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A CLASSIFICATION SCHEME FOR URBAN INTERPRETIVE PLANNING; APPLICATION TO LANSING, MICHIGAN

By

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Park and Recreation Resources

1980

ABSTRACT

A CLASSIFICATION SCHEME FOR URBAN INTERPRETIVE PLANNING;
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A classification scheme for urban interpretation planning is developed based on several existing classifications of urban and natural systems. While applicable to a number of research and planning problems, the primary purpose of the scheme is to examine what is or could be interpreted within urban areas.

Content analysis procedures are applied to test the reliability of the scheme in coding the content of interpretive exhibits. The scheme is applied to a variety of Lansing area interpretive facilities concentrating on natural areas, science and technology, and history. The classification's flexibility is demonstrated by using it to 1) inventory resources, 2) inventory interpretive offerings, 3) identify overlapping offerings, 4) identify gaps in programming, and 5) identify facility types. Other interpretive research and planning applications are discussed briefly.

The study shows that classification can be used to improve urban interpretive planning. Used with content analysis procedures, classification can also contribute to a variety of interpretive research questions.

"Public opinion must be mobilized. Scientists must be trained to inform public opinion.... When the scientist will not (or cannot) achieve this combination in writing directed to the ordinary reader, he should seek the cooperation of those whose career is based on the ... trusteeship for truth in plain language.... We must have people who can mobilize public opinion for we need everyone's support."

--Doxiadis, 1968:504

ACKNOWLEDGEMENTS

Although I accept full responsibility for the contents of this thesis, many others made possible its successful execution and completion. The financial support of the North Central Forest Experiment Station of the U.S. Forest Service under cooperative agreement number 13-645 was crucial to the project throughout, as was the help of John Dwyer of that station. My thesis advisor, Dr. Daniel J. Stynes, aided immeasurably in keeping me on the right track in all phases of the thesis. The rest of the committee, Drs. Joseph Fridgen and Leighton Leighty, contributed their thoughtful comments as well.

I am grateful also for the assistance and cooperation of those facilities and people I visited during the data-gathering stage of the project, especially Joan Brigham of Fenner Arboretum, Clara Bratton of Riverbend Natural Area, Jack Thompson and Geneva Wiskeman of the Lansing Historic Society and the Heritage Committee of the Lansing Downtown Business Council, and Marilyn Rosenberg of Impression 5.

Finally, I thank my wife, Tracey, for bearing with me through it all.

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CHAPTER I

INTRODUCTION

As we enter the final two decades of the twentieth century, we find that we are more and more becoming a nation of city dwellers. Presently, approximately three-quarters of us live in areas defined as "Standard Metropolitan Statistical Areas" (U.S. Bureau of the Census, 1979). At the same time, many have recognized that there exists a need for our cities to be interpreted, to make them more understandable to those who live there (U.S. Department of the Interior, 1978; Magill, 1978, Cahill, 1979).

The complexity of the urban environment, the diversity of the audience, and the variety of urban interpretive providers, however, necessitate a comprehensive and coordinated approach to planning interpretation in urban areas (Holmes, 1979). Ideally each interpretor in a city or region should have at least a general idea of what every other interpretor in the area was interpreting (Traweek and Veverka, 1979).

Urban Interpretation-Background

Interpretation as it exists today is a relatively young field (Weaver, 1976), and interpretation of the human or urban environment is younger yet (see e.g. Hamel, 1974; Magill, 1978; Nelson, 1978; Caldwell, 1979). One of the standard interpretation texts (Sharpe, 1976:xv),

in fact, has urban interpretation classified under "Supporting Activities."

One of the major goals of any interpretation is to get people to think about the object or system being interpreted and, hopefully, to foster a responsible attitude toward it (Tilden, 1967). The same goal holds true for the interpretation of the urban environment (Wallin, 1976) and may even be more important to the individual because it bears upon his or her daily life in a much more direct way than does natural area interpretation.

The need for interpretation or environmental education in the cities has been recognized at even the highest levels of government (e.g. U.S. Heritage, Conservation & Recreation Service, 1978; and U.S. Dept. of Interior, 1978). The National Urban Recreation Study sets as one of its nine major objectives for local and state actions to "make environmental education[1] and management an integral part of urban park and recreation policies and programs" (U.S. Dept. of Interior, 1978:113). The study emphasizes that environmental education/interpretation should not be restricted to a) school children, b) natural ecosystems, or c) on-site visits to parks or nature centers.

It was also reported (U.S. Dept. of Interior, 1978) that most interpretation and environmental education programs are almost entirely

---

[1]The study defines environmental education as "formal academic training, interpretive programs for the general public, and environmental management practices," and also refers to the Environmental Education Act's (P.L.91-516) definition: "The educational process dealing with man's relationship to his natural and manmade environment and includes the relation of population, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment" (U.S. Dept. of Interior, 1978:113).

nature-oriented, an orientation which has little relevance for the inner city youths with limited nature experience. "The need for greater understanding of urban environmental problems by citizens is well recognized" (U.S. Dept. of Interior, 1978:57), but the programs which in fact do promote this understanding are by far in the minority. The same year, J. Alan Wagar reiterated this call in a presentation before a joint meeting of two national organizations of interpretors, saying, "The challenge to interpretors is to expand this conventional urban view of how the world works and to sensitize people to the crucial importance of keeping three closely-interrelated systems in viable condition--nature, technology, and human institutions" (Wagar, 1978).

Just as the interpretation of natural areas is often used to illustrate peoples' place in the natural environment, urban interpretation can be used to point to the place of the individual in an often impersonal city among sometimes unresponsive urban institutions (Magill, 1978). It, "may be more important to run every school child through a sewerage treatment plant than through a park" (Nelson, 1978:10). Children should learn early that the garbage that the trucks take away in plastic bags doesn't just disappear, that pollution, overcrowding, population control, the recycling of wastes, energy-efficient transportation, and rats are not just facts of life to be accepted without thought. They should all involve conscious decisions with the understanding that something can be done if enough people care to work for it.

These and other urban problems could be addressed by a well-thought-out interpretive program. Such a program could serve to make people aware of the problems, make them aware that solutions are

possible (and perhaps to suggest a few), let them know that they can have a hand in effecting a solution, and even stimulate them to take action toward attaining the best solution for them.

Planning For Urban Interpretation

In an "urban community . . . the subject matter for interpretation is limitless" (Wallin, 1976:334). This makes the decision of what should be interpreted very difficult. Not only are there decisions to be made about the subject matter for interpretation, but the process is further complicated by the variety of potential audiences and by the diversity of agencies and facilities offering interpretation, each with its own objectives in interpreting the city.

The audiences which the urban interpretor can hope and expect to encounter will vary across many factors including age, race, ethnic group, sex, income, education, and occupation. Each group will have its own set of concerns, problems, and goals to be met by the urban interpretor, and each will very likely require a different approach to get the message across.

The diversity of interpretive providers is probably best illustrated in the case of New York City. The problem for Gateway National Recreation Area, for instance, is "With a staff of only seven permanent interpreters (sic) how should a National Park unit make its services available to a nearby population of twenty million?" (Holmes, 1979:23). The answer came when the staff became active in groups of organizations concerned with environmental education, community gardening, marine science education, and others. Holmes feels that knowing what the other

members of these groups are offering and encouraging people to go to these other programs strengthens the whole system, giving the public better service.

This is consistent with the hoped-for outcome of this project--to put the comprehensive view into practice; it is not enough just to recognize that there are other staffs, facilities, and resources if they are not utilized. Coordinating with and using the resources and offerings of all agencies will serve to make each agency more effective.

Classification

The extreme variety of potential urban interpretive themes makes the choice of what should or will be interpreted exceptionally difficult. One way to catalog and organize all of the subjects which might be interpreted is to classify each subject using a systematic, exhaustive classification scheme. The development and use of such an all-inclusive classification will allow the interpretive planner to consider the universe of potential subject matter and to decide what is most appropriate to be interpreted.

General planning models can give us some insight as to the role which a classification scheme can play in the overall planning process. In Bannon's (1976) framework, a classification can be used in analyzing the system under consideration, to help establish goals based on the needs and wants of the public, to formulate alternatives to achieve the established goals, and to evaluate the performance of the selected plans and programs.

Objectives

The objectives of this research are twofold:

1) To develop a comprehensive planning tool (a classification scheme) for integrating the interpretation of natural and human systems within urban environments, and

2) to demonstrate the applications of this tool to urban interpretive planning.

The complexity of all aspects of the urban environment makes imperative the development of effective comprehensive planning tools for the interpretation of the urban environment. With only slight modifications, the tool to be presented here can be used in more ways than for a simple inventory of potential topics or present interpretive offerings. It can be used to classify urban problems, audience characteristics, and to identify what the audience would like to see interpreted.

The basic planning tool is in the form of a classification scheme covering 1) Human Populations, 2) Non-Human Populations, 3) the Physical Environment, and 4) Resource Flows.

The classification scheme is used on a selection of facilities in the Lansing, Michigan metropolitan area. After being tested and refined, several uses of the scheme are illustrated, many others are described briefly with a discussion of their places in the urban interpretive planning process, and still others are left for the reader to develop, test, and implement.

Organization of the Thesis

The literature review (Chapter 2) presents additional information on interpretation, interpretive goals and objectives, urban interpretation, and interpretive planning. In Chapter 3, the classification scheme is presented along with background on its development and on classification in general. The scheme is evaluated for reliability in Chapter 4. Several applications of the scheme are demonstrated in Chapter 5 using selected facilities in Lansing, Michigan.

CHAPTER II

LITERATURE REVIEW

In order to give a better background to the subject of this study, some relevant literature will be reviewed in this chapter. Specifically, sections will be included on interpretation (definitions, goals and objectives), on urban interpretation, and on planning for interpretation in general and for urban interpretation specifically.

Interpretation

Definition of Interpretation

Freeman Tilden (1967:8) was the first to define interpretation formally as:

> An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information.

Taking pains to stress that this definition is for the dictionary, he adds two corollaries, the first for the interpretor's private contemplation, the second to aid the interpretor in contacts with the public:

> Interpretation is the revelation of a larger truth that lies behind any statement of fact.
>
> and
>
> Interpretation should capitalize mere curiosity for the enrichment of the human mind and spirit. (Tilden, 1967:8)

Others discuss the transfer of "technical and often complex" (Risk, 1976:159) information in an easily intelligible form, and of helping one's audience in the search for meaning (Woodcock, 1977). This search for meaning, put another way, could be thought of as starting the listener down a continuum of attitudes from a sensitivity to notice something to an awareness of, understanding of, enthusiasm for, and finally, to a commitment to the principles involved in the subject.

The common thread running through all of these definitions is that interpretation is an activity which should excite the curiosity of the audience and stimulate them to think; it should not merely be a one-way flow of information.

Objectives of Interpretation

Once one has a feeling for just what interpretation is, one needs to determine what the goals and objectives of those actually conducting interpretive programs are. Several authors have felt that the goal of interpretation is dependent upon the agency under which it is conducted. Putney and Wagar (1973) give a three-level set of objectives to help in planning for interpretation. The highest level (most general) is "Policy Objectives". These objectives would be related directly to the overall objectives of the sponsoring organization such as a National Forest, the example used in the article. The objectives for such an area might include 1) increasing visitor enjoyment by interpreting various natural and cultural features of the area, 2) orienting visitors to the area's facilities and attractions, 3) alerting visitors to both the positive and negative effects environmental modifications might have by

interpreting the relationships between all of the components, 4) obtaining public involvement in protecting or conserving the natural and cultural resources of the area, and 5) informing the visitors of the agencies' resource management functions.

The second level, "Objectives to Guide Selection of Opportunities," would expand upon each of the policy objectives, yielding several sub-objectives, each of which would contribute to the achievement of one of the policy objectives. This level would probably coincide with the kind of objectives an individual interpretor might draw up, with the difference being that the individual would very likely draw up a much shorter list. "Evaluation Objectives" complete Putney and Wagar's list with the hope that the interpretive offerings may be continually assessed for effectiveness and improved thereby.

In 1976, the Western Interpreters Association published a position paper detailing the roles that interpretation normally plays. Here again, the actual roles played by interpretation vary with the agency and few if any, have all the roles cited. The ten roles are:

1) To provoke an awareness or inspire the public on topics of nature, history, archaeology, recreation, and the like.
2) To teach specific facts to the public.
3) To provide 'first hand' educational experiences.
4) To provide vicarious multimedia programs.
5) To entertain the public.
6) To convince the public to conserve resources.
7) To convince the public to preserve resources.
8) To convince the public to respect the rights of others.
9) To answer visitors' questions.
10) To solicit public input. (WIA, 1976:13-14)

It can be seen that several of these "roles" overlap with Putney and Wagar's hypothetical objectives for a National Forest.

Finally, on an international level is the statement of policy which was the result of the first international conference on environmental education (UNESCO-UNEP, 1978). While environmental education is not the same as interpretation in all details, it has the same roots, and statements on environmental education pertain to interpretation as well (editor's note, UNESCO-UNEP, 1978). Resulting from the Conference were a formal declaration of purpose for environmental education as well as several recommendations. The basic aims of environmental education according to these recommendations were:

> 1) to get individuals and communities to understand the complexity of both the natural and human environment due to the interaction of biological, physical, social, economic, and cultural factors;
>
> 2) to help these individuals and communities gain the appropriate knowledge, skills, and values to feel responsible for and to be effective in anticipating and solving environmental problems as well as in managing the quality of the environment;
>
> 3) to foster an appreciation of the social, economic, and ecologic interdependence of countries in the modern world; and
>
> 4) to understand "the complex relations between socioeconomic development and the improvement of the environment".
>
> (UNESCO-UNEP, 1978:26)

On the most general level, then, the categories of objectives for environmental education are awareness, knowledge, attitudes, skills, and participation. Given the similarity between this and interpretation, it is perhaps not surprising if this list of objectives sounds very similar to Risk's (1976) sensitivity-commitment continuum.

Perhaps the best way to sum up the goals and objectives of both environmental education and interpretation would be to recall some of the words that various authors have used when discussing them:

"revelation of a larger truth . . . curiosity . . . enrichment of the human mind and spirit" (Tilden, 1967:8); "sensitivity, awareness, understanding, enthusiasm, and commitment" (Risk, 1976); "enlightenment, excitement, and commitment" (Hamel, 1974); "to open a person's mind" (Hartzog, 1967;v).

While there is nothing in the definitions or goals which would indicate that interpretation should be restricted to the natural environment, that is where its roots are and it is there that the focus of the field still lies today (Weaver, 1976; Hartzog, 1967; Magill, 1979; Johnson, 1977). Magill writes of the human need for stimulating environments and that some of the prerequisites for a stimulating environment are "feelings of personal pride or self-esteem, a sense of community, and a sense of control over (the) environment" (Magill, 1978:8). These feelings are often thwarted in the modern urban environment as many, especially the poor, say that they get the feeling that there isn't anything that they can do to affect their environment (Fellman and Brandt, 1971).

Urban Interpretation

Is there really any difference between interpretation (of natural areas) and urban interpretation? Other than the specific things interpreted, there appears to be very little difference between the two.

The National Urban Recreation Study (U.S. Dept. of Interior, 1978) echoed Doxiadis' call from ten years earlier that the urban planners needed someone who could translate into plain language their work and thereby mobilize public opinion and public support for action

(Doxiadis, 1968). This call really combines several of the roles mentioned in the Western Interpreters Association list cited above. The first ("To provoke an awareness . . ."), the second ("To teach specific facts . . ."), and the tenth ("To solicit public input") (W.I.A. 1976: 13-14) are certainly included within Doxiadis' statement.

Several of the rest of the roles (e.g., numbers 3, 4, 5 and 9) deal mainly with methods of getting the message across and communications strategies more than with interpretive goals. The remaining three ("To convince the public to conserve . . . (and) preserve resources, . . . (and) to respect the rights of others" (W.I.A., 1976:13-14) are at least as applicable in a city as they are in a wilderness area, especially if human settlements are to further their primary goals of promoting human happiness and security (Doxiadis, 1968).

Specifically, interpretation can help by alerting people that they can work toward these goals by revealing the systems and their interactions just as is done in natural area interpretation. Where natural area interpretation works to instill in the listener a set of values about the non-human environment, urban interpretation can work to foster a set of values about the human environment in the audience.

The things which are interpreted in the city do differ from those interpreted elsewhere, however. Just a sampling of urban interpretation reveals that the systems for growing and delivering food (Irwin, 1977), utilities systems (Neill, 1979), cemetaries and building's walls (Caldwell, 1979), as well as the trash to be found in the gutter (Barkin, 1978) are all being interpreted. Some (e.g. Helmick, 1978; the Lowell Team, 1977) are working to take their cities back to their historic roots

while others (Kinard, 1968; Stevens, 1975; Stalvey, 1977) are working to get their people in touch with their own ethnic roots.

Each bit of urban interpretation can touch each of those participating precisely because it has so much to do with their daily lives.

Interpretive Planning

If interpretors are to meet the needs of their visiting public, they must know what those needs are and how best to take care of them. Planning provides procedures for considering and coordinating all aspects of the system being studied. In addition to this general benefit of planning, Peart and Woods (1976) point out that, as budgets at all levels get tighter, administrators will be demanding clear, well thought out plans before they will appropriate the necessary funds for a program of interpretation.

McConnell (1978) cites six additional benefits flowing from the planning process for interpretation.

1) Planning necessitates definition of program objectives which will make individual program development easier. Knowledge of the long range purpose makes the choice between different short term actions much clearer.

2) Planning will 'document thinking and rationale for a proposed program' (McConnell, 1978:11).

3) Planning will specify what is to be done in any area or location.

4) Planning will leave a written record which upper-level management officials can review.

5) A plan provides a reference document for programs which are in the budget year after year as well as providing a standard against which new programs can be measured.

6) When personnel move on and are replaced by new employees, a plan to which to refer will enable the new employee to pick up the work with a minimal loss of production momentum.

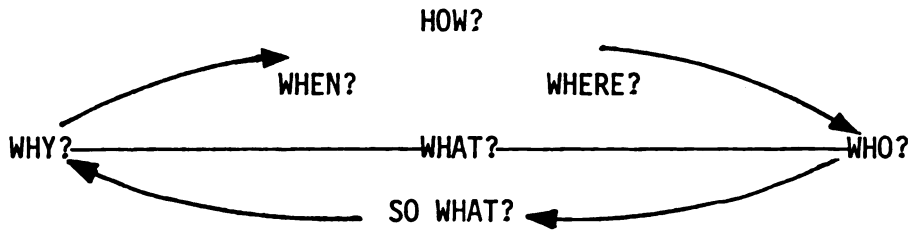
Little is presently available on comprehensive interpretive planning in urban areas. Aside from the arrangements into which Gateway N.R.A.'s interpretors entered (Holmes, 1979), and an assessment of groups of facilities which people are likely to visit in Lansing (Cherem, 1979), nothing could be found to indicate any extensive coordination specifically for interpretive planning in cities.

Even though urban interpretive planning literature is scarce, standard planning techniques can be applied to this area. Bannon (1976) outlines six phases for any planning process:

1) analysis of the system under study and the clientele group;
2) establishment of goals to be met in the plan;
3) the derivation of alternate strategies for achieving the goals;
4) a program must be chosen out of the possible courses of action;
5) implementation of the program; and
6) evaluation of the program to determine whether or not it fulfilled the goals set for it.

There are two planning models which refer directly to interpretation. One is very close to the standard planning model described above (Bradley, 1976). The other is based on the Sender-Message-Receiver model from communications theory (Peart and Woods, 1976). The sender decides on a message and selects the manner in which it will be sent. When the message has been encoded, it is sent, decoded, received, and the receiver responds with another message (feedback).

A modification of this basic model (Figure 1) instructs the planner as to what should be determined in developing a program or a series of interpretive programs:



(From Peart & Woods, 1976:22)

Communications Model for Interpretive Planning
FIGURE 1

WHY? are you giving the event? What are your objectives and constraints?

WHAT? part of your total message are you going to select to interpret?

WHAT are you going to talk about?

WHO? usually attends these events? Who is your target group and what are their characteristics?

HOW? WHEN? WHERE? are you going to conduct the event? What approach are you going to use to transmit the message, taking into consideration the characteristics of your target group?

SO WHAT? When the event is completed, how are you going to get beedback? How are you going to evaluate whether your objectives were accomplished and the message decoded correctly?

(Peart and Woods, 1976:22)

Peart and Woods feel that following this model in planning for interpretation will be advantageous at all levels, not just for the individual program. All the way up to a regional or national plan,

consideration of all the components of the communication process will put the relationships between them into sharper focus.

The major part of this study will concentrate on the WHAT? portion of the Peart-Woods model. WHO will interpret WHAT part of the total universe of potential subjects is a large part of a comprehensive area plan.

Already existing in the literature are a few studies concerning what should be interpreted. One such study discusses the U.S. Forest Service scheme for interpretive planning in which plans are made at five levels, beginning with the regional plan, in which the individual forests are given direction, priorities, and story emphasis, and ending with the individual media plans which specify the objectives and direction which are needed by the interpretor or interpretive team to put the final product together (McConnel, 1978).

Another study formalizes some of the ideas advanced by Holmes (1979) concerning coordinating the interpretation offered by several facilities in one area. Traweek and Veverka (1979) claim that by coordinating the activities of several facilities the overall impact of the story told is greater than the sum of the individual parts. It is pointed out that such systems planning could be used on anything from a single facility on up to a fairly large region (or maybe the complex urban system).

A set of forms based on the Peart-Woods (1976) planning model was developed for use in interpretive planning (Veverka, Poneleit, and Traweek, 1979). Use of the forms would facilitate the inventory and subsequent classification of the site (into biological, facility,

geological, historic/archaeological, orientation, or paleontological sites) as well as information on the site's location, description, seasonal accessibility, interpretive significance, project objectives, justification, and comments by the planner.

One example of the advantages of using these forms is that, if the interpretive objectives of the area change, one need only refer to the planning forms to reassess each site with respect to the new objectives. A similar, although not so fully described, set of forms was developed for use at the American Museum of Natural History in planning new exhibits. These forms would consider the subject, schedule for development, funding sources and cost, time and space required, the potential audience (and audience benefits), and how the exhibit would be evaluated (Bergmann, 1976).

One interpretive planning study which dealt with an exceptionally large amount of information resorted to the use of a classification scheme to facilitate matters. This was the Bureau of Land Management's interpretive plan for the 25 million acre California Desert (Badaracco and Scull, 1978). The authors found that some new inventory method was needed to organize such a large amount of information. An outline for interpretive resource analysis was assembled which posed questions which must be answered before the inventory could be considered complete. These questions concerned topics from archaeology and history to biology and the environment.

The classification scheme developed for the study allowed sites to be classified by interpretive theme. The final step involved an "Interpretation Feature Evaluation Matrix" which enabled the planning

team to put a value on the sites identified as having potential for interpretation.

All of these planning studies, simply stated, are directed toward a few basic management decisions:

1) what should be interpreted,

2) for what reasons should it be interpreted, and

3) by whom (i.e., what interpretor, what facility) should it be interpreted?

Planning Needs for Urban Interpretation

All of these models are an aid in planning for interpretation, but one thing which continues to highlight the need for a comprehensive urban interpretation planning tool is the diversity to be found in the city.

One indicator of the complexity of the urban environment can be derived from the Michigan Land Use Classification System (Michigan Department of Natural Resources, 1974). Under the super category of "Urban & Built Up" are 184 different land use classes which fall into seven more general areas, including: residential, commercial, services and institutional; industrial, extractive, transportation, communication and utilities; mixed urban and built up; and open and other. Such diversity can be viewed as a mixed blessing. Rapoport and Hawkes (1970) propose that this complexity is a desirable quality for the urban environment while Milgram (1970) points out some negative aspects associated with an overly complex environment.

Rapoport and Hawkes feel that a diversity of incoming stimuli will, to a certain extent, result in an increase in the information

processed by the individual. Milgram, on the other hand, contends that the volume of information hitting the urban individual will overload that individual's systems and that certain adaptive responses are necessary. These adaptive responses all serve to reduce the impact of the various sensory inputs either by filtering out low priority or unwanted inputs or in institutional changes which shift the burden of responding to the information away from the individual.

Rapoport and Hawkes also add, however, that the individual's information processing rate will be increased if the individual has a larger framework into which to fit the new information (that is, a systems overview will help one to absorb new information on a topic). This is further reinforced recently by some research on cognitive map formation (the general framework discussed above) via the order in which certain key interpretive exhibits were viewed at Gettysburg National Military Park. It is stated that, "synergism can exist among seemingly discrete interpretive programs in a park setting"(Knopf, 1979:7).

If a cognitive map can be formed through interpretation in the urban dweller about his (her) environment, some sense can be made out of the way the city works. Planning for this interpretation is necessary not only because of the wide variety of topics to be addressed, but also because of the diversity of problems, of audiences, and of interpretive providers.

In order to ensure the formation of an appropriate cognitive map in the visitor to an interpretive facility, it would be necessary to have at least one program or sequence of exhibits at every facility which would treat the city as a whole.

A hierarchical classification scheme, such as that developed to classify land use (Michigan D.N.R., 1977) could be used in urban cognitive map formaton in that it has much detail but it also has the more general categories which can yield a simpler, broader view of the urban system.

Chapter Summary

The literature reviewed here has discussed interpretation generally, both its definition and what interpretors are attempting to accomplish with interpretation. Also outlined was urban interpretation, how it differs from and how it is the same as natural area interpretation, and, finally, planning for interpretation.

The literature has shown that a comprehensive approach to natural area interpretive planning can improve the interpretation offered and that classification can contribute to this improvement. This suggests that similar tools and techniques might be used to advantage in urban interpretive planning as well. A classification scheme which can perform in some of these ways will be presented in the next chapter.

CHAPTER III

CLASSIFICATION

In this chapter, some background material on classification in general, as well as classification for interpretation will be reviewed. Then the classification scheme to be used in this study will be presented. First to be discussed will be classification in general, the urge which causes the practitioners of many new disciplines to turn first to classifying the elements of the discipline. Next will be a brief discussion of some of the existing uses of classifications in these other disciplines followed by a summary of the ways in which classifications have been used to aid with interpretation.

The classification scheme which is used here and the manner in which it was developed are discussed in the final section, and a summary of the scheme is presented.

Why Classify?

The human urge to classify is linked closely to curiosity in the search for knowledge and understanding (Meninger et al., 1977). If we refused to engage in classification, each occurrence, or object, each stimulus of any kind would have to be considered to be totally unique; "Our perception of the world would disintegrate into complete meaninglessness" (Berry, 1972:1).

Classification, then, facilitates learning about things by providing a framework for organizing information (Michigan D.N.R., 1977:1, part 2), "an analytical framework within which data and methodologies can be conceptualized and applied" (Arnold, 1972:361). Doxiadis (1968) feels that a successful classification system is a necessity for scientific progress in the field of urban studies (ekistics), a conclusion which is shared by most fields of study. Classification of data not only serves to organize information but also summarizes it and facilitates hypothesis testing and fitting of data into models (Berry, 1972).

A classification should be able to reflect the thing classified, and, "the best classification . . . simply will give accurate and complete descriptions of reality" (Michigan D.N.R., 1977:3, part 2). There are four general criteria which must be met in assembling a classification scheme to accomplish this. To be of any real use, a classification scheme must be:

1) Objective
2) Systematic
3) Complete (exhaustive), and
4) Quantifiable

(Holsti, 1969:4 ff).

Existing Uses of Classification Schemes

Classification is widely used by libraries to catalog their books by subject (Allerton Park Institute, 1976; Wellisch, 1977), by the government, to identify occupation types with the Standard Industrial Classification (SIC) codes (Statistical Policy Division, 1972), by scientists to describe both biotic and abiotic environments (Radford and Pitillo, 1979; Fenneman, 1938), and by social scientists to study

the informational content of communication (Holsti, 1969).

As will be discussed in more detail later on, this research concerns itself with the classification of information contained in all types of interpretive offerings. This being the case, many of the procedures outlined by Holsti are pertinent to this study.

Classification Concerning Interpretation

While there is little available in the way of rigorous classification being used in conjunction with interpretation, some work has been done on classifying resources or sites, types of topics used in interpretive programming, kinds of interpretive programming interpretors, visitors, and interpretive objectives. Badaracco and Scull (1978) employ a wide-ranging classification scheme to aid in the inventory of the interpretable resources of the California Desert. Their scheme also shows what portions of natural and cultural history a site best represents and the value (in terms of uniqueness, accessibility, and so on) of each site. It is designed as well to help future users of the sites to identify just which sites would be the most profitable for them to visit.

Veverka, Poneleit, and Traweek's (1979) planning forms allow the planner to place a site into one or up to six categories during the inventory process. Veverka (1978a) also classified interpretive program topics by the motivations people might have for attending them, basing the motivational categories on Maslow's (1954) hierarchy of needs.

A research method known as the Q-sort has been used to determine classes of visitors to National Parks and their wants and needs as well

as to discern differences between the concerns of several types of interpretors in southern Michigan (Shew, 1970; Hinkle, 1976). Others have classified interpretors by site or the subject matter interpreted at the site, programs by their format (Cherem, 1977), and objectives for interpretation (Hodgson, 1979).

The use of such classifications as these has great potential in planning for interpretation, and their continued use should be encouraged. The classification scheme to be used in this study will be closest to those emphasizing the resources of the sites, but will be more generalizable than that of Badaracco and Scull and will contain more specific information than the system advanced by Veverka, Poneleit and Traweek. In the next section, this classification scheme will be described. It is suggested that this, or perhaps a similar broad classification scheme could be used in many locations and for a wide variety of purposes.

Development of the Classification Scheme

In the early phases of this project, it was decided that the classification scheme should be concerned with the subjects which are or might be present in interpretive offerings. To develop a scheme which was broad enough to include the entire universe of subjects and yet concise enough to be used in the field presented certain problems. With a hierarchical classification scheme,[2] these problems are largely

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[2]A hierarchical classification is one in which a series of decisions is made to arrive at a final categorization of the subject. That is, a decision is made as to which of several major categories a subject falls into, then another decision is made between several subcategories of the chosen major category, and so on, until the desired level of precision is reached.

avoided. The user can take such a scheme to whatever level of detail is convenient or necessary for the study.

The broadest level breakdown (first digit) was based on the components of the urban system as identified by Stearns and Montag (eds., 1974:197). It was decided that these same components could, with only slight modification, be used to classify all environments. The only changes found necessary were to drop "Function" and to change "Physical Structure" to "Physical Environment" so that the inclusion of natural environments would be more apparent to anyone using the scheme.

While the ekistic classification developed by Doxiadis (1968)[3] is widely used in the study of human settlements, the frame forwarded by Stearns and Montag was chosen for three main reasons. First, "Physical Environment" includes both the human and natural environments where "Shells" excludes the natural. It also seemed that "Man" and "Society" belonged under one super category, and that "Resource Flows" could easily replace "Networks".

Even so, the ekistic classification included many of the components necessary for a general classification, and many of the second-level classes were borrowed from Doxiadis. Chappelle's (1972) and Dickey and Broderick's (1972) schemes were compared closely to Doxiadis' ekistic elements (subsets of the main elements, that is). Most of the elements appearing in these three were included, and Detwyler and Marcus (1972) contributed ideas for other, geographically-oriented, elements of the environment. Many other sources were also checked to determine whether

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[3]Doxiadis' main ekistic elements are: Nature, Man, Society, Shells, and Networks.

or not any significant categories had been left out (e.g. Statistical Policy Division, 1972; Trewartha, 1968; Snow, 1976).

Several sociology-related classifications were consulted for standard categories of human institutions (e.g. Foote and Hatt, 1953; Hughes, 1957; Olsen, 1968; Schrag, Larsen, and Catton, 1968; and Schwirian et al., 1977). While the classifications from these works were not taken and placed into the scheme in a block, they were inserted in appropriate subcategories. Goodall (ed. in chief, 1977) and Chapman (ed. 1977) were used for a classification of ecosystems. Each of the twenty-eight volumes in this work addressed itself to one ecosystem type, so the twenty-eight titles of themselves formed an ecosystem classification. Harper (1958) was consulted to fill out the "Human ... Psychology" section.

The classification scheme, as it presently stands, has four first digit categories: 1) Human Populations, 2) Non-Human Populations, 3) Physical Environment, and 4) Resource Flows. (See Figure 2 for 3-digit summary, Appendix for full Classification Scheme.) These categories, it is hoped, encompass all of the possible subjects which might be interpreted in either an urban or a natural area. The first digit categories will be outlined below.[4]

"Human Populations" is meant to include anything concerning the single human (either a specific human or the individual in general), or humans in aggregate--their characteristics, the way they interact, and

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[4]Formal category definitions may be obtained from the Recreation Research & Planning Unit; Room 151, Natural Resources Building; Michigan State University; East Lansing, Michigan 48824.

1. Human Populations
    1. Man - Individual
        1. Biology
        2. Psychology
        3. Biographies
    2. Society - Group
        1. Population Composition & Density
        2. Cultural Patterns
        3. Social Stratification
        4. Government
        5. Group Mores
        6. Activities
        7. Factors of Urban Density & Size
        8. Fields of Creative Endeavor
2. Non-Human Populations
    1. Animals
        1. Animal Communities & Interactions
        2. Individual Species
        3. Biology
        4. Hazards to Humans
        5. Benefits to Humans
    2. Plants
        1. Plant Communities & Interaction
        2. Individual Species
        3. Biology
        4. Hazards to Humans
        5. Benefits to Humans
    3. Ecosystems
        1. Terrestrial
        2. Aquatic
        3. Theory of Ecosystems
3. Physical Environment
    1. Natural
        1. Geology
        2. Soils
        3. Water
        4. Climate
        5. Space
        6. Human Effects & Interaction
    2. Human
        1. Urban & Suburban
        2. Rural & Agricultural
    3. Physical Science
        1. Chemistry
        2. Physics
        3. Technology
        4. Other
4. Resource Flows
    1. Goods
        1. Agricultural & Natural Resource
        2. Manufactured
        3. Energy
        4. Water
        5. Minerals
        6. Other
    2. Services
        1. Communications
        2. Transportation
        3. Economic Development
        4. Education
        5. Community Serv.
        6. Repair Serv.
        7. Recreational
        8. Other
    3. Wastes
        1. Recycling
        2. Storage

CLASSIFICATION 3-DIGIT SUMMARY
FIGURE 2

what they hold dear. "Non-Human Populations", on the other hand, is concerned with living things other than humans and their interactions.

The "Physical Environment" is the non-living part of the universe. It can be naturally occurring or it can be largely created by human action, and it can include theories or "laws" which humans have developed to explain it. "Resource Flows" is a category dependent wholly upon human action. By definition this includes only those things which are moved (in any sense of the word) by humans to benefit humans. The "Resource" need not be a physical object, and the "Flow" need not be a movement which can physically be measured.

It is appropriate at this time to note that any category, no matter to how many digits it is presently taken, can probably be expanded and further subdivided. Under "Physical Environment", for instance, "Rural/Agricultural" is a third-level category (322). In the Michigan Land Use Classification System (Michigan DNR, 1974), however, "Agricultural Land" is a first-level category with thirty-five subcategories at the four-digit level and several categories which stop before they get to the fourth level.

The sole category which does not appear in the classification scheme but which will figure in most interpretation is Time. If the message deals with any period other than the present, either past or future, a nine (9) will be inserted at the end of the string of numerals followed by a hyphen and the approximate date. Interpretation of the Pleistocene Glaciations for instance, would likely have as one of its codes 31139-20,000 B.P. (Physical Environment-Natural-Geology-Erosion & Deposition-Glaciers-20,000 years before present).

Chapter Summary

Classification is often an early part of the search for understanding in a new field of study, and, as such, different classifications have been and still are being used in a great many fields. In interpretation a few classifications have been developed, but none yet for comprehensive planning and assessment.

The classification scheme presented here was assembled from classifications still being used in many other disciplines. Its use as both a broad-brush planning tool and as a tool for interpretive research will be illustrated and discussed later after its reliability is tested in the next chapter.

CHAPTER IV

TESTING THE CLASSIFICATION SCHEME

Since it is unlikely that the classification and the procedures for using it would be flawless without ever being tested, it was decided that a test of some sort should be run. In order to refine the classification scheme itself and to identify problems in using it, the classification was taken to an interpretive facility by several people who all classified the same interpretive programming.

The testing was designed to determine whether or not the scheme met the first of the criteria set for a classification scheme: objectivity (Holsti, 1969). To be objective, the classification's categories must be well enough defined and the directions for using the scheme must be specific enough so that any researcher or planner could follow them and arrive at the same or similar results. Without a certain degree of reliability, it will be impossible to place any credence in the data generated, and therefore impossible as well to make any plans based on the scheme.

The degree of reliability necessary, however, will vary depending on the use to which the results are intended to be put. If the classification is to be used as a generalized planning tool, then extreme reliability may not be important. If, on the other hand, it is being used as a rigorous research tool, then a high degree of reliability will be

desired. In such a study, the definitions offered for the categories may not be specific enough. As it is, the emphasis of this study is on the use of the classification scheme as a planning tool, and the definitions are intended to direct the user of the scheme as to what is generally in the category; they are not intended to be absolutely comprehensive.

In this chapter, the reliability of the results stemming from the use of the classification scheme will be addressed. Once the reliability test is described, the recommended procedures for the future use of the classification and further testing of the scheme will be discussed.

Since the application of classification schemes to a resource inventory has been demonstrated (Badaracco and Scull, 1978), and resource constraints prevented a complete testing of the scheme on all possible applications, the decision was made to run the test on exhibits alone. There has also been little done concerning planning for exhibit content.

Reliability of the Classification Scheme

The Site

The site chosen for testing the classification scheme was Impression 5, an interactive museum of science and technology on the south side of Lansing, Michigan. It was chosen because it has a large number of exhibits available for classification. Since exhibits do not change as they are being viewed, it was thought that they would be easier for novice classifiers to deal with than something less static like a slide program.

Coder Orientation for the Test

In preparing the four coders for the test of the classification, each was given a copy of the scheme, and a fairly simple set of instructions was discussed with them.

1) The coders were asked to become familiar with the classification scheme before the date set for the reliability test. Since such a scheme could be confusing, it was suggested that they use the one page, three-digit summary (see Figure 2) to get through the first three digits and then to turn to the appropriate section of the full classification (Appendix) for the final determination of category.

2) When the decision was made to classify "exhibits", the definition for an exhibit was one with a title, discrete from other titled exhibits. Since the coders would be going through the museum in a group, it was assumed that each exhibit could be delineated at that time and that it could be assured that each coder was classifying the same things as each other coder.

3) Once the limits of an exhibit had been set, each coder was to write down the exhibit title and the appropriate codes to indicate the informational content of the exhibit. In order to be used, the code had to denote information actually contained in the exhibit.

4) Finally, each code was to be used no more than once per exhibit. Also, since interpretive programming usually deals with more than one subject, more than one code could be assigned to each exhibit rather than attempting to assign a single code representing the 'major' topic of the exhibit. Other studies may work better using the "major topic" approach

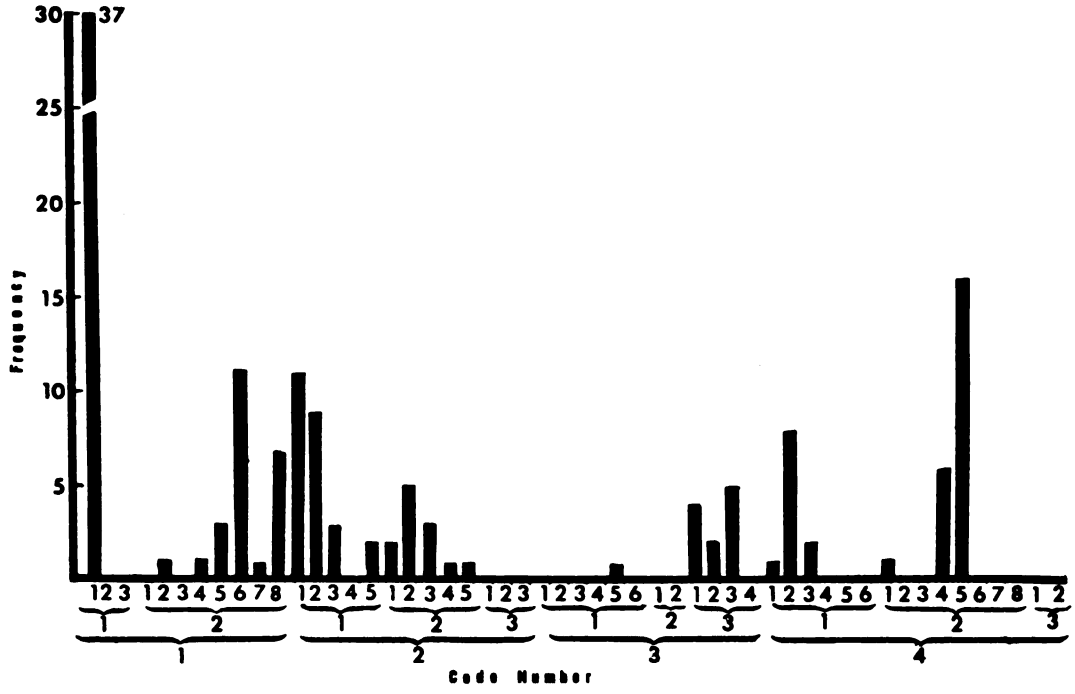
but it was decided that the multiple code procedure would be best for this study.

Test Results

While the coders took each coding out to the final digit of the classification, the results will be reported only to the third digit to save on space and to reduce the total number of possible categories considered. Even with this abbreviated scheme, there are forty-nine categories to be considered and thirty-five of these were used by the coders at least once at Impression 5. Of these, only ten codes were used on more than five of the seventy-one total exhibits.

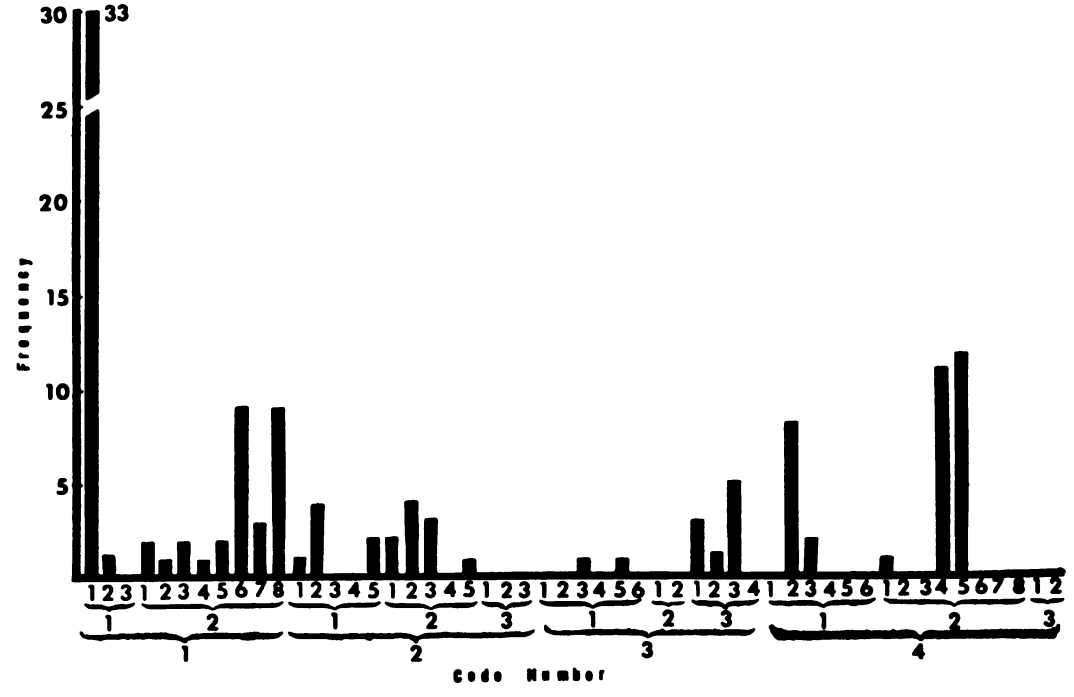
In using the scheme to compare two different facilities for planning purposes only a general idea of the topics covered would be needed. In such a case, a general "intrepretive profile" could be derived (Figures 3, 4, 5 and 6). It can be seen that the four coders, while not duplicating each other exactly, did produce quite similar profiles for the facility. For a test of reliability such as this, in which potential problems are to be identified, a more in depth look at how well the coders agreed is needed.

The unit of analysis--the exhibit--was used as the basis for assessing the percent agreement between the coders. The formula used to measure the reliability of the scheme was based on the assumption that if all four coders used a given code on the same exhibit, there is 100% agreement, three out of four or one out of four will signify 75% agreement, and two out of four 50% agreement. The reason that one out of four is taken to be 75% agreement is that, while only one coder used the code, three agreed by not using the code. This reasoning could be extended to



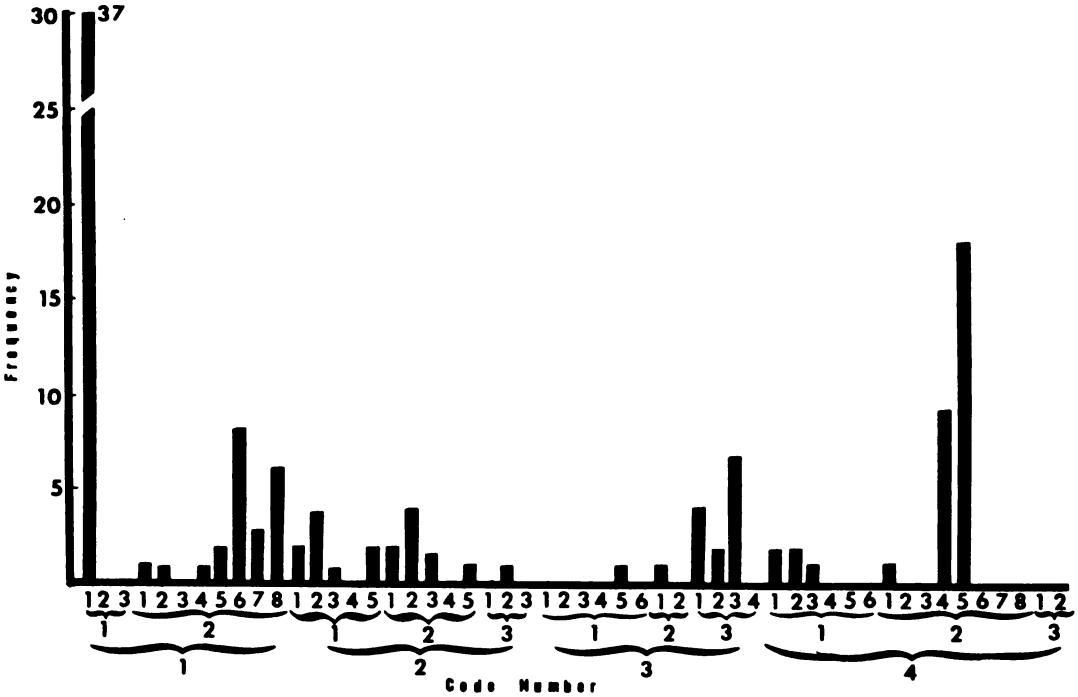
Reliability Test--Coder #1

FIGURE 3



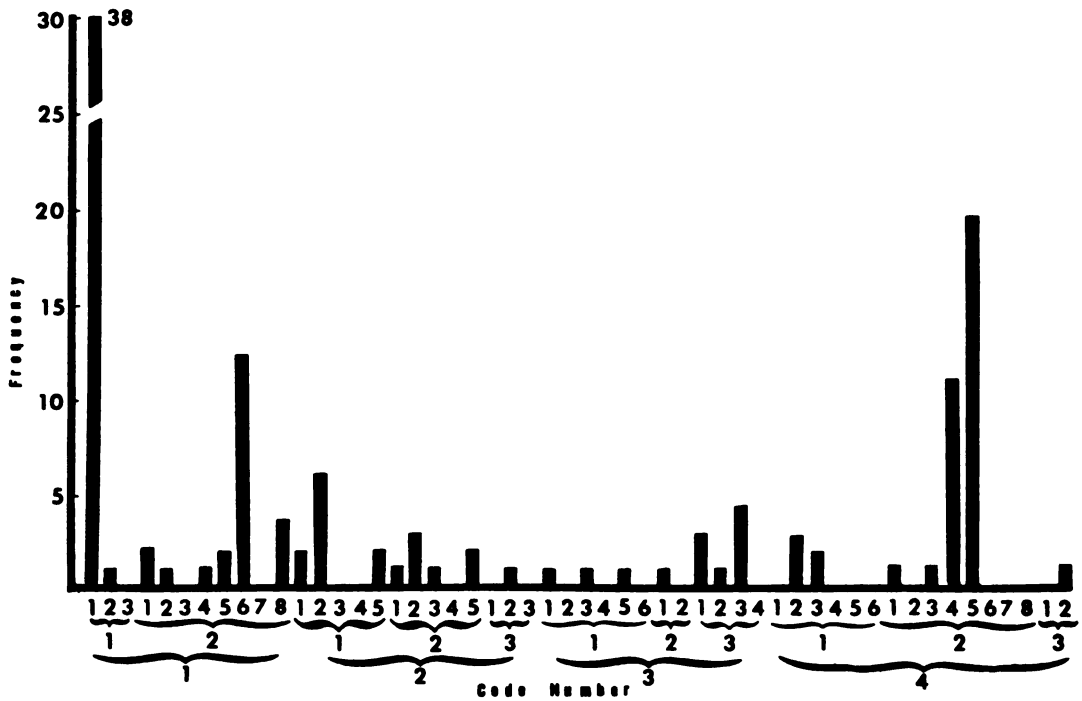
Reliability Test--Coder #2

FIGURE 4



Reliability Test--Coder #3

FIGURE 5



Reliability Test--Coder #4

FIGURE 6

include those codes not used by any coders, but it was felt that the resulting agreement figure would be overly inflated.

The formula for the reliability measure must reflect the possibility that several codes may be used on an exhibit. With this taken into account, reliability is calculated as:

$$r = \frac{.75n_1 + .50n_2 + .75n_3 + 1.0n_4}{n_1 + n_2 + n_3 + n_4}$$

where: r = reliability measure

n_1 = the number of codes used by one coder

n_2 = the number of codes used by two coders

n_3 = the number of codes used by three coders

n_4 = the number of codes used by four coders.

With four coders the measure will assume values between .5 and 1.0 for a given exhibit and code, but the formula could easily be modified to accommodate more or fewer coders. For exhibits assigned more than one code, the exhibit reliability measure is calculated by taking the average reliability across all codes that were assigned. The calculated average agreement over the seventy-one exhibits was 80%, or just over three out of four coders in agreement (see Table 1, on the following page).[5]

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[5]In analyzing the data from the reliability test, it became apparent that the rules for coding were not completely followed. Some coders employed a single code more than once on certain exhibits which had several subparts. When allowance was made for this situation, the reliability rose only three per cent, to 83%, so the original, lower, figure was held as acceptable.

TABLE 1

FREQUENCY DISTRIBUTION OF EXHIBITS BY PERCENT AGREEMENT

Percent Agreement	Number of Exhibits	Percent
100	21	29.6
90-99	2	2.8
80-89	13	18.3
70-79	21	29.6
60-69	7	9.9
50-59	7	9.9
TOTALS	71	100.1

Average Agreement = 80.4%

Rules for Using the Classification

The classification scheme may be used as a content analysis instrument, in which the content of communication (in this case interpretation) is in some way used to make inferences about the communication as a whole (Holsti, 1969). There are several general rules which must be followed in using such a scheme, and the necessity of following them is reinforced by the results of the reliability test.

While the rules may change between studies, they must remain consistent within a study. Generally, then, the rules to follow are:

1) the unit of analysis must be well defined,
2) the system of enumeration must be decided upon and kept consistent,
3) the things being classified must be outlined, and
4) the rules for when a category will be used must be set down.

These rules will be discussed in the sections which follow.

Unit of Analysis

The unit of analysis is the unit of communication which is to be considered as a whole when the classification is used. For example, the unit of analysis for Impression 5 was any titled exhibit. After attempting to use this definition, it was seen that a more specific definition was needed.

In order to avoid these difficulties, a more formal set of definitions was developed for this study. The revised definition of an exhibit for the facilities studied was, "a titled display which may contain subparts illustrating slightly different aspects of the same theme. These subparts will be classified together. If more than one subpart falls into a given category, the category will be counted only once for the entire exhibit."

When classifying an interpretive trail, the unit might be the individual stop. Each stop will usually be identified clearly by a marker, an interpretive sign, or some outstanding landmark identification or brochure.

In the case of a guided walk, the interpretor will stop at predetermined spots or (if the event is a "discovery walk") wherever something interesting is sighted. For each of these identifiable discreet events the interpretation occurring at these stops might be classified as a unit.

Classification of printed material depends in large part on the organization of the piece in question. Often what is being studied is

the week's or month's newsletter describing the programs to be presented. Since it is not possible to attend every program, it is often necessary to rely upon these brief descriptions and interviews with personnel for program content. For such printed matter, the unit of analysis is the description of each program and, in the interviews, care was taken to discuss each program separately. Newsletters often have short articles or interpretive briefs and each of these also qualifies as a separate unit.

Most other printed material has some sort of internal structure or organization which lends itself to breakdown into discrete units.

The most important point is that the units are decided upon and followed in a consistent manner within a given study and that the unit of analysis follows logically from the study objectives. If the emphasis of the study was to inventory an area to plan future interpretation, for example, the units of analysis outlined for this study would not be useable. A more reasonable unit of analysis would be a localized site (which might become an interpretive stop in the future; see, e.g. Veverka, Poneleit, and Traweek, 1979).

What is Being Classified?

Depending upon the purposes of a study, any of a number of things can be used to make up the classification and to be counted. Some of the more commonly used are specific words, parts of speech, or themes. The first two are apt to be used when attempting to learn something about the authorship or the motives of the author in writing a certain piece (Holsti, 1969).

The third choice, themes, was settled upon in this study because it was the subject matter of interpretation that was of interest, not necessarily the motives or authoriship of the interpretation. Interpretive themes don't depend upon a few set words, either, so an idea is the most appropriate item to classify for this work.

Systems of Enumeration

There are two major systems of enumeration which are used in content analysis. First, and most commonly used, is counting the number of times the classified item occurs within the unit of analysis. This method is used when the portion of the unit of analysis which is concerned with a given item is of concern. This will allow the precise statement of results and the use of statistics on the data.

The second system is somewhat more qualitative than the first in that it counts only the presence or absence of an item in the unit of analysis. This is the system used in this research. The discussion which follows applied equally to the study of all types of interpretation, not just exhibits.

A basic assumption of this type of analysis is that each exhibit is "worth" the same as each other exhibit, which ignores such things as interpretive style and the interest generated by different types of exhibits. Although longer exhibits or programs are not given any additional weight (for instance as a certain percent of the total interpretation), they may have more effect on the overall rating if they deal with many topics instead of just one or two. The size of the exhibit may be important, but it may not be the entire unit which gets the message across. The merest passing reference may trigger the appropriate thought

processes in the visitor and accomplish more than the whole rest of the program.

An added advantage to using this presence or absence method of enumeration in dealing with interpretation is that it opens the door for a treatment of the data called "contingency analysis" (Holsti, 1969:7). In contingency analysis, which themes tend to occur with which other themes is studied. Given the nature of interpretation, in which an unknown is taken and related to a known, contingency analysis could be especially enlightening.

The choice of which system of enumeration to use should depend on the theoretical relevance of the system to be used rather than the degree of quantifiability allowed (Holsti, 1969). While it may be preferable in some ways to get an overall impression of the content of the interpretation (i.e., the impression that the visitor takes away) or the number of times a subject appears in the interpretation, it was decided that the impression of the facility or program offerings would be better conveyed by the number of exhibits, programs or brochures in which a category appeared. If, for instance, a category appeared in five sentences of only one exhibit but another category figured in one sentence of each of four exhibits, the former would be counted as having more visitor influence than the latter. The latter, however, has the potential for reaching more people, since everyone does not necessarily see each exhibit or hike every trail.

When to Include a Category?

A category should only be counted as present when the theme it represents is actually present in the interpretation. It should be

information manifest to the intended audience of the interpretation.

In order to determine whether or not a category coincides with the manifest content of the interpretation, the categories must be well-defined, mutually exclusive, and exhaustive. With this goal in mind, definitions are available.[6] It should be noted that these definitions are not necessarily all-encompassing. They are merely provided to allow anyone using the scheme to consult them and, if more than one person is going to use the scheme on any one project, to allow some basis for discussion.

It seems that a group discussion of the categories and the definitions would be invaluable in reaching a project consensus on the limits of each category.

Modifications to the Scheme

As the classification was being tested and subsequently used on other facilities in the Lansing area, certain deficiencies came to light. The early changes involved both additions and subtractions, and reorganizations of the categories while the last modifications all involved the insertion of new subcategories. The latter changes could not be incorporated in the scheme for this study and will be outlined here.

The most obvious candidates for some expansion are individual species of plants and animals (codes 212 and 222). These are the second and third most often used three digit categories when the codings from all of the facilities coded are considered, and there are no fourth and

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[6]Contact the Recreation Research and Planning Unit; Room 151 Natural Resources Building; Michigan State University, East Lansing, Michigan 48824

fifth digits to follow them up. Fourth digits for animal species might include: 1) Mammals, 2) Birds, 3) Reptiles, 4) Amphibians, 5) Fishes, 6) Insects, 7) Other Terrestrial Invertebrates, and 8) Other Aquatic Invertebrates. The emphasis on vertebrate species is intended since the majority of the codings in the interpretation covered had to do with vertebrates. Since people feel the most comfortable with that with which they are familiar, they are more likely to enjoy listening to (or for that matter, conducting) interpretation of a deer's habits and behavior than that of a cladoceran copepod (an aquatic invertebrate). Categories such as 1) Bacteria and Viruses, 2) Algae, 3) Fungi, 4) Mosses, 5) Ferns, 6) Conifers and Relatives (gymnosperms), and 7) Flowering Plants (Angiosperms) can be used to fill out and separate the codings for plant species.

Other deficiencies noted in the scheme were under Human Culture (122) and Transportation (422). A fifth digit, 7 for "Culture in General" could be included. This category would be used when the message has to do with cultural patterns in a location, but not to do with any particular group. This would be especially applicable in North America where the ancestry of those involved is of no moment, and those of many backgrounds contribute to the culture. Transportation could be made more detailed by adding Public (4225), Human- or Animal-powered (4226), and Other (4227).

Future Testing of the Scheme

The development and testing of the classification scheme are by no means complete. More can be done to increase the reliability of the

scheme in its use as a planning or research instrument.

Do coders make their decisions in selecting a category by considering the highest level categories, then the available second-level classes, and so on, or do they go directly to the last digit class? Holsti (1969) asserts that a series of dichotomous decisions can yield much higher reliability figures than consideration of all possible categories in a single decision. This classification is constructed in a way that prevents a strictly dichotomous method but one that doesn't prevent a series of choices. Not more than eight categories can be considered at a time in this scheme, but this may still be more than the optimum number.

By studying the decision-making process on a level-by-level basis, it is also possible to determine at what point inter-coder agreement reaches unacceptable levels. Since one unit of analysis (as defined in this study) can include several different classes, strict controls would have to be imposed on exactly what is being considered in a rigorous test of reliability.

In the effort to improve the reliability of the scheme, more work could also be done on determining which categories are most likely to exhibit disagreement between the coders. The figures from the reliability test can give an indication of which categories were more reliable here, but, because of the few times that most of the codes were used, it is only a general indication. The main conclusion which can be drawn from these figures is that perhaps much of the variation in the coding was due to unfamiliarity of the coders for the scheme. Of the thirty-five codes used, ten were used on only one exhibit. Four of these were

used by one coder, three by two coders, and three by four coders, averaging 72.5% agreement. By way of contrast, the most used category was used on forty-five exhibits with an average agreement of 90%.

The definitions provided for the categories and a discussion of them should serve to improve this record. In general it was felt that the classification scheme worked quite well throughout the reliability test. In future testing of the scheme, it would probably be advisable to continue the practice of recording the exhibit, interpretive stop, or whatever is being used as the unit of analysis, rather than merely recording the appropriate codes. This allows the researcher to see possible miscodings when a code doesn't fit the subject of the interpretation. The coder can be consulted and problems with the classification can be identified. If the classification is being used as a planning tool, however, this may not be necessary.

In any case, coders should be urged strongly to be accurate in recording the codes used.

Chapter Summary

In this chapter, the objectivity and reliability of the classification scheme were tested and discussed. While it is important to have a reliable tool, the use of the tool affects the degree of reliability required. For instance, general planning use will not require the high inter-coder agreement necessary in rigorous research.

After outlining the directions given to the coders in preparation for the reliability test, the test results were presented and analyzed. There was agreement among the four coders better than 80% of the time,

but certain problems both with the scheme and the instructions given to the coders were uncovered during the test. These problems were discussed and corrections were made.

It was felt that, at this stage, it was more important to work on the applications of the classification scheme than to concentrate on its reliability. Additionally, unless more than one person is to be employed in classifying facilities, the category definitions may be subjective but they will also most likely be consistent. In most cases, unless there are very many facilities, just one person can conduct the analysis, which should increase internal consistency.

Chapter 5 focuses in on the applications of the classification scheme to interpretive planning. Several of these applications are discussed in some depth, after which future planning and research applications are outlined briefly.

CHAPTER V

APPLICATIONS OF THE CLASSIFICATION SCHEME TO URBAN INTERPRETIVE PLANNING AND RESEARCH

Having introduced and tested the classification scheme, the next step is to demonstrate some of its applications to interpretive planning and research. Once the location of the study and the specific facilities classified have been described, several planning applications will be discussed. Only a few of these applications were pursued here, but suggestions are made as to how the other applications might be realized. Those applications which are discussed in some depth are how to use the classification in: 1) inventorying the resource, 2) identifying both the completeness and the redundancy of the interpretation when considering more than one provider, and 3) defining types of interpretive facilities by what they interpret.

After the planning applications have all been discussed, there will be a similar treatment of some of the research applications of the classification scheme. Although none of these has been investigated in depth, they should be considered no less important as potential uses of this or any other classification scheme. These uses of the scheme, ranging from how the interpretive audience views what the interpretor sets forth to how interpretation addresses the goals of a city, will, in fact, be even harder tests for the classification since such research requires highly

replicable results. Researchers will therefore have to pay even closer attention to the training suggestions made in the evaluation of the scheme.

Choice of Location and Facilities

Lansing, Michigan was selected to field test the classification scheme and to illustrate several interpretive planning applications. Lansing has the diversity of themes, audiences, and interpretive providers which were cited earlier as grounds for a comprehensive approach to interpretive planning (see, e.g., DeMeter et al., 1978; Hulse et al., 1979; and Cherem, 1979). Not only is Lansing the state capitol, but it is home to considerable industry, including an Oldsmobile plant; there are a community college, a large state university, an independent law school, a special school for the blind in the area, and the list of interpretive providers is long and varied.

Natural area interpretation is presently conducted at three facilities--Fenner Arboretum (City of Lansing), Riverbend Natural Area (Ingham County), and Woldumar Nature Center (Nature Way Association, a private organization). The state of Michigan conducts historic interpretation both in the state capitol and at the Michigan History Museum. Several private associations with at least some overlapping membership supplement the state's efforts with various types of local history programs. Impression 5 stands by itself in conducting interpretation of science and technology.

The interpretive facilities of Lansing are currently undergoing considerable change, with the Michigan History Museum moving to a new

building and changing its emphasis. Cherem's (1979) study was conducted in preparation for the move and these changes. Impression 5 will soon be moving to a larger, more centrally located building which will allow a greater diversity of themes and greater accessibility. Opening soon in the building next to Impression 5's new home will be the new R. E. Olds Museum which will be devoted to the automotive history of Lansing. With so much change currently going on in Lansing's interpretive offerings, the time is especially apt for using a comprehensive planning tool to help with the decision of who should be interpreting what aspects of the urban environment.

In addition to these, there are many other facilities and groups in the Lansing area which either conduct interpretive activities routinely or will do tours on request. Crego Park, Abrams Planetarium on the Michigan State University campus, the Lansing Community College Planetarium, and the Potter Park Zoo all address some aspect of the natural environment. There is also considerable attention to the history of the area by such groups as the Historic Society of Greater Lansing and the Heritage Committee of the Downtown Business Council, and the State Capitol, the Turner-Dodge mansion, the Old Gunnisonville School, and Meridian Township Historical Village, and a melange of interpretation by the Michigan State University Museum.

There are many local commercial concerns which give tours to groups upon request such as Alternate Energy Incorporated, the Lansing Board of Water and Light, Oldsmobile, and Merrill, Lynch, Pierce, Fenner, & Smith stockbrokers. Public service and governmental interpretation can be found at the State Capitol Building, the Lansing City Hall, the American

Red Cross, the Lansing Police and Fire Departments, East Lansing's Sewage Treatment Plant, and at the Ingham County Jail. Michigan State University and the Michigan School for the Blind also offer tours of their campuses (Demeter et al., 1978).

It was decided that a full inventory of all these facilities and groups' offerings was not necessary for an adequate illustration of the use of the classification scheme. A selection of interpretation representing the major groups of normally available interpretation will be classified (Figure 7). The general subjects of these providers of interpretation are natural areas, history, and science and technology.

In order to illustrate a way of differentiating between two similar facilities, two natural areas will be studied: Fenner Arboretum and Riverbend Natural Area. Three examples of historic interpretation and one of science interpretation will be considered in conjunction with the natural areas to point to subjects which are perhaps under-interpreted and merit more attention. Finally, what the facilities do interpret will be used to profile them.

Planning Applications

Planning for interpretation involves bringing together information on several parts of the overall system. First, it is necessary to determine what is available to be interpreted; the area has to be inventoried. Next, what should be interpreted must be decided upon, and this depends on a number of things from what visitors want from the interpretation to what the agency hopes to accomplish with the interpretation.

Name	Facility Type	Items Classified
Fenner Arboretum	Nature Center (minicipal)	Exhibits Staff Interview Written Program Descriptions
Riverbend Natural Area	Nature Center (county)	Exhibits Staff Interview Written Program Descriptions Site Description/ Inventory
Lansing Historic Society	Historic Interpretation (several private groups)	Society Literature Member Interview Self-guiding Downtown Trail Guide
Michigan History Museum	Historic Museum (state)	Staff Interview[1] Literature for Distribution
Pictorial Lansing[2]	Historic/Cultural Interpretation (privately published guidebook)	Stops Identified in Book
Impression 5	Science & Technology Museum (private)	Exhibits Staff Interview

SUMMARY OF FACILITIES CLASSIFIED

FIGURE 7

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[1]Museum was in the process of changing sites, so exhibits were not set up.

[2]Helen E. Grainger (1976), Pictorial Lansing, Great City on the Grand, Wellman Press, Inc., Lansing.

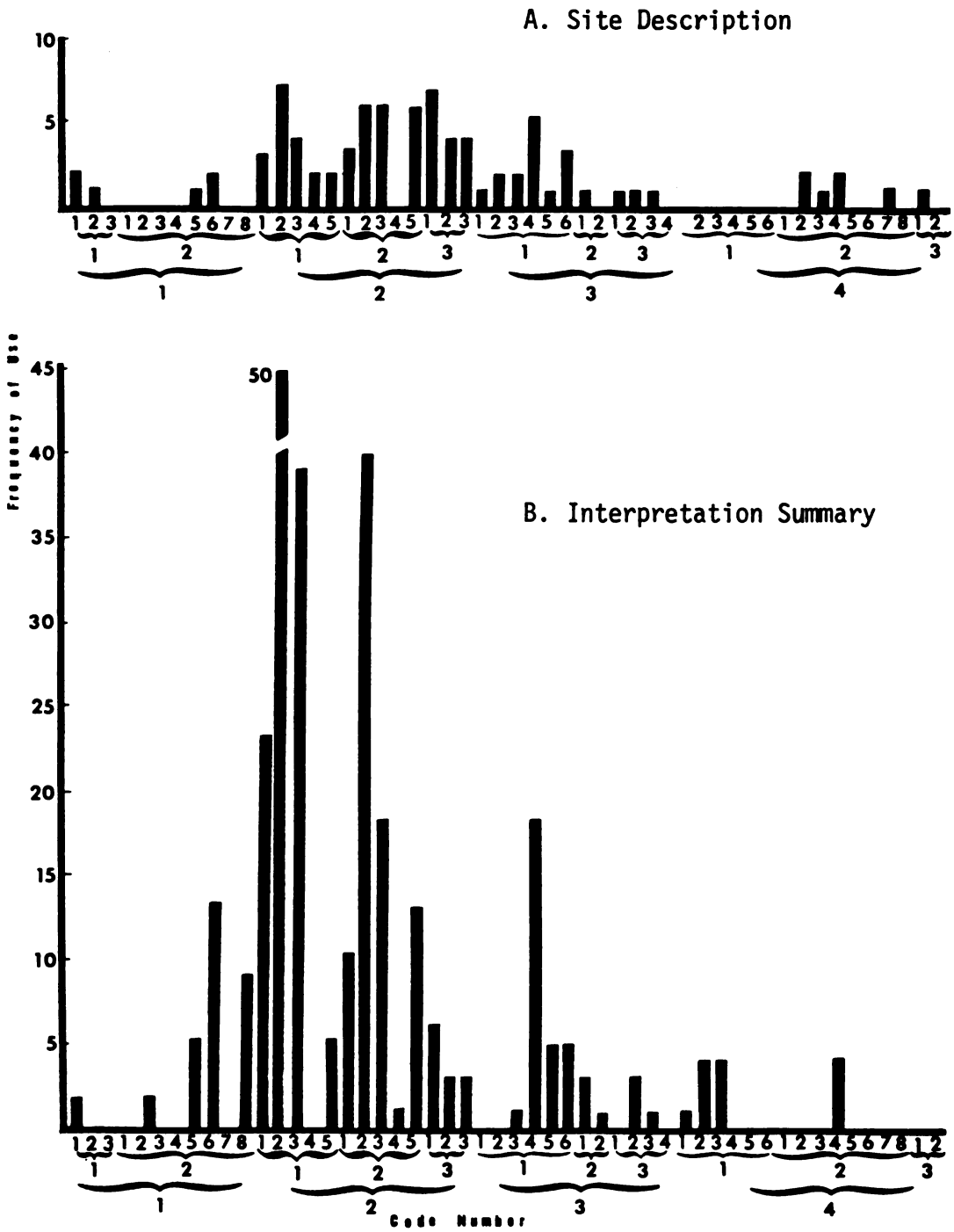
Third, when more than one facility is involved, a decision must be made as to which facility should interpret which subjects. This is applicable both when two or more facilities have the same or similar resource inventories and objectives and when none of the facilities in an area interpret a subject.

The use of a common classification scheme can facilitate the coordination of the various parts of the system.

Resource Inventory

The first step in planning is traditionally an inventory of the area (Bannon, 1976). In developing the interpretive plan for an area, it is first necessary to determine the history, both natural and human, of an area, its physical characteristics, and what is happening in the vicinity (Badaracco and Scull, 1978; Veverka, Poneleit, and Traweek, 1979). Once this inventory is completed, interpretive themes can be selected from it to make the best use of the available resources. An inventory completed at a facility with established programs could be used to bring the facility back in line with its resources and objectives or to expand into unexplored areas.

Riverbend Natural Area was chosen as the site for an inventory using the classification scheme because a site description and environmental education plan of the area already exists (Bratton, 1978). This document was classified (Figure 8) and compared with the present offerings at the facility. While many of the subjects identified in the inventory are presently being interpreted, some are not, and some subjects being interpreted were not previously identified.



Riverbend Natural Area

FIGURE 8

The way these fit together will be discussed in the following section.

What Should Be Interpreted At A Facility?

The decision for a single facility as to what its interpretive offerings should be is based on more than just the resource inventory. Also to be taken into account are such things as the facility's objectives and the visitors who will be going to the facility. Riverbend Natural Area is an example of a site where the objectives of the area, "To educate the public in the natural environment, to develop in people an understanding and appreciation of nature; to preserve the plants that grow in the area" (De Meter et al., 1978), caused some topics to be interpreted which did not appear in the site inventory. One of these is Energy (code 413). The focus of the programs under this category is using wood for energy, and its implications as opposed to other sources of energy. Societal values (1252), weighing the benefits and costs of energy alternatives, are definitely within the purview of interpretation.

Other categories are interpreted because of a widening of the goals of the area. Fields of Creative Endeavor (128) is not consistent with the goals stated for Riverbend Natural Area, but it is consistent with some of the other goals of interpretation of fostering a person's sensitivity and enthusiasm (Risk, 1976). Biondi (1978) points out that creativity is to a certain extent present in all people, but that very few adults actually use their creativity. Stimulation of free thinking can create a problem-solving environment which is to the benefit of all,

especially in an urban setting where many may not feel that they can contribute to a solution to the problems of the day.

Also to be considered in setting up the interpretation for a facility is the potential visitorship. A questionnaire could be developed based on the categories of the classification scheme and administered to the potential clientele (or, in the case of a contemplated change in the offerings of the area, the present clientele) to determine the topics they would like to learn more about. This is important even if visitor preferences or objectives do not coincide with those of management since, without catering at least somewhat to the visitors, you will never even get them in to try to get your message across (Washburne and Wagar, 1972; Ham and Shew, 1979).

Examination of the classification scheme in light of the interpretive (or management) objectives of an area could yield information helpful in meeting these objectives. In this case, a strict adherence to the principles behind content analysis need not necessarily be followed. It would probably be of greater value to let one's mind roam freely over each category to discover possible links with the stated objectives.

Allocation of Interpretive Themes

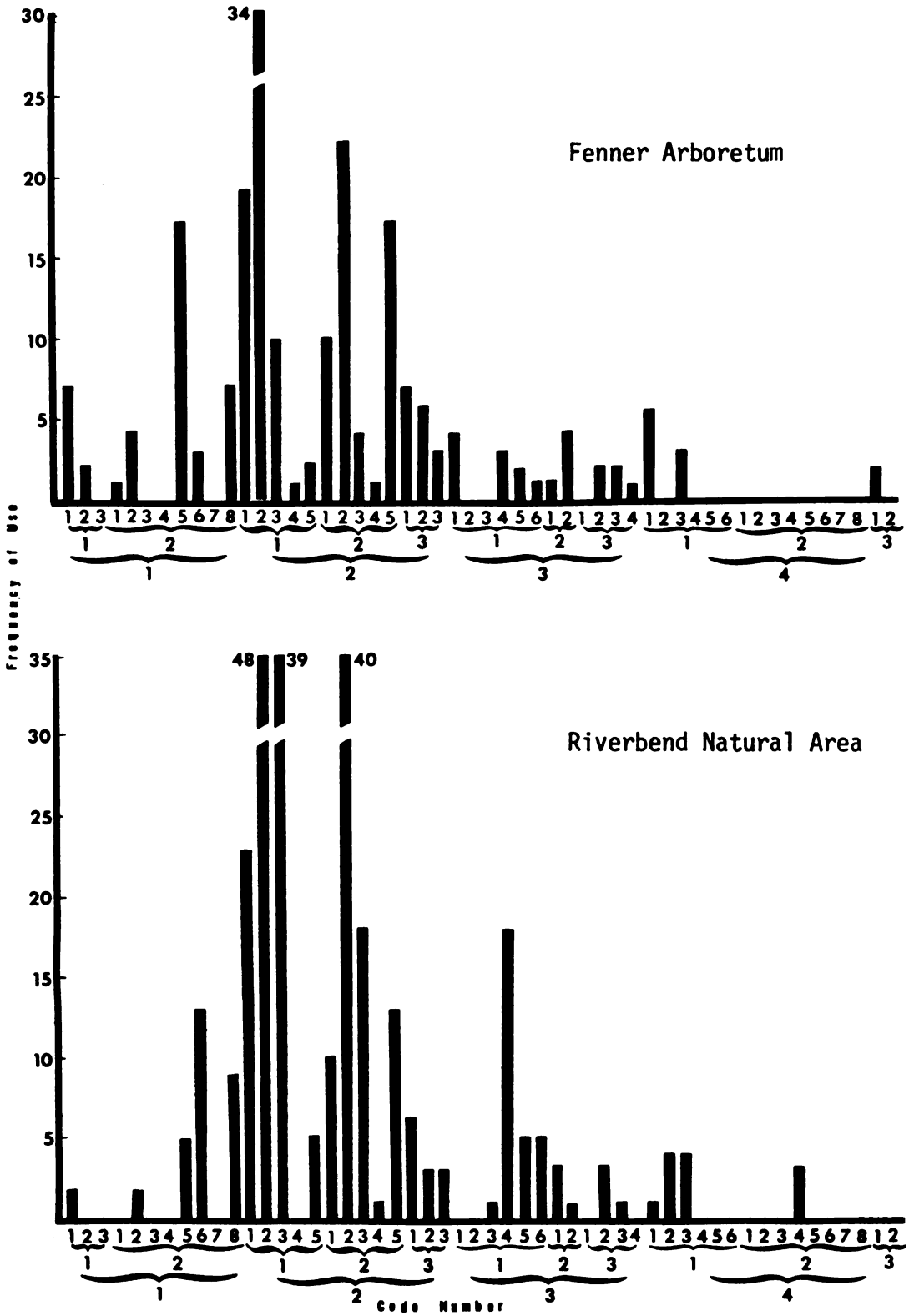
When the interpretives themes to be presented are being considered for not just one, but for two or more facilities as is often the situation in an urban area, conflicts may arise as to who gets to (or has to) address certain topics. In the first case, more than one interpretive provider may already be focusing on a subject, and, in the latter case,

a subject may be ignored by all. The classification scheme can be used to identify these problem areas and to determine what adjustments should be made.

Fenner Arboretum and Riverbend Natural Area, for example, are both nature-oriented areas with a variety of habitats available for interpretation. Both have included within their bounds deciduous forests, some open fields, and some aquatic component (ponds and stream at Fenner, the Grand River at Riverbend). The Arboretum has in addition a large area enclosing a prairie dog colony (in a subenclosure), seven or eight deer, and three buffalo (American bison).

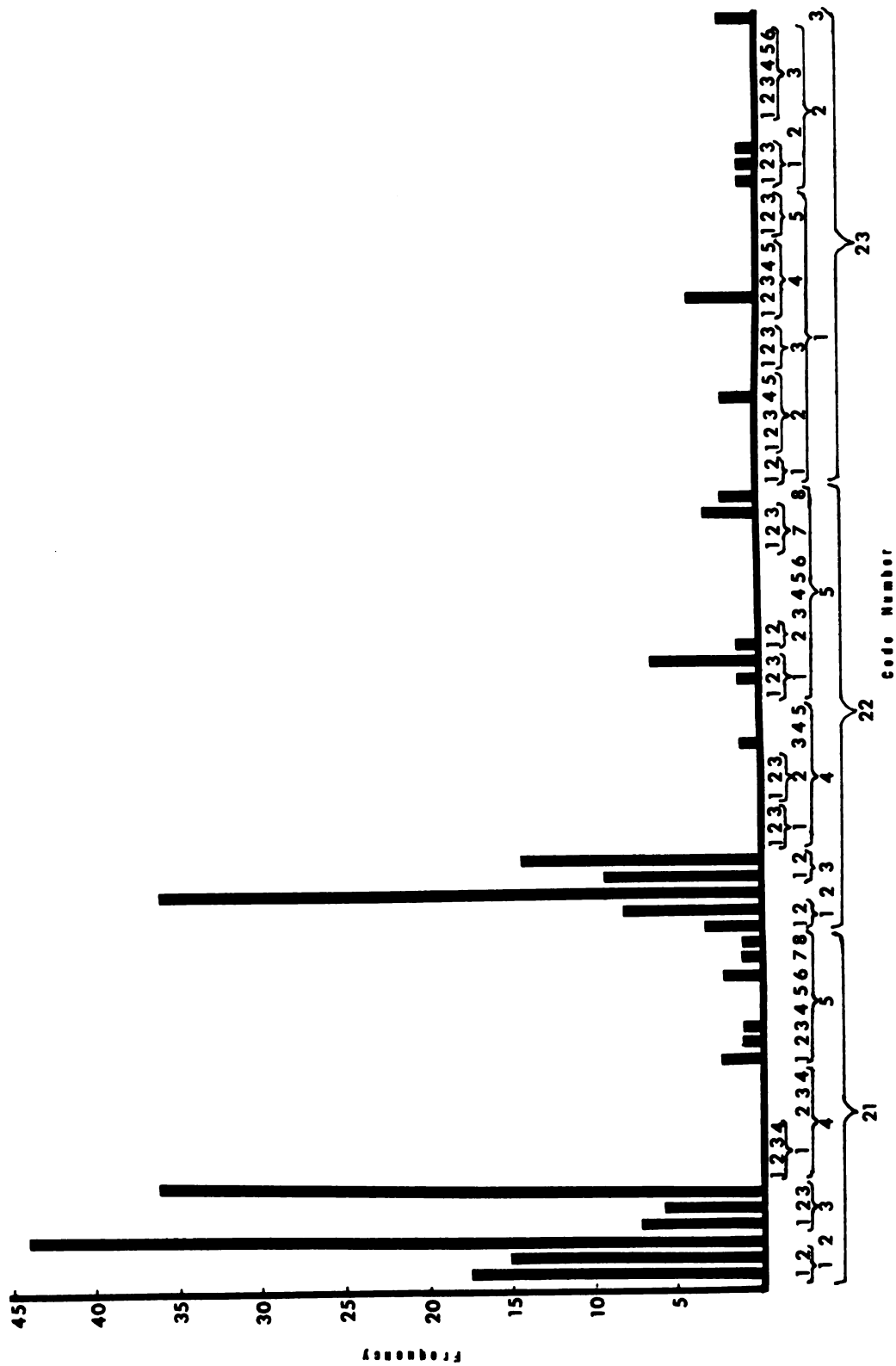
Many of the same categories are, as might be expected, emphasized at the two facilities (Figure 9). Not surprisingly, a major portion of the classification of both areas fell into the second major class, Non-Human Populations. To discover how close the subjects were at the two facilities, the classification in this section of the scheme was expanded to the fifth digit (where available) and graphed (Figures 10 and 11).

A comparison of Figures 10 and 11 shows that the two facilities still overlap in their major emphases, especially with respect to plants and animals. A large part of this is due to the nature orientation of the facilities and perhaps to the lack of discrimination in those sections of the classification scheme. It was originally assumed that "Individual Species" referring the user to an appropriate plant or animal key if necessary would be sufficient. These two categories were used the first and second most often at Fenner Arboretum, and first and tied for second most often at Riverbend Natural Area.



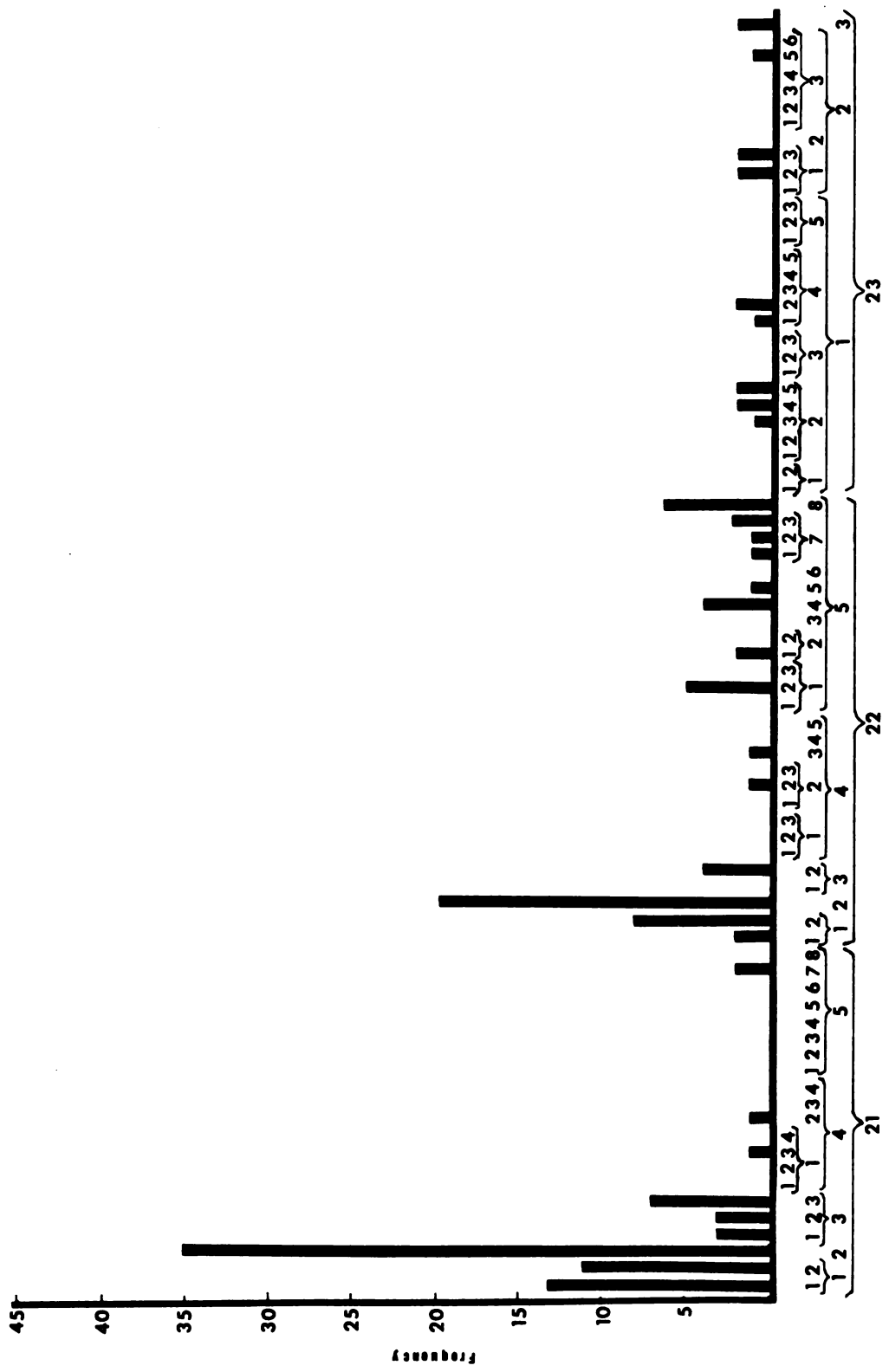
Natural Area Interpretation Summary

FIGURE 9



Riverbend Natural Area: Non-Human Populations

FIGURE 10



Fenner Arboretum: Non-Human Populations

FIGURE 11

To increase the resolution of these sections of the scheme, additional categories can be devised. Under animal species, categories might include major groups such as mammals, birds, reptiles, amphibians, fishes, insects, other terrestrial invertebrates, and other aquatic invertebrates. Plants may be augmented by such categories as bacteria and viruses (even though they are not, technically, plants), algae, fungi, mosses, ferns, conifers and relatives (gymnosperms), and flowering plants (angiosperms). If a study needed still more distinction between types of animals or plants, that could be accomplished.

Within the animal sections, the Arboretum has only two categories mentioned which are ignored by the Natural Area: Insects (21413), and Disease Transmitters (2142), while Riverbend has several unique mentions of the Benefits of Animals to Humans (2151, 2152, 2153, 2156 and 2158), and has a total of eight occurrences in this area to only two for Fenner. This would indicate more of an emphasis on animals and their relation to humans at Riverbend, while inspection of the plant categories reveals additional differences between the two.

Where Riverbend's interpretation touches on this topic many times, Fenner's does not at all. Moving on to 225, the benefit of plants to humans, the Arboretum has a total of twenty-two 4- and 5-digit references to thirteen by Riverbend. The Natural Area's sole unique emphasis is on the use of wild plants for food while Fenner emphasizes such topics as private cultivation, the use of plants and shelter, and touches on the climate modifying influences of plants and the psychic benefits of ornamentals and urban forests once each.

Surprisingly, neither area had very much interpretation concerning ecosystems. This may be due to being restricted to classifying the written and verbal descriptions of the programs instead of viewing the programs themselves. What interpretation of ecosystems there was proved interesting, however; Fenner Arboretum had programs concerned with several different ecosystems about equally, but Riverbend Natural Area concentrated on the temperate deciduous forest ecosystem to the exclusion of all others. Ecosystems mentioned at Fenner include the prairie and coniferous forest (once each), and land in pre-climax succession, agricultural land presently in use, and deciduous forest ecosystems (twice each).

Trends which emerge from this brief analysis reveal that Fenner's interpretors may tend to focus more on the human applications of natural areas, and on human environments themselves than do Riverbend's. On Fenner's side of the balance are human architecture, gardening, the use of plant materials for shelter, climate modification, and ornamentation, urban forest, agricultural land, land in pre-climax succession (most notably, abandoned farmland) and minor concentrations in coniferous and deciduous forest ecosystems; on Riverbend's side are heavy concentrations in plant anatomy, wild food plants, and deciduous forest ecosystems. This trend is reinforced by the aggregated figures presented (Table 2), which show that the Arboretum concerned itself with human-related topics approximately thirty percent of the time whereas the Natural Area limited itself to 18% human-related content.

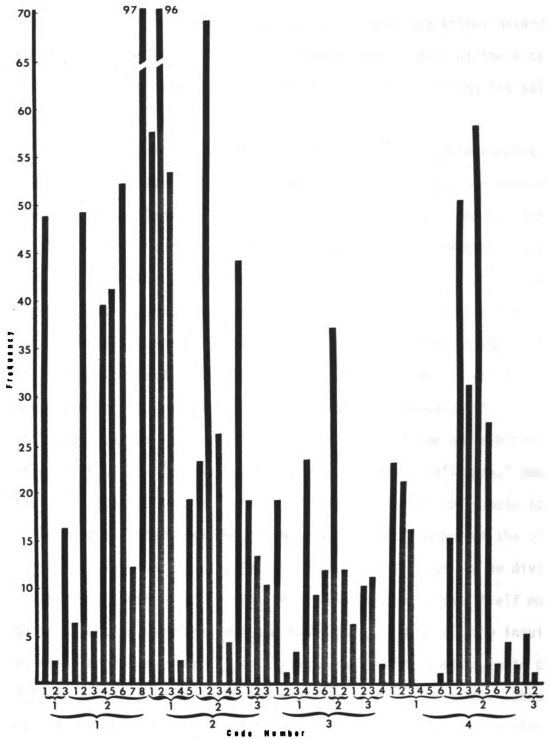
TABLE 2

AGGREGATED TOTALS OF CODES USED
(Natural Areas)

	Riverbend Natural Area	Fenner Arboretum
Human Populations	31 (10.7%)	41 (20.0%)
Non-Human Populations	209 (72.0%)	134 (65.4%)
Physical Environment	37 (12.8%)	20 (9.9%)
Natural	29 (10.0%)	10 (4.9%)
Human + Physical Sciences	8 (2.8%)	10 (4.9%)
Resource Flows	13 (4.5%)	10 (4.9%)
TOTAL	290 (100%)	205 (100%)

It also appears that there is a little more emphasis at Fenner on off-site resources than there is at Riverbend. Continental Shelves (23235) was used on an exhibit entitled "Save the Whales", and nearby there were also exhibits on timber wolves and the baby harp seals which are the object of a very controversial hunt each year.

The second allocation problem arises when several facilities, when considered together, still do not touch on all the parts of the system under consideration. When the figures for all of the facilities in an area are aggregated, it is quite easy to see where the interpretive emphases lie (Figure 12). The most often used categories can be traced to particular facility types. Architecture, under Fields of Creative Endeavor (128), for instance, accounted for most of the times this category was used. Most of these were recorded in the interpretation of the three historically-oriented providers, while most of the Animal (21__), Plant (22__), and Ecosystem (23__) codings were from the two natural areas.



All Facility Summary
FIGURE 12

Within the category Non-Human Populations, there seem to be two subcategories which were especially ignored. These are Animal-Hazards to Humans (214) and Plants-Hazards to Humans (224). Both of these categories could be exploited to help draw people in by eliciting the safety motivation (Veverka, 1978a).

While the Physical Environment (category 3) as a whole appears to have been under-utilized, three of the 3-digit categories have been used a fair amount: Geology (311), Climate (314), and Human-Urban and Sub-urban (321). These three categories are ones in which one might expect to find considerable interest in an urban area, especially 321. Perhaps the lack of emphasis on the Physical Environment could be rectified somewhat by having some new group or facility concentrate on the system of the city which seems to be ignored when each provider is concentrating on one aspect of the system. The new Impression 5 museum, with its added exhibit space may be able to fill this void. One of the new exhibit halls will be titled "Social Systems and Technology's Influence," and another is "Futuristics and Technology". Both of these could help to fill the void in interpretation of the physical environment of the city.

In studying the all-city interpretive summary, much can be divined about the city's offerings. While the classification stage itself must be quite objective, applications can and should involve all the intuitive leaps the planner can make. Identifying under-represented subjects can lead to more than just shifting the emphasis of a few programs. Lands or facilities which hold some of the missing resources can be obtained, or an entirely new interpretive branch could be formed. For instance, parts of the Lansing area are flooded nearly every year, and yet there

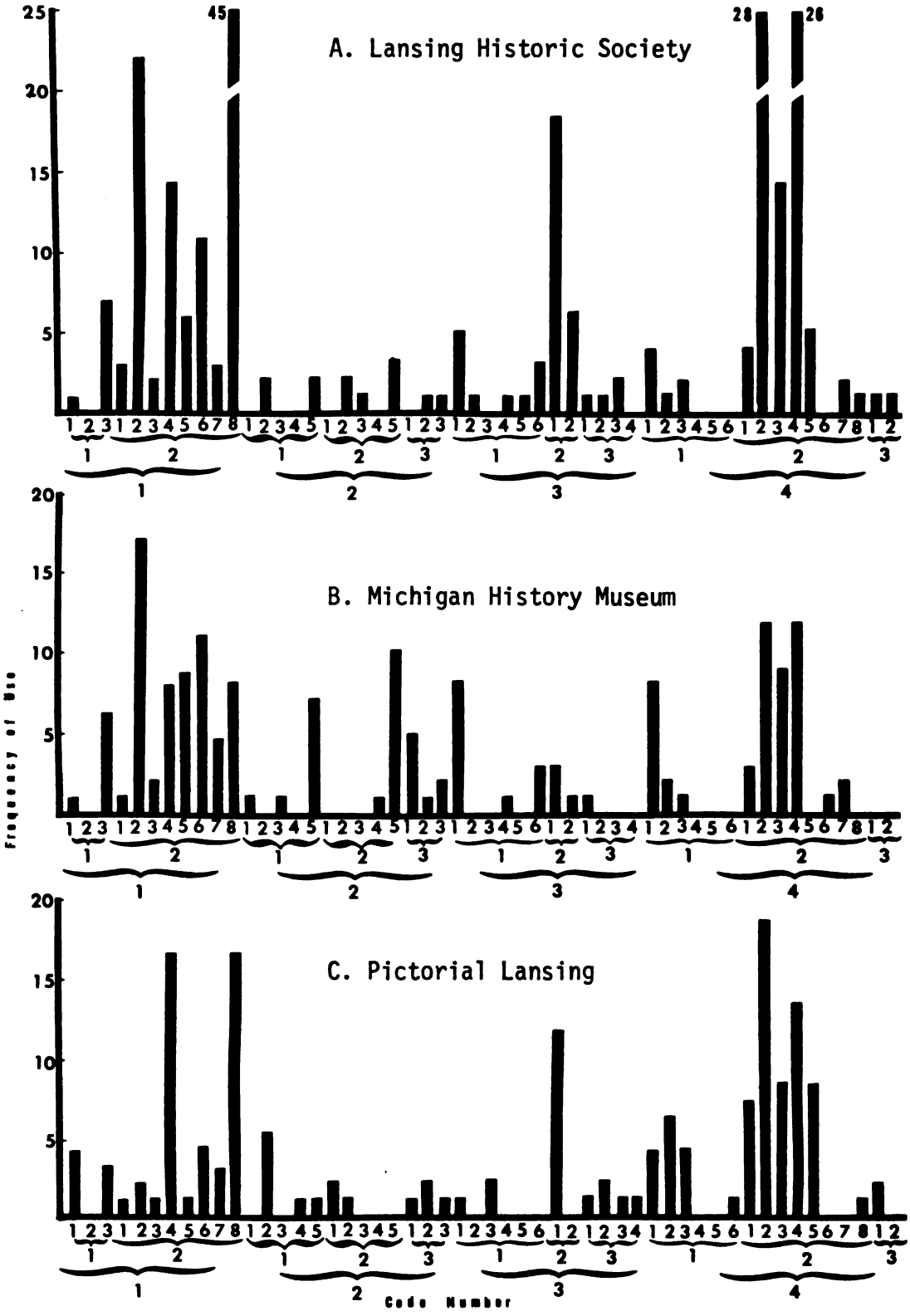
is scant mention of this in the area's interpretation. There are only three mentions of water as a part of the physical environment where much could be said about flood plain ecology and the dangers of building there.

The use of a similar all-city survey of the interpretive wants and needs of the public could be used in conjunction with the interpretive summary to determine which needs are going unmet. Such a comparison might also identify programs or themes with little public support or interest.

Facility Types

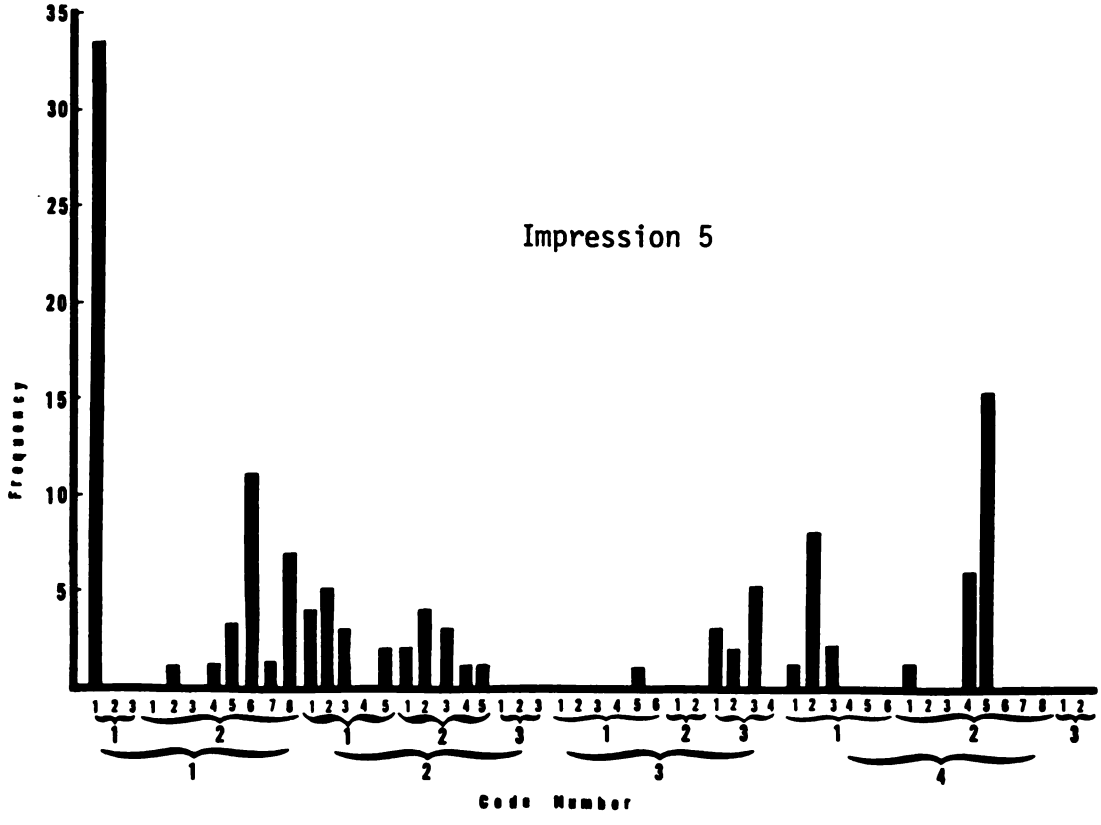
Another possible use of the classification scheme is that it can be used to identify "families" of interpretive facilities. The emphasis of the natural areas on Non-Human Populations and, to some extent on the natural part of the physical environment has already been pointed out (Figure 9). It can also be seen, however, that the historic areas (Figure 13) also appear to interpret certain categories more than others. Society (12__), certain Services (421 to 425), and some aspects of the Human Environment (32__) are categories interpreted by each of the historic facilities studied.

As the classification scheme is used more, perhaps it will be possible to fingerprint each facility or at least to put them into groups. If enough facilities were so classified around the country and records were kept in some central repository, it would be quite easy for facilities with similar emphases, objectives, and problems to be put in contact with each other and to get a few more minds working on each problem.



Historic Interpretation Summary

FIGURE 13



Science & Technology Interpretation Summary

FIGURE 14

By combining all of these facility fingerprints, an interpretive fingerprint of the city could be developed in much the same way as standardized planning forms can be used to type a site within a park (Veverka, Poneleit, and Traweek, 1979). It could also be used to help direct visitors to cities and then to the sites within the city of greatest interpretive value to them (see e.g., Badaracco and Scull's, 1978, Feature Evaluation Matrix).

Other Planning Applications

A number of other applications of the classification scheme to interpretive planning should also be mentioned. They will be discussed and suggested procedures briefly outlined here.

1) As was mentioned earlier, the formation of a cognitive map (Knopf, 1979) early in the visitor's interpretive experience will furnish a framework on which to hang subsequent information thus facilitating information retention and understanding. In the case of an area served by a number of facilities each dealing with but a small part of the total urban system, it would be advisable to have an exhibit or perhaps a few exhibits at each facility which would show where the interpretation the people are about to see fits into the overall urban system.

The classification scheme can aid in setting up the exhibit by identifying the parts of the system pertinent to the interpretation. The pertinent components could be identified through classification of the interpretive objectives for the facilities, by the resource inventory, or even from the classification of existing interpretation. It is likely that a "cognitive map exhibit" would have to be very general, so the classification would probably need to be taken to two or possibly even

just one digit to yield sufficient detail. If, for instance, only a few components needed to be related to help form a cognitive map for the visitor, these few components could be incorporated into, say, a park system logo which would provide the underlying theme for all of the interpretation.

2) Hiring practices could even be affected by using the scheme. The employer could request short essay answers to a series of questions about interpretive objectives, and a content analysis of these answers could be compared to a content analysis of the area's objectives. Contingency analysis could be run as well on the results of this initial analysis. The contingency analysis could take at least two directions. First the categories linked together could be looked at as an index of how the prospective employee thinks, and, second, the number of links could be counted to discover the extent to which s(he) thinks of relationships between different parts of a system. The contingency analysis could occur at any level, depending on the breadth of the system which is of concern to the employer.

3) There are very great possibilities for role-playing in urban interpretation, either formalized (Caldwell, 1979), or fairly informal (Lowell Study Team, 1977). Almost no matter what is being interpreted, there are possibilities for people to take on roles, and, in the process, to learn more about the subject this would be possible in more conventional ways. How better for a young boy to understand a child laborer from a 19th century textile mill than to experience the din, the pace, the atmosphere of the job even if just for a short while? (Lowell Study Team, 1977).

Whether it is the Eskimo culture (122115), decision-making at city hall (12432), the urban climate (3163) and air pollution (31611), or Wall Street (4231), there are ways to use role-playing or any of a number of other interpretive ploys to make interpretation live for the visitor; all the planner has to do is to get the ideas. But where do these ideas originate? The classification scheme can help in this process by providing cues. As the planner reads through the scheme, all s(he) must do is to let his or her mind roam freely over each category with respect to the interpretive tool.

Research Applications

In addition to its demonstrated uses in aiding interpretive planning, classification schemes can make significant contributions to interpretive research. Here again, it must be emphasized that using the classification as a research tool will require strict adherence to the rules set forth for using the scheme, and the scheme presented here is only one of many possibilities. In general the researcher must develop a taxonomy appropriate to the purposes of the individual study.

1) By giving a classification scheme to visitors to a facility along with appropriate instructions, it will be possible to determine what they see in an exhibit, slide program, or guided walk. It is especially important to know if the visitors see what the interpretor or exhibit designer intended.

Whether the "receiver" receives what the "sender" is intending to send (Peart and Woods, 1976) depends upon how well the message was encoded. If the "perceived content" of interpretation varies from group

to group, this should be known and its effects studied.

2) Contingency analysis, a procedure outlined by Holsti (1969:7) is especially promising in its applications to interpretation. This technique involves determining which categories tend to co-occur within individual units of analysis. Since much of interpretation depends on relating the unknown to the known (Tilden, 1967), strategies of interpretation could be more clearly discussed and defined within the framework of a classification scheme.

3) It would also be informative to determine just how interpretive topics are selected. The three most likely inputs for selecting topics (after the resource inventory) are the facility's interpretive objectives, interpretor background and interests, and visitors' wants, needs, and interests.

Contingency analysis would probably play an important part in the determination of any relationship between objectives and interpretation, since such objectives often mention the understanding of interdependency or the functioning of various systems as desirable outcomes of viewing the interpretation.

If the categories of the classification scheme are taken and put into a survey format, this survey can be given to visitors to determine what topics they would prefer to see interpreted. Blahna and Roggenbuck (1979) identify understanding visitor interests, motivations, and expectations as an important goal for interpretors. Shew (1970) and Veverka (1978) also addressed this area in their work. Veverka's work on visitor motivations in attending programs on different topics may be especially enlightening when considered with the proposed survey.

The same survey could be given to interpretors for comparison. If there are significant differences between visitor wants and interpretor intentions, action should be taken to bring them back in line, and both of these outcomes should be compared to the existing interpretation of the area to determine whether it coincides with what anyone wants.

4) To evaluate the effects and effectiveness of interpretation better, it has been suggested that we must go beyond studies of enjoyment and short-term retention (Moorfoot and Blake, 1979). Relational understanding, when coupled with enjoyment and learning measures, would provide a better picture of exhibit effectiveness. If a visitor could extrapolate with the information given from a given set of circumstances to some long-range effect, then it could truly be said that the interpretor had achieved her (his) goal of presenting more than just facts, that the relations themselves were made clear.

This or another classification scheme could play a part in this assessment because it can include most of the components of the systems under consideration. After having viewed a bit of interpretation, the visitor could be asked to consider a situation or an action concerning the system and to indicate what areas of the classification would be affected. The more insightful the average visitor appears to be, the more successful the interpretation can be considered to have been.

5) While interpretation in general may be more nature-oriented than human environment-oriented (U.S. Dept. of Interior, 1978), the portion of interpretation in urban areas which concentrates on the built environment can be studied. Just as it was suggested that different

facility types could be determined by their interpretive profiles, the difference between urban and rural or wilderness interpretation should show up in using the classification scheme.

6) The classification could also be quite useful in discovering differences in the interpretation content in different cities. Studies could use profiles of individual facility offerings or aggregated city-wide interpretation profiles as was demonstrated for Lansing, Michigan. Once these differences had been identified, the reasons for the differences could be investigated. The investigation of the relation of the interpretation to the resource inventory, to facility objectives or philosophy, or to interpretor outlook have all been outlined in previous sections.

The success of the programs in various cities and how they relate to these factors have not been investigated, and could prove helpful in planning future interpretive projects.

Another aspect of what a facility interprets is determined by the orientation or management of the facility. There may be significant differences between the interpretation presented by parks departments and forestry departments and between public, private, and non-profit groups. If differences are found, then work can be done to find what effect these differences may have on the efficacy of the interpretation. At the same time, differences in the clientele groups and their interpretive needs can be assessed to find what effect that has on their response to the interpretation.

7) While interpretation and environmental education may be quite similar (UNESCO-UNEP, 1978: editor's note), a systematic investigation

of content differences may prove interesting. If there are more differences than merely of approach, and these differences influence the success of different programs, the results could serve to improve both interpretation and environmental education.

8) Different people have different goals and motivations for attending interpretive programs (Veverka, 1978).[7] By asking open-ended questions as to why visitors chose certain topics from a list and using Maslow's (1954) hierarchy of needs[8] as a basis, Veverka explored what role different interpretive topics can play. He concluded that topics can generate predictable motives, that each mode can also generate predictable motives (for instance, where a person may go on a nature walk for enjoyment (belongingness, esteem), (s)he may attend a live demonstration "to see the real thing" (esteem, self-actualization)), and that the motives of visitors actually attending the programs can be predicted based on the topic and on the group to which a particular person belongs.

Applying this to actual programs, Veverka suggests that visitor enjoyment and learning may be increased by determining the needs that a topic might fulfill. Once the determination has been made, an appropriately provocative title and publicity can be developed emphasizing these needs. Coming into the program with appropriate expectations, visitors will be less likely to be disappointed by the content of the program.

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[7]For summaries of this work, see Veverka (1977) and Veverka (1978b).

[8]Maslow's needs categories are: physiological, safety, belongingness and love, esteem, and self-actualization.

Similar work could be done on the categories of the classification scheme to find which topics might be interpreted profitably, or even to determine the attitudes of people toward various topics both before and after attending a program.

9) Finally, if the city itself can be considered "the agency", then the goal of the urban interpretor should be to fulfill the city's goals. According to Doxiadis (1968), there are five basic principles on which human settlements are founded. These, then, can be looked on as the goals of the city. Humans have the desire to

1. Maximize potential contacts
2. Act with minimum effort
3. Optimize protective space
4. Optimize the relation of the five ekistic elements (Nature, Man, Society, Shells, and Networks)
5. Synthesize 1-4 with a proper balance.

Whether interpretation works to further these goals depends on what is being interpreted and how each topic/theme/program relates to each other topic. The degree of emphasis of the interpretation on the categories dealing with the human or his environment will indicate the relevance of the interpretation to the urbanite.

Flexibility of the Scheme

In this chapter many of the potential applications of the scheme to interpretation and interpretive management were discussed. These applications ranged from meshing a facility's interpretive offerings with its resources, its own objectives, and other facilities' offerings to investigating interpretive strategies, visitor needs and interpretor intentions, and even to affecting hiring practices.

Besides all of the applications, the classification scheme has the advantage of being able to function in analyzing a wide variety of interpretive media. Any interpretation which has verbalized information content can be investigated. Interpretive talks, guided walks, self-guiding walks, brochures, signing, exhibits, and slide-tape programs are subject to this analysis and they can be compared with each other as well.

It is even potentially possible to use the classification with a slide-tape program in which the tape holds no words but only music and the sounds of the environment. The intended effect of such a program may not be immediately apparent, but people can be asked to indicate the categories which the program called up for them. When compared with the objectives for the program, the results can show the interpretor whether or not the desired effect has been achieved.

The Classification can be used with varying degrees of rigor as well, and this makes it applicable for use by different sized agencies. A small agency with limited time and funds can use a simple 2- or 3-digit scheme for general planning applications. Larger agencies might use a systematic information system based upon a detailed classification of interpretive program content. Researchers can apply classification in a rigorous manner to explore a variety of questions including the important area of evaluation of interpretation.

CHAPTER VI

CONCLUSION

Study Summary

A classification scheme was assembled drawing categories from a wide variety of classifications which have been used to describe both the natural and built portions of the urban environment since there is presently no standard scheme of classificaton for describing the informational content of interpretation. It was found that repeated "testing (of) the usefulness of tentative categories, and then modifying them in light of the data," (Holsti, 1969:104) was necessary. This could probably have continued forever had time constraints not urged the designation of a "final" version of the classification scheme.

The classification was then taken to a museum of science and technology to refine the classification and the procedures for using it and to test its reliability when used by several people. Four coders classified the museum's exhibits and were found to agree approximately 80 per cent of the time as to the content of the exhibits. Two major factors contributing to inter-coder disagreement were coder unfamiliarity with the scheme, and problems in defining the unit of analysis, in this case, an exhibit. While these problems were judged not to be too severe in such planning applications as would be demonstrated here, they are much more important when rigorous research is being conducted.

Selected facilities in the Lansing, Michigan area with emphases in nature, human history, and science and technology were subsequently visited, and exhibits, written program descriptions, brochures, staff interviews, and even resource inventories were classified for their information content. Demonstrated planning applications included 1) inventorying the interpretable resource, 2) determining what a facility should interpret, 3) ensuring that, between a variety of facilities, all of the appropriate subjects are dealt with, and 4) placing facilities into a "type" based on what they interpret.

Many other planning and research applications were discussed as well.

Evaluation of the Scheme

It has been recognized that this study is but a first step toward the use of classification in improving urban interpretation. This scheme has been modified repeatedly and could be improved by further modification. Or another scheme altogether may be developed which will serve the urban interpretor better than this one can. Classifications used by Doxiadis (1968), Stearns and Montag (eds., 1974), Badaracco and Scull (1978), or the Michigan Department of Natural Resources (1974) or others may prove better for certain purposes.

The classification used here was designed to allow its use in most locations and for most kinds of interpretive facilities. It can be used at different levels of rigor, depending upon the accuracy needed, and it can be taken to different levels of refinement, depending on the amount of detail needed. If a general classification can be used in a variety

of ways and is used by a variety of interpretive providers, then comparisons between facilities, cities, and functions will be possible.

The problem arises, however, in choosing what classification scheme to use, and whether different providers be persuaded to use the same scheme. That will largely be left up to chance and to the whim of the planners, but the important goal for now is to promote the use of classification in interpretive planning.

Once a classification scheme acceptable to the planners is found, however, it can be used in essentially all phases of the planning process from the analysis of the system under consideration and the clientele group to the evaluation of the interpretation. Since planning is an ongoing process (Bannon, 1976), a classification should always have some use to which it can be put. In the initial stages, for example, the resource inventory can often be conducted with some ease inasmuch as many natural areas, historic sites, and cultural features will already have been inventoried (e.g., Bratton, 1978). All the planner must do in these cases is to take these pre-existing inventories and classify them.

A general planning tool such as the classification scheme must not be expected to solve all of the problems of the city; it will not even tell each of the many interpretive providers in the city what to interpret. Rather it will serve to inform each provider of its place in the larger picture of urban interpretation. By merely providing the information to these often unconnected facilities and groups, they may be encouraged to cooperate more closely with each other, to close the gaps, reduce the overlaps, and to refer visitors to the other providers for their part of the story.

Limitations on the Use of the Scheme

In the test of reliability of the classification, there were three main problems identified. The first problem lay in the imprecision of the definitions of some of the categories of the classification scheme. It is hoped that this was resolved by the provision of category definitions to be reviewed and discussed by potential users of the classification.

Related to this are problems with a few of the categories, some of which could be expanded (the Animal and Plant species categories, for instance), and some of which might be deleted or changed (like some of the little-used categories under Resource Flows). Third, the definition of the unit of analysis caused some problems as some coders thought they were classifying one exhibit while others took the same interpretation to be two or more exhibits. For each study, the unit of analysis must be defined and followed consistently throughout the study. Two other problems were identified in the course of the study and are identified below.

Many agencies may not be able to mount the personnel and other resources necessary for the vigorous, research-like use of the scheme. An advantage to this, however, is that it can be used in a non-rigorous manner if resources do not permit or if the study does not require that kind of accuracy.

Finally, there is the issue, identified in the content analysis literature (Holsti, 1969: at p.6), of how quantitative such a study should be. This concerns the system of enumeration which was discussed in the chapter on testing the classification scheme. The controversy

rests on the assumption that the number of times a theme, word, or character appears within a defined stretch of communication is the best (or only valid) measure of concern or preoccupation with that item.

Briefly, this system of enumeration allows the researcher to report precise figures and to use more statistics to make inferences from the data. Holsti points out that a more "qualitative" approach (such as that used here) can, to a certain extent, be reported quantitatively, and that the method to follow should depend on the theoretical relevance of the method to the study. A quantitative, presence or absence, approach was chosen here because it was felt that each "bit" of interpretation should be given the same weight as each other bit in that not every visitor will see every exhibit or live program. The number of times a given theme occurred in a single exhibit should make no difference at all.

Recommendations for Future Study

There are many directions which may be taken with a classification scheme such as that forwarded here, but first it would be advisable to try to get a classification put together which would be both applicable and acceptable to a wide range of interpretive providers. Ideally the scheme would have components of other classifications in relatively widespread use such as for land use (Michigan DNR, 1974) or occupation types (Statistical Policy Division, 1972).

Some of the possible planning applications of the classification scheme include: 1) inventory of interpretable resources, 2) consideration of facility, interpretor, and visitor objectives in interpretation

to help determine what a facility should interpret, 3) the determination what each of several facilities in an area will concentrate on in its interpretation, 4) typing of interpretive facilities, 5) the formation of a "cognitive map" of the urban system to aid in understanding it, 6) the hiring of interpretors who are cognizant of the interrelationships of different parts of the system, and 7) consideration of various categories of the scheme as possibilities for using specific interpretive strategies or techniques such as visitor role-playing, puppetry, or living history interpretation.

The classification can as well be used in formal research with stricter attention to content analysis procedures. Those research applications identified include: 1) an assessment of whether the perceived content (in the visitor) coincides with the intended content (from the interpretor), 2) use of contingency analysis on the codings of exhibits, etc. to determine what categories tend to be interpreted together and possibly to identify some pairs of categories which could profitably be interpreted together, 3) investigation of how topics are chosen for interpretation--whether they bear the closest similarity to visitor interests, interpretor interests and background, management objectives, or something else entirely, 4) evaluation of interpretive effectiveness by measuring "relational understanding" in visitors after viewing interpretation, 5) identification of the differences in orientation of urban as opposed to exurban interpretors, 6) the comparison of the interpretation emphasis in different cities, why those differences exist, and how they effect the value of the interpretation, 7) an investigation into the content differences between environmental

education and interpretation, 8) how people's motivations impact their attendance at facilities and programs, and, finally, 9) how well urban interpretation pursues the city's goals of fulfilling human security and happiness.

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APPENDIX

APPENDIX

CLASSIFICATION SCHEME FOR INTERPRETORS

Summary--5-digit level classification

1. Human Populations
   1. Man--Individual
      1. Biology
         1. Anatomy
         2. Physiology
         3. Heredity/Genetics
         4. Senses
         5. Nutrition
         6. General Health & Safety
         7. Handicaps
      2. Psychology
         1. Emotion
         2. Personality
         3. Motivation
         4. Learning
         5. Reason/Thinking
      3. Biographies
   2. Society--Group
      1. Population Composition
         1. Age
         2. Race, Religion
         3. Locality (Space & Time)
         4. Sex
         5. Political Leaning
         6. Social Status
            1. Income
            2. Occupation
            3. Education
         7. Leisure Pursuits
         8. Other
      2. Cultural Patterns
         1. In North America
         2. In South or Central Amer.
         3. In Europe
         4. In Africa
         5. In Asia
         6. In Australia or Polynesia
      3. Social Stratification
         1. Firms
         2. Institutional Groups
         3. Social Groups & Clubs
         4. Political Groups
         5. Military Organizations
         6. Unions
         7. Peer Groups
         8. All Groups
      4. Government
         1. Legislative
            1. Federal
            2. State
            3. Local
         2. Judicial
         3. Administrative
            1. Elected Officials
            2. Bureaucracies
         4. Protection
            1. Fire
            2. Police
            3. Military
      5. Group Mores
         1. Religion
         2. Values
         3. Mythologies
      6. Activities
         1. Recreation
            1. Adult
            2. Sub-Adult
         2. Work
      7. Factors of Urban Density & Size
         1. Available Air, Water & Food
         2. Birth Rates
            1. Social Attitudes
            2. Biological Factors
            3. Economic Factors
         3. Death Rates
         4. Immigration & Emigration
         5. Geographic Factors
         6. Other Factors
      8. Fields of Creative Endeavor
         1. Art
            1. Painting & Drawing
            2. Sculpture
            3. Photography
         2. Music
         3. Dance
         4. Literature
         5. Hand-made Goods or Products
         6. Acting
         7. Architecture
         8. Other

2. Non-Human Populations
   1. Animal
      1. Animal Communities & Interactions
         1. With other Animals
         2. With Plants
      2. Individual Species
      3. Biology
         1. Anatomy
         2. Physiology
         3. Behavior
      4. Hazard to Humans
         1. Pests
            1. Mammal
            2. Bird
            3. Insect
            4. Parasite
         2. Disease Transmitters
         3. Venomous Bites
         4. Non-Venomous Bites
      5. Benefits to Humans
         1. Agriculture
         2. Aquaculture
         3. Research Animals
         4. Pets
         5. Predation on Pests
         6. Hunting or Fishing
         7. Psychic Benefits
         8. Other
   2. Plant
      1. Plant Communities & Interactions
         1. With other Plants
         2. With Animals
      2. Individual Species
      3. Biology
         1. Anatomy
         2. Physiology
      4. Hazards to Humans
         1. Infestations
            1. Weeds
            2. Imported Plants
            3. Fungi
         2. Allergies
            1. Hay Fever
            2. Skin Reactions
            3. Other
         3. Poisonous Plants
         4. Bacterial & Viral Diseases
         5. Fungi
      5. Benefits to Humans
         1. Agriculture
            1. Commercial
            2. Cultivation for Own Use
            3. Wild Foods
         2. Medicinal
            1. Folk Medicine
            2. Modern Medicine
         3. Clothing
         4. Shelter
         5. Climate Modification
         6. Soil Stabilization
         7. Psychic Benefits
            1. Ornamentals
            2. Urban Forest
            3. Other
         8. Other Uses or Benefits
3. Ecosystems
   1. Terrestrial
      1. Desert
         1. Hot
         2. Cold
      2. Grasslands
         1. Steppe
         2. Savannah
         3. Prairie
         4. Agricultural Land
         5. Pre-Climax Succession
      3. Shrublands
         1. Heath
         2. Maquis
         3. Chapparral
      4. Forests
         1. Coniferous
         2. Temperate Deciduous
         3. Temperate Broad-leaved Evergreen
         4. Seasonal Tropical
         5. Equatorial Rain Forest
      5. Wetlands
         1. Fen
         2. Bog
         3. Flood plain
   2. Aquatic
      1. Fresh Water
         1. Rivers & Streams
         2. Lakes & Reservoirs
         3. Marshes

2. Aquatic--cont'd
    2. Brackish Water
    3. Marine
        1. Salt Marshes
        2. Intertidal & Littoral
        3. Estuaries
        4. Coral Reefs
        5. Continental Shelves
        6. Deep Oceans
3. Theory of Ecosystems

3. Physical Environment

1. Natural
   1. Geology
      1. Landforms
      2. Plate Tectonics
         1. Seismology
         2. Volcanology
         3. Sea Floor Spreading
         4. Mountain Building
         5. Subduction & Deformation
      3. Erosion & Deposition
         1. Wind
         2. Water
         3. Glaciers
         4. Gravity
      4. Rocks & Minerals
         1. Igneous
         2. Metamorphic
         3. Sedimentary
         4. Gems
         5. Building Materials
         6. Mining
         7. Other
      2. Soils
      3. Water
         1. Fresh
         2. Brackish
         3. Marine
      4. Climate
         1. Global Circulation
         2. Weather Systems
            1. Warm & Cold Fronts
            2. High & Low Pressure Systems
            3. Storms
            4. Cloud Types
            5. Jet Stream
         3. Seasons
      5. Space
         1. Earth--Moon System
         2. Solar System
         3. Milky Way & Extra-Galactic
      6. Human Effects & Interactions
         1. Physical Pollution
            1. Of the Air
            2. Of the Water
            3. Of the Soil
         2. Aesthetic Pollution
            1. Noise
            2. Visual
         3. Urban Climate

2. Human
   1. Urban & Suburban
      1. Land Use
      2. Housing
      3. Shopping Centers & Markets
      4. Recreational Facilities
         1. Theaters
         2. Museums
         3. Stadia
         4. Parks
      5. Industry & Business
   2. Rural & Agricultural

3. Physical Sciences
   1. Chemistry
   2. Physics
   3. Technology
      1. Principles
      2. Theories
      3. Equipment
   4. Other

4. Natural Hazards
   1. Climatic & Meteorological
   2. Geological
5. Natural Benefits

4. Resource Flows

1. Goods
   1. Agricultural & Natural Resource
   2. Manufactured
      1. Mass Produced
      2. Small Scale
   3. Energy
      1. Renewable
      2. Non-Renewable
   4. Water
   5. Minerals
   6. Other

2. Services
   1. Communications
      1. Telephone
      2. Radio
      3. Television
      4. The Press
      5. Postal Service
      6. Other
   2. Transportation
      1. Highway
      2. Railroad
      3. Air
      4. Water
      5. Other
   3. Economic Development
      1. Finance
      2. Wholesale Sales
      3. Retail Sales
      4. Other
   4. Education
      1. Formal Education
      2. Informal Education
      3. Research
   5. Community Services
      1. Health
      2. Welfare
      3. Emergency Relief
      4. Legal Aid
      5. Pollution Control
      6. Public Utilities
      7. Other
   6. Repair
   7. Recreational
   8. Other

3. Wastes
   1. Recycling
      1. Paper
      2. Metals
      3. Glass
      4. Oil
      5. Other
   2. Storage
      1. In the Soil & Water
         1. Garbage
         2. Sewage
         3. Other
      2. Long Term Problems
         1. Nuclear Waste
         2. Chemicals
         3. Other