usually require consensus on standard principles or procedures
- Effective implementation of standards requires a body such as a central authority to enforce their use or an organisation to give its direct or implied consent to their use
- Economic benefits are the primary incentives behind the development and successful implementation of most standards
- Standards development is often time-consuming, costly, tedious, and frustrating.

Types of standard

The resulting standards can take three main forms, ranging from a restrictive and explicit statement to a more permissive model:

- Technical standards are the most rigid and exacting and, if followed correctly, will yield identical products
- Conventions (rules or professional standards) are more flexible and accommodate more variation in local practice; they will result in similar products when applied correctly
- Guidelines provide a broad set of practice or service criteria against which to measure products or programs.

Different factors can affect the appropriateness of these three forms of standard. For example, in some circumstances, it may be impossible to develop a technical standard because of a lack of consensus; in others, the problem may not lend itself to a technical standard or may not require the specificity of a technical standard.

126

A consideration of the cost-effectiveness of the work is important when deciding whether to develop a standard. Part of the development cost is the organisational infrastructure needed to draft the standard, ensure that it receives widespread approval, publish and maintain the rules, and encourage its use. National and international standards organisations have procedures which ensure standards are relevant, correct, and approved by their client base.

Benefits of Museum Documentation Standards

The benefits of establishing agreed museum information standards include:

* Providing a model which can be used by individual organisations, projects, and vendors as the basis for practical systems and guidelines. This leads to more consistent and effective systems and recording practices within and between institutions. This principle has been particularly effective in Canada and a number of European countries, where museum organisations have established agreed-upon standards. These have been used as the basis for collections management systems and statements of recommended professional practices.

* Developing staff expertise and opportunity. The availability of agreed-upon standards, systems, and practices leads to the definition of training requirements and enhanced professional contact, greater job mobility, and better training opportunities.

* Supporting information sharing, including enhancing the ability for an institution to contribute its information to outside institutions and initiatives, and to itself benefit by drawing upon collaborative resources, such as authority files.

Museum Information Standards

The international and national information standards required by museums and other cultural heritage organisations fall into four main groups.

Information system standards define the components of the information system itself. In the case of a museum, this might encompass separate facilities for cataloguing, collections management, membership, administration, finance, and publishing.

Information interchange standards define the technical framework for sharing information, whether among systems in a single organisation or among different organisations. ISO and other national and international standards agencies have developed a suite of standards for this area. The Computer Interchange of Museum Information (CIMI) project is exploring these issues in depth, looking at a wide range of existing standards and their application to museum needs.

Another component needed to support the interchange process is a data standard. This is also essential within the institution's system, as a definition of the structure, content and values for collection information:

* Data structure is concerned with the different fields that can be used to record information and with the relationships among these fields
* Data content is concerned with the rules or conventions which govern the way data should be entered in these fields, including cataloguing rules and syntax conventions

- Data value is concerned with the vocabulary that can be used in the fields and the character sets that are allowed.

Documentation procedural standards outline the scope of the practical functions that should be followed when managing and using a collection. A detailed internal standard will be based on a functional analysis of the procedures and requirements of the institution. One aspect of a procedural standard that is needed to support the interchange of information is a service definition, specifying the scope of what is being exchanged. Museums will need to develop a family of definitions for procedures such as developing a collection, cataloguing, exchanging information about the components of a temporary exhibition, contributing biographic or geographic data to a cooperative authority file, etc.

Major Data Standard Initiatives

Table 1 lists some of the data standards initiatives currently underway in museums. While this list is selective, it gives an indication of the diversity of initiatives. If you have information about other national or international projects, please contact CIDOC.

At the international level, CIDOC has three Working Groups concerned with data standards. The Reconciliation of Standards Working Group is developing a methodology for understanding museum information concepts, and a model data standard. Applications of this standard are being designed, in collaboration with a number of the projects referred to below. The Documentation Standards Working Group is taking a more practical approach in designing working data standards for individual disciplines, the first of which is concerned with art collections. This work has been applied in the NARCISSE project which is developing a research database of conservation images and text. The Terminology Control Working Group is encouraging the adoption of uniform vocabularies, initially by acting as a coordinator and surveying existing initiatives.

National initiatives in Europe include the development of data standards in the UK, France, Switzerland and elsewhere. A similar approach has been taken in Canada, where the Canadian Heritage Information Network has designed two core standards for the humanities and the natural sciences. In the United States, a series of major initiatives are examining the information needs of individual disciplines. There is a growing collaboration between these projects, with a frequent interchange of ideas through personal contacts at meetings and conferences, such as those arranged by CIDOC. In the long-term this should lead to a network of inter-related standards at a national and international level, and a far greater interchange of information between museums around the world.

Table 1
Examples Of Data Standard Initiatives

CIDOC Reconciliation of Standards Working Group
CIDOC Documentation Standards Working Group
CIMCIM Working Group
CIDOC Terminology Control Working Group
AAT Multilingual Project
ICOM Costume Classification

128

Initiatives by Country

Europe	NARCISSE
Sweden	Sweterm
Netherlands	ICONCLASS Classification
	Mardoc
France	Ministry of Culture
	Garnier Classification
	Système descriptif des objets
Germany	Allgemeines Künstlerlexikon
United Kingdom	MDA Data Standard
	UK Museum Data Standard
Switzerland	Banque de données des biens culturels Suisses
Italy	Italian Institute for Cataloguing and Documentation (ICCD)
	Thesauri terminology
Canada	Canadian Heritage Information Network (CHIN) data dictionaries
USA	Art Information Task Force (AITF)
	Common Agenda for History Museums
	Association for Systematics Collections
	Art and Architecture Thesaurus (AAT)
	Nomenclature Classification

129

CIMI—Computer Interchange of Museum Information:
Realising Information Access and Interchange

John Perkins
CIMI Project Manager
Museum Computer Network
USA

Since the introduction of computers into museums we have wanted to exchange information held in computerised files. This desire motivated the formation of the Museum Computer Network (MCN) in the United States more than 20 years ago and is spawning new projects today. Museums of all sizes are exploring collaborative projects to build databases and networks with wide but controlled access, and are banding together to pool resources for information-sharing projects that no single organization could hope to accomplish alone.

Museums also want to incorporate information from a variety of sources and formats, including print, oral history, and still and moving pictures, into their documentation processes. The vision of expanded documentation of collections will become commonplace only if consulting and exchanging computer records becomes easier to do.

One important concern museums have is whether computerised information will be accessible and meaningful to anyone else long after the original collectors of it—and the systems they worked with—have vanished. Even greater is the fear of being trapped with one vendor's system. "Will I be able to take data from one computer system and move it to another?" is not a question that as yet has a simple answer.

At first these areas may seem unrelated, but they all are related to information interchange. Interchange is moving data from one system to a replacement. Interchange is building and sharing information and databases, and interchange is communication.

Making this kind of interchange work is difficult to do because different types of computers have problems "talking to each other" and because the organisation and structure of the information in the computer varies considerably. One solution is to have everybody use the same system and do everything the same way, but—as has been clearly shown in the world of commerce and business—this approach is doomed to failure. Openness and interconnectedness using standards as a foundation is the approach now being promoted.

What CIMI Is

CIMI, initiated in 1990 by the Museum Computer Network as a grant-funded project, has now evolved into a full committee of the MCN working to develop a standards framework for interchanging all types of museum information via computer. The framework will allow museums to do the interchanges they imagine: exchange records, build common databases, and move information from one system to another. Now is the best time to develop a common, accepted method of interchanging information while museums are in the relatively early stages of automation and before disparate, irreconcilable approaches are taken by both institutions and vendors.

130

We hope the work of CIMI will encourage the exchange of information for scholarly and research purposes, make cultural heritage information more widely available, and preserve investments in creating information in electronic form.

Interchange of Museum Information

Interchange is not new: we all do it now by calling colleagues, sharing documents, and exchanging floppy disks. However, as historical scholarship and curatorship become more reliant on computer-based tools, the computer interchange of museum information will become more necessary. This type of interchange will make new demands on our ability to communicate because we are dealing with unfamiliar technology, not the comfortable oral, written, and published traditions.

A good way to visualize the problem is through the metaphor of people conversing. Language, grammar, syntax, and vocabulary provide the basis for oral communications that use the technical facilities of the vocal cords and the transmission of sound in air and the ear to carry the message. Similarly, written communications make use of different media but still depend on language and vocabulary to convey meaning. Generally we are not confused by communications of this type because we understand the rules, conventions, and requirements for successful exchange; they are part of our lives from our earliest learning experiences. Not so with computer interchanges. Here we need to become familiar with the new equipment, learn new rules, create the formats and syntax, and agree on meanings and vocabulary. This is what CIMI and its task groups are doing.

From the beginning CIMI was designed to work in partnership with representatives of various types of museums to get the broadest possible perspective. In this partnership, museum professionals working as task groups define the information that is important to exchange, called interchange services, and CIMI develops the technical interchange framework needed to carry the information. By working together the burden is shared and each partner represents their concerns and offers their expertise. If this approach is successful, computer technocrats do not end up telling curators and historians what information to deal with, and museum professionals are relieved of the technical aspects.

Once the task groups have defined the interchange services needed, CIMI staff works with them, technical experts, museum system vendors, and museum information networks to see the concept turned into a reality. Ultimately this is done by building interchange capability into the software used by museums, but there is a great deal of work that has to come first.

Towards an Interchange Format: Establishing Requirements

The task groups describe their interchange services in the same way that requirements for systems development are described. These requirements then are expressed formally and technically in an interchange service definition. Once this is done the requirements can be analyzed and an interchange format proposed to support the needed services.

An interchange format is simply a way of organizing and representing data so that it can be exchanged, from one system to another. It is based on rules and agreements on how the information is organized and represented. "ASCII text" is a simple interchange format for text; an ISO standard, Standard Generalized Markup Language (SGML), is a complex one. MARC is an example of an interchange format for bibliographic material.

131

The goal of CIMI is to produce an internationally standardized interchange format that will provide a means of transferring data from and to any sources required for museum purposes yet is independent of any one kind of software, one system, or one vendor. This will be done in part by proposing the adoption of extant international and national standards and models as frameworks for museum data exchange. This ensures both that the format will be independent of any one system, and that the format will be designed in step with the thinking in the broader technical community.

Because of the diversity of the information that museums store, the interchange format must handle all types of data, including text, numerals, images, multimedia, graphics, and sound, which places enormous demands on the traditional concept of a museum record from both a structural and a content perspective. A theoretical record may include textual data about an object followed by an image file, then sound bytes, then pointers to other data files acting as authorities. This is not exactly today's most common form of record, and goes well beyond the current capability of even the established exchanges of the library networks, but it is well within the scope of system models currently under development and new international standards for multimedia and hypermedia.

To cope with these complex requirements, the CIMI interchange format will have to accommodate dynamic and flexible methods of transmitting data and, most certainly use multiple existing transmission protocols. Images, for example, will be best carried in an existing format such as Tagged Image File Format (TIFF) or Computer Graphics Metafile (CGM), rather than CIMI trying to redefine a new image standard. At the same time it will be necessary for the interchange format to be compatible with the millions of MARC formatted records already in existence.

Not only does the interchange format have to carry information, but it needs to be able to tell the receiving system what to do with it or what the sending system is expecting as a result of the exchange. This is done by carrying meaningful instructions within the interchange or agreeing in advance as to what these are for specific interchanges. For example, information about how different records or parts of records relate to each other (e.g., authority files or pointers to related records) can be declared within a transmission. Another way is to agree beforehand in great detail what is expected in a particular interchange session.

In the first year CIMI spent much of its time refining the requirements. The range of options for fulfilling them has now been narrowed down to a set of standards that seem appropriate. This set will be further refined through trials with data contributed by the task groups mentioned earlier. The validation process involves taking the requirements for data, relationships, and functionality and examining the interchange format's ability to accommodate the stated requirements. By repeating this process a number of times, the requirements for exchange are finally accommodated to the committee's satisfaction. In some instances the interchange format will need to be modified; in others CIMI may suggest alternate approaches to the task group that may restate the requirements.

Although a large number of data and functional requirements will be examined initially, not everything will be accommodated at once. An important part of CIMI's work will be to make the ongoing articulation of museum interchange requirements possible. This will become part of the process that allows the interchange formats to be continually revised and updated. Throughout this time CIMI will concentrate on developing a mechanism to channel

requests from committed professional groups to map their interchange requirements into the CIMI framework.

Continuing Discussions

Getting the results CIMI wants requires extensive discussions with a widely dispersed group in a very short period of time. In order to foster a dialogue within the broadest possible community CIMI publishes a newsletter, *CIMI News*, and other more technical papers, and also publishes news and information in the professional literature.

133

Introducing a Common Documentation System into the Museums and Galleries of Slovene—Problems and Achievements

Alenka Simikic
Curator
Slovenski Etnografski Muzej
Ljubljana, Slovenia

Regardless of its small population of 2 million, Slovenia has as many as 11 national and 30 regional museums and galleries, in which the natural and cultural heritage of our country are stored.

After World War II, there were many attempts to introduce a unique documentation system or, rather, a uniform card for documenting our cultural and natural heritage. There were also a few isolated attempts at producing a common classification within the scope of individual fields of specialisation, but all these attempts and efforts failed for various reasons. One of them was also the fact that museum people did not feel the need for unified standards—on the contrary, such standards would only hinder them in their different ways of documenting museum and gallery objects, developed through years of isolated practice. They also believed that the documentation of a gallery object, for example, required a completely different standardisation than the documentation of a museum object, and that even the museum objects within the various fields of specialisation should be treated differently.

With the expansion of automatic data processing, which began to be introduced into all fields of our daily work in 1987, one could also observe a parallel increase in the number of computer experts, who used unlicensed tools in preparing their software programs and expected to make a lot of money in our professional field. All attempts at producing a computer programme that would be adequate for all museums and galleries failed, although the need to unify the documentation system became still more evident. Unfortunately, as it later turned out, there were only a few people who were then aware of how important the unification of the documentation system was to the automation of our museums. With my colleague Marjeta Mikuz, also a curator then, but working in another museum, I was assigned to a project whose objective was to develop a software programme that would allow any museum or gallery object to be adequately processed. We soon found that the problem was not developing a unified computer programme, but that years of hard work would be required to arrive at the basis for preparing such a software package. The process of computerisation was quick, great steps forward were being made, and we were afraid that a multitude of incompatible software programmes might be developed by the museums that were all very eager to start immediately with the automation of their materials because the Ministry of Culture provided all the regional museums with at least one IBM PC-compatible computer and the national museums with more of them. So there was not enough time to develop a documentation system with all the rest that the term implies. To avoid the initial problems caused by the use of different systems, we decided to look for an existing computer programme in some other country that had an established documentation system. At the same time, we also hoped that in this way we would obtain a tool to use in tackling individual problems of documentation: that is, the standards (a minimum standard applying equally to all objects, and individual standards for processing different types of materials within various fields of specialisation), a uniform terminology, etc.

134

Through the Museum Documentation Centre of Zagreb, the only documentation centre then operating in the former Yugoslavia, we heard about the efforts and activities of the Museum Documentation Association of Cambridge and familiarised ourselves with their work. In 1988, we bought from MDA their software package MODES (Museum Object Data Entry System), which is the application of the MDA Data Standard. Back home we studied the programme with the help of a computer expert and organised a presentation of the package for all the museums and galleries in Slovenia. After its presentation, we polled participants to see how many would be interested in buying the programme.

The poll revealed that regional museums were without exception in favour of the programme; not so with national museums, which was not surprising since their greater financial resources had already allowed them to start their own projects and choose their own suppliers. But the high percentage of those interested in the MODES package was the major reason for the 1989 decision to purchase the package for use by all of the museums and galleries in Slovenia.

But even before purchasing the package, first steps were also made toward the application of the MDA Data Standard: Although there were some initial difficulties, the results were quite encouraging. A group of curators, appointed by the national museums defined the terms for individual categories (on the basis of the Museum Object template), translated the definitions of those categories, and provided them with adequate examples. On the basis of these efforts, the first Slovenian application of MODES was prepared in cooperation with experts from the MDA. The issues concerning computerisation in the strict sense were taken over by a computer analyst from the company which helped us to import the programme and adapt it to our conditions, while my colleague and I were responsible for explaining the MDA standards and data entry rules.

It soon turned out that a partial application, with which we tried to satisfy the most eager of the museum people, was not enough. At the beginning of last year, a group of curators of various fields of specialisation (art historian, archaeologist, ethnologist, geologist, botanist, and zoologist) created Slovene terms for all of the 160 categories included in the MDA Data Standard. In part, they translated the categories, but they also defined individual categories themselves and supplied them with examples applicable to our territory. In this way, a tool was obtained, which could help us in preparing further applications, such as for example the standards of individual fields of specialisation. The work was expected to be continued within the framework of a Museum Documentation Centre, which would direct and co-ordinate these activities, of course in coordination with museums. All of the work done until then was performed practically on a voluntary basis and did not have any institutional form.

Last year, the Museum Information and Documentation Network was formed within the framework of the Slovene Ethnographic Museum. Some financial resources from the Ministry of Culture were also made available for this purpose, which allowed us to employ a computer expert for a part-time job. This established the conditions which allowed better and more coordinated work to be started with a view to developing a national database of the natural and cultural heritage of Slovenia.

The work of the Museum Information and Documentation Network is currently focused on two issues:

135

First: Education

After years of working on the unification of the documentation system, my colleague and I have realised that the majority of curators did not know much about documentation and documentation methods. That's why our educational activities took a variety of forms:

- Training courses for MODES users; until now, these were attended by 130 curators from all museums from all parts of Slovenia
- Lectures by foreign experts
- Publication of translations of basic texts (for the time being the articles) dealing with documentation
- Active participation (papers dealing with documentation and information on issues) at various symposiums and conferences of museum people particularly in Slovenia and abroad.

Second

- Reconciliation of standards to establish a Slovenian national standard
- Establishing a comprehensive documentation system in the Slovene Ethnographic Museum.

This year, a Commission for Museum Documentation, comprising curators of various fields of specialisation, was formed within the Association of Museums of Slovenia. We have been trying to develop a communication format for the exchange of information about museum objects.

Another main task of this commission is also to prepare the criteria which should be followed by future software distributors:

- The software should include minimum standards agreed on within CIDOC
- Date entry rules must confirm to ISO standards
- Training, support, and warranty must be assured
- Any proposal for some new project should also contain the necessary hardware configuration—according to the existing software in use; the proposed software package will be evaluated by an independent group of experts (no museum employees, no hardware/software dealers, no political party members). On the basis of their decision the Ministry of Culture will finance the new project.

The basic problem, and also the main task, is to change established views on the documentation of museum and gallery objects. We must be aware that this work is not performed for the sake of ourselves only, for our needs and our research: the information about our cultural heritage is the property of us all and should be accessible to all, not only to the happy few. And the information will be accessible to all while its essential items will be recorded in a uniform manner.

Romanian Art Thesaurus—Structures, Hierarchies, and Correspondences with the AAT

Irina Cios
Analyst Art Historian
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

One may say that an art historian does not consider it a good thing to have to work with data about art objects without being in touch with the art objects themselves. Being responsible for a national database implies many problems and rarely offers professional satisfaction.

The national art database is a part of the SI-PCN project. Starting from 1981 it was built up brick by brick for what is today a 75,000-record data collection. It involves the work of countless specialists, curators, and art historians from museums and heritage offices all over the country.

As this project was supposed to be developed at a national scale, first of all, it created an unique record form and a thesaurus of terms for the most important fields. Then it set up a conventional structure that divided the arts field into two databases: fine arts and decorative arts. The first one includes paintings, sculptures, graphic arts, religious art (paintings and sculptures), miniatures, and artistic maps. In the decorative arts database are stored ceramics, tapestries and embroideries, costume pieces, silverware, artistic furniture, and monumental art (detached stained-glass windows, decorative stone sculpture etc.)

This structure proved important advantages:

• A unique record form and a thesaurus ensured the uniformity and the compatibility of data
• The possibility of sharing information and data interchange
• An ASCII input format is now allowing the transfer or import of data in any software.

There are still enough dark sides that have to be cleared up:

• This unique record form inevitably could not fit all the specific features of art collections and museums in the country
• The pace of data entry was reduced compared to the number of records coming from all the museums
• The quality and the correctness of the recorded information was sometimes lacking due to the poor training and documentation of the museum's staff in computerised management of data.

At the beginning this project had the ambitious goal to become a database able to satisfy not only the art collection managers, but also researchers and the general public as well. Due to objective conditions it was not supported. Actually the art database may be considered an important inventory of the national artistic heritage.

Fortunately since 1989 there were some changes in the field of computerised management of data collection in the humanities.

137

First of all, more and more people are no longer frightened of, or suspicious about, the computer. Some of the museums (mostly the national ones) now have their own computers (IBM-compatible PCs).

CIMEC has, since 1990, abandoned the mainframe that served in the SI-PCN project and transferred all the information to the PC system.

In this process it was necessary not only to take a better look at the structure of data, but also to adapt the existing thesaurus for the new working media.

Before detailing the problem of the thesaurus, it has to be said that it was, and is, conceived as an active tool. It served simultaneously for indexing the information as a controlled language, for corrections as an authority file, and for data retrieval as key words.

From this point of view it is important to see that our thesaurus is very closely correlated with the evolution and the nature of our national heritage. It was created for this purpose and is not an exhaustive instrument, not even for the Romanian heritage because it concerns mainly the art objects (i.e., objects that can be removed, that are not attached to a place).

To provide a better look at the thesaurus, I would like to mention a few things about the record's structure. The record form contains 49 fields. (Unfortunately, although this could provide a quite detailed description of an object, only 16 fields are constantly filled in.)

The new working media are offering us greater mobility so that it is possible at this moment to enlarge the number and types of fields.

Since the museums have had their own computer system our relationship has changed. We are no longer working under a centralised system. It is true that our experience and technical support (as poor as it is) leads to a centralised work, but this will change little by little. Museums' actual software and hardware possibilities, in Romania, are not providing a self-supported activity in the documentation field, but we have to expect that to happen very soon.

According to these principles we are now developing the data dictionary, trying to consider all the possible enquiries that may arrive in a computerised management of the museum activity, regarding mostly aspects connected with objects (i.e., registration, storage, research, exhibition, insurance, conservation, etc.), and to add them to those existing in our records. After consulting some of the similar systems in Western Europe and North America[1] I defined about 100 fields specific to the fine arts[2]. Perhaps not all will be used, but any museum or user will be able to create a structure suitable to his collection's features while conserving compatibility among all the systems, whether already existing or newly created.

Constrained by the old record form, supposed to correspond to ten different domains[3], the fields had to be of fixed length, including sometimes three or four types of information. It is obvious that without a controlled language, data retrieval would have been almost impossible under these conditions.

The fine arts thesaurus has at present about 3,000 terms. It is structured according to four facets:

1. Category and type
2. School, period, workshop
3. Materials and techniques
4. Key words.

The first one contains terms related to the artistic categories represented in our database. In the second, we find not only periods, schools, and artistic workshops from Romanian fine arts history but from the whole cultural world. The third includes materials and techniques used in the fine arts and/or decorative arts field. The "key words" facet shows iconographical reference words, themes, motifs, or associated concepts[4].

Each hierarchy follows the relation of broader/narrower term and synonyms or alternate terms. The singular is always preferred, without articles.

In fact we have two thesauri: one for the fine arts and another for the decorative arts, having the same structure.

As it is easy to remark, the hierarchies are not built on a single root, this being a consequence of the fields' structure. At present we are confronted with the impossibility of using them in computer due to:

• The transfer of the database onto PCs[5], since the thesaurus is being constructed on the French Mistral software (for the mainframe)
• The new terms recorded during the data transfer that are not updated
• The fact that there are not single terms but often syntagms (e.g., oil on canvas, tempera on wood panel etc.).

While we are proposing a new data structure it is vital to adapt the thesaurus too, to improve it and to create a bilingual (or trilingual) version[6]. More than that, it became obvious that information sharing and interchange is an extremely important way to make the Romanian heritage better known. It would be useless to think about translating data. The thesaurus is thus the "magic tool" that can solve this type of problem.

For this purpose I studied the Art and Architecture Thesaurus, (AAT)[7], which became a real guide. A first important conclusion was the fact that there are many common features in both structure and content. For an example we can compare the Romanian "Materials and Techniques" hierarchy with the AAT's "Processes and Techniques" hierarchy[8]:

"Materials and Techniques" from the Romanian Arts Thesaurus
**Tehnici de Ornamentare

>ALTORELIEF
>BASSORELIEF
>BATERE
    >CIOCANIRE LA CALD
    >CIOCANIRE LA RECE

139

>CAMAIEU
>DECALCOMANIE
>EMAIL
   >CLOISONNE
   >EMAIL PICTAT
   >CHAMPLEVE
>FILIGRAN
>INTARSIERE
>NIELLO
>PIROGRAVURA
>...

"Processes and Techniques" from the AAT

KT.531	<sculpture and sculpture techniques>
KT.538	BAS-RELIEF
KT.539	HIGH RELIEF
KT.838	<metal finishing processes and techniques>
KT.840	HAMMERING
	(hammering the cold metal)
	(hammering the heated metal)
KT.252	<painting techniques for special effects>
KT.253	CAMAIEU
KT.739	<transferring techniques>
KT.741	DECALCOMANIA
KT.665	<surface coating and decorating processes and techniques>
KT.658	ENAMELING
KT.661	CLOISONNE
	(painted enamel)
KT.660	CHAMPLEVE
	(filigree)
KT.708	INTARSIA
KT.704	NIELLO
KT.682	PYROGRAPHY

The advantage of having only one root for each hierarchy and also of eliminating linking words as much as possible (e.g., "of," "on," "for," etc.) was obvious. It was quite clear that it would be of great use to establish the correspondences between the Romanian Arts Thesaurus and the AAT, since this might become an opportunity to enrich both sources:

1.   To find the English correspondences for the Romanian terms, adding those related to contemporary art not yet existing in our database

2. Revealing the terms specific to Romanian/ East European art that are not yet introduced into the AAT, creating a Romanian version at the same time.

Once starting that, I was confronted with different situations.

One of them was the presence of identical terms, adopted in their original language:

BODEGONES, BOZZETTI, CLOISONNE, CHAMPLEVE, NIELLO, AND SO FORTH.

The second one is the presence of foreign terms that are not those preferred in the AAT:

POINTE-SECHE = DRYPOINT,
AQVAFORTE = ETCHING etc.

The third situation is that of complete translation when the word conserves its whole meanings in both languages:

DESEN = DRAWING,
PICTURA = PAINTING,
TAPISERIE = TAPESTRY ...

Another situation is that of "the domino play" when the two words have a common meaning but do not correspond completely, being in a relation of "more" or "less":

GRAVURA > ENGRAVING,
BANDA DESENATA < CARTOONS ...

And a final situation that occurred was that of terms not existing in one hierarchy or in the other:

• In the Romanian thesaurus:

   OUA DE PASTI (Easter eggs),
   SCOALA MARAMURESANA (a very typical Romanian school of painting in the 18th century),
   ICONOSTAS (the wall or the piece of religious furniture separating the altar from the rest of the orthodox church, decorated with sculptures and paintings).

• In the AAT:

MAIL ART,
BODY ART,
HAPPENINGS etc.

It is also true that, due to different features of our national heritage, not all the hierarchical structures corresponded[10].

What also needed to be done was to choose a preferred term, to add definitions, and to create the relation "see also".

141

Activating a feedback process, I am using the information selected from every field having a thesaurus by comparing the terms. The new terms are easily noticed in this way and can be attached in their right place.

Besides all this, what also resulted from this analysis was the necessity of authority files for authors, iconography, and styles.

In priority I have started, and I am now developing, the "Authors" file. The structure I adopted for this file is reference number, name, given name, nickname, pseudonym, other names, preferred name, date of birth, date of death, major field of activity. It contains for the moment Romanian artists, considering it not only as a very important instrument but also as the subject of a possible exchange with similar files from other countries.

One may say that there is too much daring in these projects and that they would be better realized by a group of specialists, and I admit that. Unfortunately there is no available financial support for creating a working group for this purpose. On the other side there is a saying that if you want to kill a project you create a commission. In any case, once these projects are realised they will have to have the agreement of specialists.

Even if it is not so spectacular this kind of work can do a great deal to improve knowlege and information about the arts and arts history.

My wish is to do my best considering first of all the characteristics of the Romanian heritage in developing these projects, hoping that the time of a real appreciation for its value, not only in Romania, will come soon.

Notes

1. For this purpose I had the opportunity to consult The Humanities Data Dictionary of the Canadian Heritage Information Network; SAGA: Le systeme automatisé de géstion des acquisitions d'oeuvres d'art, Centre de calcul du Centre Georges Pompidou en collaboration avec le Musée national d'art moderne (MNAM); Metodologia di catalogazione—Istituto Centrale per il Catalogo e la Documentazione, Roma.

2. As regarding our existing structure it is possible to transform it by dividing the composed fields into as many as necessary. This will determine a much refined analysis and increasing possibilities of interconnections.

3. The mentioned domains are: Fine Arts, Decorative Arts, Archaeology, Medals-Decorations, Documents, History of Science and Technique, Ethnography, Military History, Memorial History, Numismatics, and Natural Sciences.

4. We intend to develop this last one into two distinct facets: one for associated concepts and one for iconography.

5. We are testing a new software: "THS Focus," specially created by The Informatics Central Institute— Bucharest (ICI).

6. I refer to English and French.

7. The Getty Art History Information Program, *The Art and Architecture Thesaurus*, Vols. 1-3 (New York, 1990).

8.   I have listed, on purpose, only those terms from the hierarchy that are evidently proving the correspondence.

9.   I have put in brackets the terms not found in the AAT.

10. I have to mention that there are very few terms related to Romanian culture in the AAT, some of them needing some corrections (e.g., Brancovan, determined as an <Eastern European Renaissance—Baroque pottery styles>, is correctly spelled "Brâncovenesc" and represents an entire cultural and artistic period and not only a pottery style).

143

Post-Conference Remarks

CIDOC Conference in Ljubljana, Slovenia, 1993

Marjeta Mikuz
Curator
Slovenski Etnografski Muzej
Ljubljana, Slovenia

With the present text I would like to inform you about the conference of ICOM's Committee for Documentation (CIDOC) which will take place in the congress centre Cankarjev dom in Ljubljana, Slovenia.

I would like to say some words about the following:

- How our country happened to be chosen as the host of the conference
- Why the conference motto is "East Meets West"
- What are the expectations of museum people from Western and Eastern countries concerning the conference
- What are the expectations of CIDOC—the initiator of international connections—concerning the conference
- What are the expectations for the conference of the Slovene museum community.

Together with my colleague Alenka Simikic, I have spent six years working on documentation issues. Right from the beginning, when both of us still worked in different museums, we were instinctively aware of the need to establish contacts with other people working in the field of documentation, both in museums and in galleries inside and outside our country. We knew that each person working in the field of documentation comes across problems connected with inventories, terminology, and documentation cards, etc.

With the expansion of computer technology, these problems became even more acute; there was a greater need for cooperation and unification (from terminology to standards). We endeavoured to establish a common basis that would ultimately allow us to arrive at a unique documentation system. I will not speak about the ups and downs encountered in our work (since this was detailed by Alenka), but I would like to point out the moment when we felt the need for assistance from people who had already been through the same kinds of problems, since we had already seen the results of such efforts presented at various conferences. A crucial moment in our work was the visit to the MDA in Cambridge, where we were offered a great deal of assistance by everyone. After participating at two MDA conferences, we were invited to CIDOC's conference in Athens (in autumn 1989). There, we put forward Ljubljana as a candidate for the site of CIDOC's 1993 conference.

The CIDOC conference in Copenhagen last year accepted our candidacy. From then on, we have combined our usual activities with the preparations for the conference, which will be hosted by the Slovene museum community. The conference motto will be "East Meets West".

As the motto implies, documentation and automation experts from all parts of the world will inform us about their achievements and efforts.

The experts in working groups will tackle the problems in the following fields:

- Reconciliation of standards
- Documentation standards
- Terminology control
- Information centres
- Database survey
- Archives.

Museum people from all over the world will thus have a survey of the situation in the documentation and automation of the world's natural and cultural heritage; they will cheer the achievements and offer assistance where things are still not be as they should be.

And all of us who are pestered by economic and social problems, ethnic conflicts, and even war, expect considerable assistance, in the first place from an international organisation such as ICOM's CIDOC, and from the developed world.

Can the scarcity of financial resources, or the priorities of satisfying primary existential needs, make us neglect the suggestions and initiatives in the field of documentation of the vast riches, for example, of archaeological excavations of the Roman period in Romania?

For example, can we compare the importance of the materials from the Roman period found in the territories of Romania, Slovenia, Italy, or Great Britain of today, or anywhere else? Are not all those monuments of the same category: the cultural heritage of the world?

Why should we, on the one hand, let be erased any evidence (information) concerning an extinct culture—while, in the midst of the continual technological improvements in automated documentation systems, the spirit of the past slowly fades away?

This should be taken just as a word of warning, and these matters may become more clear during the 1993 CIDOC conference in Ljubljana.

In any case, CIDOC should play a more important role in helping to introduce the bases of documentation—for example, the preparation of international standards, establishing international law about exchange of information.

Why should the well-known and less well-known computer firms not join their efforts and offer a computer programme that would be suitable for documenting the cultural heritage existing in the above-mentioned countries, from which we come? Why should they not offer computers and staff training?

This could be an initiative for an international organisation such as CIDOC and for the developed countries to use in directing their activities and their profession and, last but not least, their financial support.

Such cooperation could also be an occasion to start to consider in a more practical way the initiative of the next ICOM conference in Canada, whose theme will be "Rethinking the Boundaries."

146

But regardless of whether we come from the East or the West, we will have an opportunity to share the fine feeling of doing something good for future generations by at least preserving information about the world that has disappeared.

At the beginning of this paper, I posed another question: What are the expectations of the Slovene museum community concerning the conference?

The mentality of the people working in Slovenia in the field of museum documentation is characterised by a wide range of initiatives, efforts, and knowledge and, above all, each individual's conviction of working in the best possible way in his or her own field. I believe that the latter characteristic could be enhanced through the participation at the conference in Ljubljana.

I hope that the conference will make clear to everybody the need to share information, whose value is thus very much increased, that we are all doing the same kinds of things, and that somewhere our ways must meet, if nothing else, for example, in the way of recording a date and the rest of the information connected with the date—when an object was found, when its creator died, when a craftsman made a particular object, etc.

Within this context I would like to mention the date of the conference: 10 - 16 September 1993, and invite all of you to come to Slovenia, to Ljubljana.

147

RECOMDOC '92—A Necessary Effort Toward Convergence

Virgil Stefan Nitulescu
Councillor, Cultural Heritage Department
Ministry of Culture
Bucharest, Romania

"You may say I'm a dreamer
 But I'm not the only one"
                    John Lennon

The process of European integration, particularly complex, had already begun, at all levels and fields of socio-economic and cultural life when, in 1989, Europe's political entity suddenly acquired new dimensions. The crash of communist regimes in the Central and Eastern European side of the continent, the disappearance of some states, the (re)appearance of others, and the restructuring of the region's fundamental framework affected the very delicate field of cultural heritage as well.

To be administered, studied, and represented properly, this heritage should first be known. That is what requires the largest amount of work and specialised tools (both conceptual and material). From Czechoslovakia to Russia and from Estonia to Albania, the problems are all the same, even though the levels reached in creating and developing data banks and in analysing the cultural items are not identical. Moreover, the necessity of correlating the national systems with those internationally accepted, mainly through CIDOC, has become evident.

This should be of importance not only to specialised bodies affiliated (or not) with ICOM, but also to the national ones in Western Europe and even the USA and Canada—as the latter two are very much engaged in the common European destiny.

The Romanian suggestion to create a regional committee for documentation in the field of cultural heritage and museums, especially in Central and Eastern Europe, came just in time, as it drew the experts' attention to the urgent need to solve the problems. The Sinaia conference has set itself far more ambitious objectives than simply adhering to the "natural" (slower) course of things.

Unfortunately, the lack of financial means, as well as other reasons concerning the tense political situation in the area, and the outbreak of undeclared but real wars, led to participation far below our expectations.

Representatives from the former "Soviet Republics" were absent (except Moldavia), as well as those from Albania and Bulgaria, while from Yugoslavia only Slovenia took part. Under these circumstances, participants could only formulate problems and take into account the actual moment's specific situations. RECOMDOC '92 was only the initial call for everybody to come to the starting line. The race (counting major obstacles: different definitions of cultural heritage, lack of specialists and instruments, insufficiency of legislation, etc.) is beginning now and it has to bring all the runners together to the finish, at the same time. It is a common effort, based on a common motivation: information exchange, without which the existence of information itself would be pointless.

148

Considering all these, it seems that the period (nevertheless, short enough) that is left until the Ljubljana CIDOC conference in September 1993 should be used to increase the number of participants in this regional activity—by involving all the countries geographically and politically situated in Europe—and to prepare a larger contribution of the official responsible institutions, namely those institutions which, in the absence of other sponsors, will concretely assure the financing of this effort.

Here is the place to express our gratitude for the support already offered by the J. Paul Getty Trust, through the Getty Art History Information Program, and the hope that our effort will prove fruitful while we're still within the second millenium.

Post-Conference Observations

THESE REMARKS ABOUT THE CONFRENCE WERE SOLICITED FROM PARTICIPANTS BY MAIL FOLLOWING THE CONFERENCE.

Jeremy Rees
Visual Arts Consultant, European Visual Arts Centre, Ipswich, UK (EVAC)
Coordinator, BRANCUSI Interactive Multimedia Project,
on behalf of the International Visual Arts Information Network (IVAIN)

"I feel that one of the biggest problems concerning the sensible and economic progress and development of museum and cultural information is the continuing lack of awareness of what others are doing and of exploration of ways that regional, national, and international collaborations can be of mutual benefit to museums and their specialised and general publics.

RECOMDOC '92 was valuable in bringing together people on all these levels—and in bringing together people from East and West. I hope that, as came out in the final session, it is more widely recognised that every country has problems and challenges in common, that no country has yet achieved any form of 'total answer,' and that solutions are not merely a matter of apparent economic wealth. More important is a clear idea of objectives and a will to achieve sensible solutions.

I hope that RECOMDOC '92 will lead to consolidation of contacts made and to regular international meeting, to the fostering of a belief that wider national and international access to cultural heritage is important to society in every country and to the determination to achieve this—despite (often very similar) problems that we all face."

Simona Suceveanu
Curator
Muzeul de Istorie Nationala si Arheologie
Constantza, Romania

"RECOMDOC '92 was a beginning, an opening, new opportunities for collaboration. The topics of the conference were very interesting (especially those related to museum automation debated during the workshop organised by the Getty Art History Information Program). Congratulations for the organisation!"

150

John Perkins
Project Manager
Museum Computer Network
USA

"RECOMDOC '92 was a very special event for me, and I learned a great deal from my time with you. As I said in my talk, for all our so-called advantages in the West I really feel we are the ones who have been poor because of our lack of contact with you. RECOMDOC '92 was the first step in remedying that: I hope to take part in many more."

Dr. Jana Bahurinská
Dr. Andrej Svec
Slovenska Narodna Galeria
Bratislava, Czechoslovakia

"The invitation to take part in RECOMDOC '92 was for us a great pleasure. The Slovak National Gallery in Bratislava, Czechoslovakia, started the work of building an information system based on PCs in 1991. A Database Centre was built to plan and complete the computer museum information system. The highest priority is the information system for documentation collections. Therefore it was very useful for us to take part in RECOMDOC '92.

The organisers prepared the conference programme very well. All the contributions, lectures, papers, and workshops were of a high level. We received many informational materials. The opportunity to speak and to discuss with specialists from the USA, Canada, Great Britain, Romania, etc. about their experiences was for us very useful.

A very important result of the conference was that we met experts in the computerisation of museum collections and collection documentation from many countries; now we can contact them and begin, as we hope, to cooperate with them.

The organisation of the conference was also great. Thanks to the organisers we had nice conditions for our work. We were pleased to meet so many young experts from Romania and to exchange our experiences with them. In Romania you have done a great deal of successful work in the computerisation of museum collections. We wish you much success in your further work.

We were glad to stay in Romania, in Sinaia—this beautiful part of your country."

151

Daniela Busila
System Programmer
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

"I think one of the greatest benefits of the conference was attending the workshops made possible by the Getty Art History Information Program. Unfortunately, the two workshops were scheduled at the same time, so for many participants it was difficult to choose.

With regard to the workshop on museum automation, the teaching methodology—based on group exercises—was a new and enriching experience for all of us.

The main lesson to learn was that teamwork is essential when people with such different professions, covering science and the humanities, are involved. I think it is a privilege to work in such a field where communication is so varied.

Another lesson to learn was that working in a heterogeneous team and with complex information requires first of all good planning, making things clear right from the start. We were taught how to build a strategy together in a group, how to put diverse ideas in order, and how to create tools on which the planning process will be based.

The problems in Eastern countries come not only from the advanced technology deficiency, but also from the misunderstanding of the importance of good organisation, evaluation of forces, and, sometimes, cooperation. The messages of the workshop were clear and easy to get, but we often forget to make things look clear and easy."

Henrik Jarl Hansen
Curator, Documentation Department
The National Museum of Denmark
Copenhagen, Denmark

"Igor Stravinsky once said that Antonio Vivaldi had not composed more than 400 concertos, but the same concerto more than 400 times. Whether one agrees with Stravinsky or not, one feels that Vivaldi composed with ease and great joy for the listener.

Without wishing to pursue the comparison further, the two subjects, 'Museum Documentation in Denmark' and 'The Danish National Record of Sites and Monuments,' which I have contributed to this publication, seem something of a repetition, or at least variations on a theme, not least for myself; but against the background of the RECOMDOC '92 conference I have written them with enjoyment, though not with ease. It is hoped that they can be read with profit, although the subjects are so wide that it is impossible to illuminate all their facets at this time.

I was surprised to learn how much work has already taken place in museum documentation in Romania, including the role of CIMEC. CIMEC has been in existence for about as long as the Cultural Historical Central Register in Denmark, and it was interesting to be able to exchange experiences and draw parallels from the point of view of central registration.

152

Despite impressive results I could not avoid thinking how much further CIMEC could have gone if it had had the same access as we have had to technical and economic resources. It will be interesting to follow the coming years' developments, and we hope there are more RECOMDOC conferences to look forward to. The first at any rate will be remembered."

153

RECOMDOC '92—Closing Remarks

Ecaterina Geber
Systems Development Department Chief
CIMEC—Centrul de Informatica si Memorie Culturala
Bucharest, Romania

The rapid changes in Central and Eastern European countries opened a new era of development and collaboration possibilities in museum documentation and information interchange. Following the discussions at the CIDOC/ICOM Conference in Copenhagen, May 1991, the need to survey cultural heritage projects developed in isolated circumstances and the creation of a regional organisation were outlined.

This conference was convened to encourage collaboration—national, regional, and international—to provide an opportunity to establish closer links between museums and heritage institutions, to bring together museum staff, librarians, registrars, system designers, and computer specialists. The setting up of a Regional Committee on Museum and Cultural Heritage Documentation to provide a survey of cultural heritage projects, common problems, and possible solution had been one of the ends of the conference.

RECOMDOC '92 was organised by Ministerul Culturii din Romania (Dialogue Cultural International—Departamentul de Informare si Documentare—Departamentul Memorie Culturala), The Romanian Ministry of Culture (The International Cultural Dialogue, Information and Documentation Department and Cultural Heritage Department), Directia Muzeelor si Colectiilor—Museums and Collections Board, Centrul de Informatica si Memorie Culturala—the Information Center for Culture and Heritage, and the generous contribution of the Getty Art History Information Program.

RECOMDOC '92 took place at Sinaia (a mountain resort, 160 km from Bucharest), 4-6 May, 1992.

Eighty specialists (curators, librarians, art critics, historians, engineers, programmers, and analysts) representing 46 museums, institutions, and international organisations from 10 countries: (Canada, Czechoslovakia, Denmark, Greece, Great Britain, Hungary, The Republic of Moldova, Romania, Slovenia, and the USA).

The conference had three sessions:

1.   National, European, and International Collaborative Projects
2.   Documentation and Collections Management Projects
     2.1 Arts, Ethnography, Slides, Rare Books, and Photos
     2.2 Archaeology, Numismatics, History, and Natural Sciences
3.   Standards and Interchange Formats in Museum Documentation

The Opening and Welcome session took place at the Palace Hotel in Sinaia. The speakers were Dan Matei, the Director of the Information Centre for Culture and Heritage (CIMEC); Radu Boroianu, Secretary of State, Ministry of Culture, Romania; Dr. Michael Ester, Director, and Eleanor Fink, Program Manager, from The Getty Art History Information

154

Program (USA); and Ecaterina Geber, the Chief of the Systems Development Department (CIMEC), who saluted the conference and outlined the importance of the event.

Then Mary Case, Director of the Office of the Registrar at the Smithsonian Institution, USA, presented a very interesting analysis of the documentation/museum situation in the USA entitled: "How We Manage."

Andrew Roberts, the chair of the International Documentation Committee/International Council of Museums (CIDOC/ICOM), welcomed the conference and presented a very comprehensive illustration of "Documentation Practice, Systems, and Standards in European Museums".

The first day's afternoon session (Monday, 4 May, 16:00), was chaired by Dr. Dinu Giurescu. Irina Oberländer-Târnoveanu and Ecaterina Geber (CIMEC, Romania), presented "SI-PCN: The National Cultural Heritage Information System in Romania." Zdenek Lenhart (Moravske zemske muzeum, Czechoslovakia) talked about "Czechoslovak Museums, Documentation of Collections, and Computers". Jeremy Warren (Museums & Galleries Commission, Great Britain) made a very instructive presentation of the Museums & Galleries Commission network and relationships. Jeremy Rees (EVAC, Great Britain) revealed the details of the logic, advantages, contradictions, and problems encountered in aiming for (and achieving) European and international collaboration in his paper entitled "Arriving at International Collaboration". Barbara Rottenberg (CHIN, Canada) presented "The Evolution of a National System"—very impressive and most helpful conclusions for those from Central and Eastern Europe who are experiencing the same process which CHIN had already gone through. Dan Matei (CIMEC, Romania) presented a challenging and ambitious project, "A Software System for Romanian Museums". Henrik Jarl Hansen (The National Museum of Denmark), the last speaker of the first day, presented in a very attractive way the Danish Museum Index.

On the second day, Tuesday, 5 May, two workshops made possible by the Getty Art History Information Program, "Planning for Museum Automation" and "The Art and Architecture Thesaurus," kept the attention of participants. John Perkins (Museum Computer Network, USA) and Margaretta Sander (Art Information Task Force, USA), convinced their audience that a combination of lectures and group exercises are an enjoyable and instructive way to learn about strategies for planning museum information management. Susanne Warren (Art and Architecture Thesaurus, USA) provided a background of standards for information interchange in the use of controlled vocabulary in an automated environment.

Those who did not attend the workshops took part in a nice spring sunny-day walk and a visit to the very unusual Peles Castle.

During the afternoon, the two parallel sections of "Documentation and Collections Management Projects" had to compete with the splendid sunny day outside. The "Arts, Ethnography, Slides, Rare Books, and Photos" section was chaired by Laszlo Szabo (Hungary), and the "Archaeology, Numismatics, History, and Natural Sciences" section was chaired by Irina Oberländer-Târnoveanu (Romania).

In the first section, Camelia Savu (CIMEC, Romania) presented a database, STAR, about the history of theatre performance in Romania; Carmen Smaranda Farcasiu (Peles Museum, Romania) read an essay entitled "Mode, Model, and Modality"; Ecaterina Geber (CIMEC,

155

Romania) tried to answer a very frequently asked question: "Why the BRANCUSI Interactive Multimedia Project?", Iuliana Ciotoiu and Dr. Ion Godea from the Village Museum (Romania) analysed the correlation of an information system in an ethnographic museum; Iuliana Ciotoiu, Mihaela Dâmbu, and Florin Patrascu (Romania) detailed the previous paper with an example: "Informational System of the Village Museum: CAMUS Programme." Lucia Cusnir (Museum of Folk Civilization, Romania) emphasised the importance of the links between the systems describing the objects or specimens and the documentation archives (slides and photos) in her paper "Computerised Management of Photo and Slide Collections". Victoria Anghelescu and Mariana Velicu closed the day with a very interesting sociological analysis performed at the National Museum of Cotroceni in Bucharest (Romania).

In the parallel section, Ernest Oberländer-Târnoveanu (The National Museum of History, Romania) presented the benefits of the computerised numismatic catalogues; Simona Suceveanu (National History and Archaeology Museum, Constantza, Romania), formulated proposals for an integrated documentation project for their museum. Victor Serbanescu and Petre Sitov (Brasov, Romania) described an attempt to design software for museum information inventory and correlation; Mariuca Radu (History Museum, Brasov, Romania) discussed the possibilities of computerised management of the ancient maps collection from Brasov. Zoia Maxim (History Museum of Transylvania, Cluj, Romania) introduced a "Catalogue of Shapes and Ornaments for Archaeological Databases"; Dr. Gheorghe Lazarovici and Lucian Tarcea (Cluj, Romania) presented their project of a database management system for archaeology, called "ZEUS". Dorel Rusti presented "A Fauna Database from the 'Grigore Antipa' Natural History Museum".

The last day (Wednesday) was dedicated to the discussion of standards and interchange formats in museum documentation. The session was chaired by Nicolas Papageorgiou (Greece). Anisoara Burlacu (CIMEC, Romania) shared with the audience new potentials in managing a museum database; John Perkins (MCN, USA) discussed data standards for information sharing; Andrew Roberts (CIDOC, Great Britain) presented "National and International Standards Initiatives"; Irina Cios (CIMEC, Romania) established corres-pondences between the Romanian Art Thesaurus and the AAT, a future basis for information sharing. Alenka Simikic (Slovenia) presented "Galleries of Slovene—Problems and Achievements". Marjeta Mikuz (Slovenia) invited us to take part in the coming CIDOC conference in Ljubljana, 1993.

Unfortunately, many of our colleagues from neighbouring countries were not able to come, mostly because of lack of funds.

Subsequently, at the end of the conference we found out that we have not yet defined how to collaborate and what each of us means by collaboration.

The two questions:

1. What is collaboration? How to collaborate?
2. What do you mean by collaboration?

might be, we suggested, the subject of a special session, at the following CIDOC meeting, in Ljubljana, Slovenia, 10 - 16 September, 1993.

156

In the meantime the participants in RECOMDOC '92 will take the responsibility of creating links between different groups in the region, fostering communication and information sharing. (Our colleagues from Slovenia, Czechoslovakia, and Hungary have already accepted, with much enthusiasm, the task of helping us.) Thus, people will be able to define what they expect to be the outcome in participating in common projects, to define their own interests. We feel that we need some time to investigate the process. We understood very well that collaboration means, first, equal partnership. Our conclusion is that we have to take small and very concrete steps.

CIMEC will:

- Produce a report about RECOMDOC '92 for all the participants and other organisations which did not attend the conference
- Produce a report about RECOMDOC to CIDOC/ICOM
- Encourage contacts within Romania as well as among countries
- Encourage contacts among professionals, museums, and coordinating bodies
- Publish (with the generous help of the Getty Art History Information Program) these conference proceedings
- Identify (together with future partners from other countries) specific, concrete proposals
- Encourage and coordinate all the initiatives regarding common standards in Romania, promote and use international standards
- Coordinate with Slovenia for the CIDOC conference that is planned for Ljubljana in 1993.

RECOMDOC '92—A Quick Review

Organisation:
Ministry of Culture, Romania; Museums and Collections Board;
CIMEC—Information Center for Culture and Heritage.

Theme:
Museum and Cultural Heritage Documentation,
Information Sharing and Interchange.

Sessions:
Session 1: National, European, and International Projects
Session 2: Documentation and Collections Management Projects
Session 3: Standards and Interchange Formats in Museum Documentation

Workshops:
Made possible by the generous contribution of the Getty Art History Information Program
Planning for Museum Automation
Art and Architecture Thesaurus

Demonstrations:
- BRANCUSI Interactive Multimedia Project
- STAR (Theatre History)
- SI-PCN (Archaeology)
- CAMUS (Ethnography)
- ZEUS (Archaeology)
- AAT (Art and Architecture Thesaurus)

Other Events:
A visit to Peles Castle and the Sinaia Monastery, a trip to Brasov and the Bran Castle, out-of-session meetings, bar, dance, etc.

Speakers: 40

Participants: 80 persons from:

Canada	2
Czechoslovakia	3
Denmark	1
Greece	2
Hungary	3
Republic of Moldavia	1
Romania:	
Alba Iulia	1
Baia Mare	1
Braila	1
Brasov	5
Bucuresti	37

Cluj	2
Constantza	1
Iasi	1
Sibiu	3
Sinaia	2
Tirgoviste	1
Slovenia	2
United Kingdom	4
USA	7

Institutions: 33

List of Participants

Victoria Anghelescu
Deputy Director
Muzeul National Cotroceni
Bucuresti, Romania

Jana Bahurinská
Slovenska Narodna Galeria
Bratislava, Czechoslovakia

Eugenia Borodac
Curator
Muzeul National de Istorie al Moldovei
Chisinau, Republica Moldova

Radu Boroianu
Secretary of State
Ministerul Culturii
Bucuresti, Romania

Terry Braun
Director
Illuminations Interactive
London, UK

Nancy Bryan
Research Associate
The Getty Art History Information Program
Santa Monica, USA

Anisoara Burlacu
Analyst
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

159

Daniela Busila
System Programmer
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Mary Case
Director, Office of the Registrar
Smithsonian Institution
Washington, D. C., USA

Mihai Cetean
Curator Programmer
Universitatea 1 Decembrie
Alba Iulia, Romania

Dorana Cioran
Senior Curator
Muzeul Civilizatiei Populare din Romania
Sibiu, Romania

Irina Cios
Analyst Art Historian
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Iuliana Ciotoiu
Documentation Department Chief
Muzeul Satului
Bucuresti, Romania

Emanoil Costoaie
Engineer
Muzeul Politehnic
Iasi, Romania

Cristian Cristodorescu
Muzeul Satului
Bucuresti, Romania

Codruta Cruceanu
Curator Art Historian
Muzeul National de Arta al Romaniei
Bucuresti, Romania

Lucia Cusnir
Programmer
Muzeul Civilizatiei Populare
Sibiu, Romania

160

Mihaela Dâmbu
System Administrator
Muzeul Satului
Bucuresti, Romania

Mihaela Danga
Librarian
Muzeul National de Arta al Romaniei
Bucuresti, Romania

Adriana Dimulete
Curator
Muzeul de Istorie
Brasov, Romania

Gail Eagen
Director, Systems Development
Canadian Heritage Information Network
Ottawa, Canada

Michael Ester
Director
The Getty Art History Information Program
Santa Monica, USA

Carmen Smaranda Farcasiu
Curator
Muzeul de Arta Peles
Sinaia, Romania

Eleanor E. Fink
Program Manager
The Getty Art History Information Program
Santa Monica, USA

Ecaterina Geber
Systems Development Department Chief
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Dinu C. Giurescu
Chair
Museums and Collections Commission
Bucuresti, Romania

Ion Godea
Director
Muzeul Satului
Bucuresti, Romania

161

Eva Gyulai
Director of Collections
Herman Otto Museum
Miskolc, Hungary

Gabriela Hanea
System Analyst
Muzeul Brukenthal
Sibiu, Romania

Henrik Jarl Hansen
Curator, Documentation Department
The National Museum of Denmark
Copenhagen, Denmark

Laura Hurdubaie
Councellor, International Cultural Dialogue,
Information, Documentation Department
Ministerul Culturii
Bucuresti, Romania

Georgeta-Maria Iuga
Archaeologist
Muzeul Judetean Maramures
Baia Mare, Romania

Mariana Jurma
Instructor
Centrul de Perfectionare al
Personalului din Cultura si Arta
Bucuresti, Romania

Tibor Kecskemeti
Deputy General Director
Natural Sciences Museum
Budapest, Hungary

Carol König
Deputy General Director
Museums and Collections Commission
Bucuresti, Romania

Zdenek Lenhart
Programmer
Moravske zemske muzeum
Brno, Czechoslovakia

Ecaterina Gabriela Lung
Curator
Muzeul Taranului Roman

Bucuresti, Romania

Catalina Marin
Analyst Ethnologist
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Floricel Marinescu
Councillor
Museums And Collections Commission
Bucuresti, Romania

Dan Matei
Director
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Zoia Maxim
Senior Curator
Muzeul de Istorie al Transilvaniei
Cluj, Romania

Marjeta Mikuz
Curator
Slovenski Etnografski Muzej
Ljubjiana, Slovenia

Lorena Adriana Mogos
Curator
Muzeul Taranului Roman
Bucuresti, Romania

Ruxandra Nemteanu
Architect
Directia Monumentelor Ansamblurilor si Siturilor Istorice
Bucuresti, Romania

Diana Angelica Nicolae
Curator
Muzeul Taranului Roman
Bucuresti, Romania

Virgil Stefan Nitulescu
Councillor, Cultural Heritage Department
Ministerul Culturii
Bucuresti, Romania

Ernest Oberländer-Târnoveanu
Senior Curator
Muzeul National de Istorie a Romaniei

163

Bucuresti, Romania

Irina Oberländer-Târnoveanu
Cultural Databases Department Chief
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Codrut Mihai Onofrei
Software Engineer
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Mihai Oroveanu
Director
Oficiul National de Documentare si Expozitii de Arta
Bucuresti, Romania

Rodica Papadopol
Councillor, International Cultural Dialogue
Ministerul Culturii
Bucuresti, Romania

Nicolas Papageorgiou
General Secretary
National Committee UNESCO
Athens, Greece

Florin Patrascu
Programmer
Royal Ordnance
Bucuresti, Romania

John Perkins
Project Manager
Museum Computer Network
USA

Gabriela Popa
Councillor
Domus, Ministry of Culture
Bucuresti, Romania

Mariuca Radu
Senior Curator
Muzeul de Istorie
Brasov, Romania

Jeremy Rees
Visual Arts Consultant
European Visual Arts Centre

164

Ipswich, UK

Andrew Roberts
Chair
International Documentation Committee (CIDOC/ICOM)
Cambridge, UK

Barbara Rottenberg
Director, Museum Services
Canadian Heritage Information Network
Ottawa, Canada

Dorel Marian Rusti
Curator
Muzeul de Istorie Naturala "Grigore Antipa"
Bucuresti, Romania

Margaretta Sander
The Art Information Task Force
The Getty Art History Information Program
Santa Monica, USA

Camelia Savu
Senior Programmer
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Victor Serbanescu
Engineer, Curator
Muzeul de Istorie
Brasov, Romania

Alenka Simikic
Curator
Slovenski Etnografski Muzej
Ljubljana, Slovenia

Petru Sitov
Curator
Muzeul de Istorie
Brasov, Romania

Elsa Sofos
Archaeologist
ICOM National Committee
Athens, Greece

Mariana Stefan
Database Administrator
Centrul de Informatica si Memorie Culturala (CIMEC)

165

Bucuresti, Romania

Adriana Stroe
Art Historian
Directia Monumentelor Ansamblurilor si Siturilor Istorice
Bucuresti, Romania

Simona Suceveanu
Curator
Muzeul de Istorie Nationala si Arheologie
Constantza, Romania

Andrej Svec
Slovenska Narodna Galeria
Bratislava, Czechoslovakia

Laszlo Szabo
Curator
Hugarian National Gallery
Budapest, Hungary

Lucian Tarcea
Programmer
Muzeul de Istorie al Transilvaniei
Cluj, Romania

Marian Toma
Data Processing Department Chief
Centrul de Informatica si Memorie Culturala (CIMEC)
Bucuresti, Romania

Mariana Velicu
Chief of Documentation Department
Muzeul National Cotroceni
Bucuresti, Romania

Jeremy Warren
Assistant Secretary
Museums & Galleries Commission
London, UK

Susanne Warren
The Art and Architecture Thesaurus, a project of
The Getty Art History Information Program
Williamstown, Massachusetts, USA

List of Participating Instititions

ARTEXPO
Bd. N. Balcescu, nr.2
Bucuresti
Romania

CANADIAN HERITAGE INFORMATION NETWORK
365 Laurier Avenue West, 12th floor
Ottawa KIA OC8
Canada
Tel: (613) 992-3333
Fax: (613) 952-2318

CENTRUL DE INFORMATICA SI MEMORIE CULTURALA
Piata Presei Libere, nr. 1
Bucuresti 71341
Romania
Tel: (40.0) 17.51.70
Fax: (40.0) 59.47.81

CENTRUL DE PERFECTIONARE A
PERSONALULUI DIN CULTURA SI ARTA
Bucuresti
Romania

COMPUTER INTERCHANGE OF MUSEUM INFORMATION
5659 Merkel Street
Halifax, NS B3K 2J1
Canada
Tel: (902) 454-4077
Fax: (902) 453-6153

CENTRUL INTERNATIONAL DE INTRUNIRI CULTURALE
Peles, Sinaia
Romania

DIRECTIA MONUMENTELOR ANSAMBLURILOR SI SITURILOR ISTORICE
Bucuresti
Romania

DOMUS
Ministerul Culturii
Bucuresti
Romania

167

EUROPEAN VISUAL ARTS CENTER
The Library, Suffolk College, Rope Walk
Ipswich, Suffolk IP4 1LT
UK
Tel: (+44) 473 211214
Fax: (+44) 473 230054

THE GETTY ART HISTORY INFORMATION PROGRAM
401 Wilshire Boulevard, Suite 1100
Santa Monica, CA 90401-1455
USA
Tel: (310) 395-1025
Fax: (310) 451-5570

HERMAN OTTO MUSEUM
Felszabaditok U. 28, Pf 4
Miskolc H-3501
Hungary
Tel: 3646-61-411

HUNGARIAN NATIONAL GALLERY
Szent Gyorgy Ter 2.
Budapest H-1014
Hungary
Tel: 361-1757-533
Fax: 661-1758-898

ICOM GREECE
Vasilisis Sofias 118
Athens 11921
Greece
Tel: 293-2280

ILLUMINATIONS INTERACTIVE
London
UK

INTERNATIONAL COUNCIL OF MUSEUMS
53 Shelford Road
Cambridge CB2 2LZ
UK
Tel: (+44) 223 841 181
Fax: (+44) 223 842 136

MINISTERUL CULTURII
Piata Presei Libere, nr. 1
Bucuresti 71341
Romania
Tel: 17.60.10
Fax: 59.47.81

MORAVSKE ZEMSKE MUZEUM
Zelny trh 6
Brno 65937
Czechoslovakia
Tel: 00425-25279
Fax: 00425-25279

MUSEUMS & GALLERIES COMMISSION
16 Queen Anne's Gate
London SW1 H9
UK
Tel: (+44) 071-233-4200
Fax: (+44) 071-233-3686

MUZEUL BRUKENTHAL
Piata Mare, nr. 4-5
Sibiu 2400
Romania
Tel: 924/17691

MUZEUL CIVILIZATIEI POPULARE
Piata Mica, nr. 11
Sibiu 2400
Romania
Tel: 924/18195

MUZEUL DE ARTA PELES
Sinaia
Romania
Tel: 176010/1555 973/14151

MUZEUL DE ISTORIE AL TRANSILVANIEI
Constantin Daicoviciu nr. 2
Cluj 3400
Romania

MUZEUL DE ISTORIE—BRASOV
Str. Nicolae Balcescu, nr. 67
Brasov 2200
Romania
Tel: 921/43183 44185, 43685

MUZEUL DE ISTORIE NATIONALA SI ARHEOLOGIE—CONSTANTZA
Piata Ovidiu, nr. 12
Constantza 8700
Romania
Tel: 916/13925 14583

169

MUZEUL DE ISTORIE NATURALA "GRIGORE ANTIPA"
Sos. Kiseleff, nr. 1
Bucuresti
Romania
Tel: 50.47.10

MUZEUL JUDETEAN MARAMURES
Str. Monetariei nr. 1-3
Baia Mare 4800
Romania
Tel: 994-11927

MUZEUL NATIONAL COTROCENI
Bucuresti
Romania

MUZEUL NATIONAL DE ARTA
Calea Victoriei, nr. 49-53
Bucuresti 70101
Romania
Tel: 13.30.30/838 15.51.93
Fax: 15.51.93

MUZEUL NATIONAL DE ISTORIE A MOLDOVEI
Chisinau
Republica Moldova

MUZEUL NATIONAL DE ISTORIE A ROMANIEI
Calea Victoriei, nr. 12
Bucuresti
Romania
Tel: 15.70.56/52, 23

MUZEUL POLITEHNIC—IASI
Str. Palat, nr. 1
Iasi 6600
Romania
Tel: 981/16878

MUZEUL SATULUI
Sos. Kiseleff, nr. 28
Bucuresti
Romania
Tel: 17.17.32

MUZEUL TARANULUI ROMAN
Sos. Kiseleff, nr. 3
Bucuresti
Romania
Tel: 59.65.33, 59.62.80

NATIONAL COMMITTEE UNESCO
Xanthippou no.9
Athens 10675
Greece
Tel: 7215627

THE NATIONAL MUSEUM OF DENMARK
Ny Vestergade 11, baghuset 2, sal
Copenhagen DK 1471
Denmark
Tel: (+45) 33 13 44 11, ext: 279
Fax: (+45) 33 11 14 47

NATIONAL MUSEUM—PRAGUE
Vaclavske Namesti 68
Prague
Czechoslovakia
Tel: 42.02 26 94 511
Fax: 42.02 2369489

NATURAL SCIENCES MUSEUM
Museum Krt 14-16
Budapest H-1088
Hungary
Tel: 361-1382-662
Fax: 361-1382-652

ROYAL ORDNANCE
Bucuresti
Romania
Tel: 59.38.75

SLOVENSKA NARODNA GALERIA
Riecna ul. 1
Bratislava 815 13
Czechoslovakia
Tel: 33.41.19
Fax: 42-7-333971

SLOVENSKI ETNOGRAFSKI MUZEJ
Presernova 20
Ljubljana 61 000
Slovenia
Fax: 38 61 218 844

171

SMITHSONIAN INSTITUTION
900 Jefferson Drive, S.W., Room 1410
Washington, D.C. 20560
USA
Tel: (202) 357-3125
Fax: (202) 786-2210

List of Participating Countries

Canada
Czechoslovakia
Denmark
Greece
Hungary
Republica Moldova
Romania
Slovenia
United Kingdom
USA

Index of Authors

Note: Boldface indicates Eastern European participant.

174