

NATURAL HISTORY DIORAMAS: A POPULAR ART IDIOM  
IN THE MUSEUM CONTEXT

by

KAREN ELIZABETH WONDERS  
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We accept this thesis as conforming  
to the required standard

  
Professor M. Sedger

  
Dr. P. Smith

  
Dr. E. Tumasofis

  
Dr. Michael R. Booth

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Supervisor: Professor Martin Segger

#### ABSTRACT

This study examines the natural history diorama as a unique exhibition technique which proliferated in North American museums during the twentieth century. Chapter 1 concludes that, despite its many derivations, current usage of the term "diorama" is most commonly applied to three-dimensional, life-scaled exhibits which feature wildlife specimens posed in simulated environmental habitats.

In Chapter 2, early nineteenth century illusionistic spectacles are investigated as popular predecessors of the modern museum diorama. This inquiry into the diorama's historical origins also includes a review of the first, natural history collections, the popularization of natural history for public consumption, and the evolution of the natural history museum in North America.

Chapter 3 examines the development of the group method of exhibiting wildlife specimens. A growing concern with the disappearing wilderness and the new educational goals of museums are viewed as factors which contributed to the emergence of the habitat concept as an exhibition technique in the early twentieth century.

Natural history dioramas are compared to the American school of nineteenth century panoramic landscape painting in Chapter 4. Because of their affinity in style and subject

matter, it is proposed that dioramas be considered a popular continuation of a fine arts convention in landscape painting.

Chapter 5 explores dioramas as an art form that transformed the course of museological exhibition. To demonstrate the skill and creativity involved in producing a diorama, the careers of several background painters are discussed, together with the personal views of some contemporary museum artists. Argument is presented that museums have tended to overlook the special qualities that make the art of dioramas unique.


In the final chapter it is concluded that natural history dioramas have not received the recognition they deserve as a popular art form that has dominated the history of museological exhibition in North America.

Examiners:

  
Dr. Peter Smith

  
Dr. Elizabeth Tumasonis

  
Professor M. Segger

  
Dr. Michael R. Booth

## TABLE OF CONTENTS

	Page
ABSTRACT . . . . .	ii
TABLE OF CONTENTS . . . . .	iv
LIST OF FIGURES . . . . .	viii
ACKNOWLEDGEMENTS . . . . .	xi
 Chapter	
1. INTRODUCTION . . . . .	1
Background and Scope of the Study . . . . .	1
Derivation of the Term "Diorama" . . . . .	4
Chapter 1 Footnotes . . . . .	13
2. THE ORGINS OF THE NATURAL HISTORY DIORAMA . . . . .	16
Introduction . . . . .	16
Antecedents: Illusionistic Spaces . . . . .	18
Scenography . . . . .	21
Dioramas . . . . .	25
The First Natural History Collections . . . . .	30
Curiosity Cabinets and Naturalistic Perception . . . . .	30

Chapter	Page
Linnaeus and Systematic Collections . . . . .	36
The Museum Levarian . . . . .	37
The Popularization of Natural History . . . . .	40
Nature and the American Identity . . . . .	41
Peale's Museum . . . . .	43
Public Exhibitions . . . . .	50
Science and the <i>Origin</i> of <i>Species</i> . . . . .	54
Development of American Natural History Museums . . . . .	60
Government Exploration, Surveys, and Scientific Research . . . . .	60
Expositions and World Fairs . . . . .	64
Public Profile and Govern- ment Support . . . . .	65
Private Collections and Donations . . . . .	66
Chapter 2 Footnotes . . . . .	70
3. THE HISTORY OF MUSEUM GROUPS . . . . .	81
Introduction . . . . .	81
The Early Artist-Naturalist . . . . .	82
The Art of Taxidermy . . . . .	90
Romantic Animal Sculpture . . . . .	90
Victorian Wildlife Tableau . . . . .	96
Ward's Natural Science Establishment . . . . .	100

Chapter	Page
Public Education . . . . .	105
The Group Method . . . . .	106
The Habitat Concept . . . . .	112
The Wilderness Cult . . . . .	117
Nature Lovers . . . . .	120
Conservation . . . . .	125
Museum Expeditions . . . . .	133
Chapter 3 Footnotes . . . . .	142
4. DIORAMAS AS POPULAR ART . . . . .	153
Introduction . . . . .	153
A Mirage of Nature . . . . .	157
Panoramic Landscape Painting: An American Tradition . . . . .	165
Introduction . . . . .	165
The Topographical View . . . . .	171
The Imitation of Nature . . . . .	178
Nature as Spectacle . . . . .	182
Landscape Painting as Reportage . . . . .	185
Landscape Scenery in Natural History Museums: A Comparison . . . . .	190
Chapter 4 Footnotes . . . . .	202
5. THE ART OF DIORAMAS . . . . .	211
Introduction . . . . .	211
Design and Storyline . . . . .	214

Chapter	Page
Preparation . . . . .	221
Background Painters . . . . .	225
An Evaluation . . . . .	242
Chapter 5 Footnotes . . . . .	250
6. CONCLUSION . . . . .	257
Chapter 6 Footnotes . . . . .	261
BIBLIOGRAPHY . . . . .	262
APPENDICES . . . . .	275
A. Figures . . . . .	276
B. The Art of Dioramas Survey . . . . .	295
C. Compilation of Diorama Painters . . . . .	303
D. Participants in Survey . . . . .	314

## LIST OF FIGURES

Figure	Page
1. "The Eidophusikon." Watercolour by Edward Francis Burney, n.d.; reproduced from Altick, <i>The Shows of London</i> , 1978 . . . . .	280
2. "Burford's Panorama," Leicester Square. Cross-section. Aquatint from Robert Mitchell's <i>Plans and Views in Perspective of Buildings Erected in England and Scotland</i> , 1801; reproduced from Altick, <i>The Shows of London</i> , 1978 . . . . .	280
3. "The Diorama." (a) Ground plan of the Diorama building, London, by A. Pugin and J. Morgan, 1823; (b) Cross-section of the auditorium and picture placement of the Diorama, London. From Daguerre, <i>The Daguerreotype and the Diorama</i> , 1839 . . . . .	281
4. "The Museum of Ole Worm," Copenhagen. Frontispiece of <i>Musaeum Wormianum</i> , 1655; reproduced from Wittlin, <i>Museums</i> , 1970 . . . . .	281
5. "Rotunda of the Levarian Museum," Blackfriars Road. Engraving by Miss Stone and C. Ryley, n.d.; reproduced from Altick, <i>Shows of London</i> , 1978 . . . . .	282
6. C. W. Peale, <i>Self-portrait in his Museum</i> , 1822. Pennsylvania Academy of the Fine Arts; reproduced from Sellers, <i>Mr. Peale's Museum</i> , 1980 . . . . .	282
7. "Bullock's Museum." Aquatint in <i>Ackerman's Repository of Arts</i> , 1810; reproduced from Altick, <i>The Shows of London</i> , 1978 . . . . .	283
8. C. W. Peale, "The National Bird," n.d. Taxidermy. Museum of Comparative Zoology, Harvard University; reproduced from Sellers, <i>Mr. Peale's Museum</i> , 1980 . . . . .	284
9. Alexander Wilson, <i>White-headed Eagle</i> , c. 1811. Hand-coloured etching and engraving. Academy of Natural Sciences, Philadelphia; reproduced from Norelli, <i>American Wildlife Painting</i> , 1975 . . . . .	284

Figure	Page
10. William Bullock, "The Royal Tiger," c. 1814. Taxidermy. Rossendale Museum, Rawtenstall, England; reproduced from Hancock, <i>Museums Journal</i> , June, 1979 . . . . .	285
11. Jules Verreaux, "Arab Courier Attacked by Lions," c. 1867. Taxidermy. The Carnegie Museum, Pittsburg; reproduced from Reekie, <i>Natural History</i> , June, 1964 . . . . .	285
12. "American Robin Group," c. 1887. A.M.N.H., New York; reproduced from Reekie, <i>Natural History</i> , June, 1964 . . . . .	286
13. "Pelican Island Group," c. 1902. A.M.N.H., New York; reproduced from Chapman, <i>Camps and Cruises</i> , 1908 . . . . .	286
14. "Akeley Memorial Hall of African Mammals." 1936. A.M.N.H., New York; courtesy of the Photographic Collection, A.M.N.H. . . . .	287
15. John J. Egan, <i>Distant View of the Rocky Mountains</i> (section of a panorama), c. 1850. Oil on canvas, 96 in. high. University Museum, Philadelphia; reproduced from Born, <i>American Landscape Painting</i> , 1948 . . . . .	288
16. Thomas Cole, <i>The Oxbow</i> , 1836. Oil on canvas, 51½ in. x 76 in. The Metropolitan Museum of Art, New York; reproduced from Born, <i>American Landscape Painting</i> , 1948 . . . . .	288
17. Hans F. Gude, <i>Norwegian Scenery</i> . Published in "Gems from the Dusseldorf Gallery," New York, c. 1863; reproduced from Huntington, <i>Landscapes</i> , 1966 . . . . .	289
18. Frederic Edwin Church, <i>Twilight of the Wilderness</i> , 1860. Oil on canvas, 40 in. x 64 in. The Cleveland Museum of Art; reproduced from Novak, <i>Nature and Culture</i> , 1980 . . . . .	290
19. "Silver-tipped Grizzly Bear Diorama." Denver Museum of Natural History, photographed by Vincent Varga, 1983 . . . . .	290

Figure	Page
20. Albert Bierstadt, <i>The Last of the Buffalo</i> , 1888. Oil on canvas, 71½ in. x 119½ in. The Corcoran Gallery of Art, Washington, DC; reproduced from Hendricks, <i>Albert Bierstadt</i> , 1973 . . . . .	291
21. "The Buffalo Hunt Diorama" (detail of background painting by Clarence Tillenius), c. 1975. Manitoba Museum of Man and Nature, Winnipeg; courtesy of the artist . . . . .	291
22. Thomas Moran, <i>The Grand Canyon of Yellowstone</i> , 1872. Oil on canvas, 84 in. x 144½ in. National Museum of American Art, Washington, DC; reproduced from Trenton, <i>The Rocky Mountains</i> , 1983 . . . . .	292
23. "Mountain Lion Diorama." Denver Museum of Natural History; photographed by Vincent Varga, 1983 . . . . .	292
24. Frederick Edwin Church, <i>Study of a Forest Pool</i> , c. 1860. Olana, Hudson, NY; reproduced from Hawes, <i>The American Scene</i> , 1970 . . . . .	293
25. "The Barkerville Diorama" (detail of background painting by Jan Vriesen), 1981. British Columbia Provincial Museum, Victoria; photographed by Vincent Varga, 1982 . . . . .	293
26. (a) "Museum Hall for Dioramas," designed by John Rowley. Published in <i>Taxidermy and Museum Exhibition</i> , 1935; reproduced from Waiczis, "John Rowley, Museum Pioneer," 1980 . . . . .	294
(b) "Diorama Cross-section," designed by John Rowley. Published in <i>Taxidermy and Museum Exhibition</i> , 1935; reproduced from Waiczis, "John Rowley, Museum Pioneer," 1980 . . . . .	294
27. "Ground Plan of the Biologiska Museet." Uppsala, Sweden; reproduced from Parr, "Dimensions, Backgrounds, and Uses of Habitat Groups," 1961 . . . . .	294

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## Chapter 1

### INTRODUCTION

#### Background and Scope of the Study

Boy, that museum was full of glass cases. There were even more upstairs, with deer inside them drinking at waterholes, and birds flying south for the winter. The birds nearest you were all stuffed and hung up on the wall, but they all looked like they were really flying south, and if you bent your head down and sort of looked at them upsidedown, they looked in an even bigger hurry to fly south. The best thing, though, in that museum was that everything always stayed right where it was. Nobody'd move. You could go there a hundred thousand times, and that Eskimo would still be just finished catching those two fish, the birds would still be on their way south, the deer would still be drinking out of that waterhole, with their pretty antlers and their pretty, skinny legs, and that squaw with the naked bosom would still be weaving that same blanket. Nobody'd be different. The only thing that would be different would be you.<sup>1</sup>

In *The Catcher in the Rye*, Salinger's main character, Holden Caulfield, described the dioramas at the American Museum of Natural History--a place with which he was very familiar: "I loved that damn museum." From a child's point of view, dioramas have always been a magical visual experience which open up new vistas to far-off lands and strange new worlds. While museum educators have typically been more concerned with the didactic function of this

exhibit technique, they have largely overlooked the intrinsic value that dioramas have as a unique visual idiom which combines both art and science in an illusionistic spectacle.

Although the method for creating museum dioramas can be applied to a wide range of subjects, it is as an exposition of natural history that they have achieved their greatest success in North America. To understand why this is so, the historical origins of the modern diorama must be examined. Apart from an analysis of what is essentially an illusionistic exhibition technique, the evolution of the perception and display of natural history specimens should be considered in relation to their value as objects of curiosity and as objects for scientific research.

The concept for natural history dioramas developed as an outcome of innovative techniques that were initiated by taxidermists to display wildlife specimens in public exhibitions. At first these techniques were viewed as sensational and unscientific; as a result they were not adopted by government-supported natural history museums until the end of the nineteenth century. Soon after, it was discovered that, by adding a panoramic background landscape painting to the wildlife displays, a more effective representation of nature could be created that would better illustrate the native habitat of the animals. The initial response to these new exhibits--called "habitat groups"--was to emphasize their value as geographic landscapes.

Consequently, the scenic role of the background painting became an important part of wildlife exhibits in natural history museums.

The scenic quality of natural history dioramas provides the primary basis for an analysis of the diorama as popular art. As an illusionistic and three-dimensional form of public exhibition, the modern diorama has a definite historical link with early nineteenth century pictorial spectacles. A more immediate precedent, however, exists in the panoramic style of landscape painting that developed in the U.S.A. during the mid-nineteenth century. Perhaps the first uniquely American art form, panoramic landscape painting reflects the deeply rooted national identity with the wilderness landscape. A similar observation can be made about natural history dioramas, which are also an expression of the widespread association with nature that has epitomized the history of North America.

Creating a diorama is an elaborate process which requires the efforts of a talented exhibits team. Many factors determine the illusionistic success of the exhibit: the research and writing of its storyline; the design of the exhibition space; the preservation and arrangement of the wildlife specimens; and the construction and placement of the artificial foreground. In particular, it is the skill of the background painter that is most essential to the visual continuity of the simulated wilderness landscape.

To acquire a greater understanding of the background painter's role, the writer circulated a questionnaire to a number of museum artists. In addition, to aid general research on existing dioramas, a separate questionnaire was sent to major natural history museums across North America. The material gathered from this survey provided the basis for an investigation into the art of dioramas and contributed toward a compilation of diorama painters. This material appears in Appendices B and C.

#### Derivation of the Term "Diorama"

The memory has as many words as the temper,  
and shifts its scenery like a diorama.<sup>2</sup>

According to the *Oxford English Dictionary* (OED, 1971), the etymological origin of "diorama" comes from the Greek meaning, "that which is seen through." L. J. M. Daguerre first coined the word diorama in 1822 to describe what was later patented as "an improved mode of publicly exhibiting pictures."<sup>3</sup> His technique involved the use of artificial perspective and translucent painting to produce a scenic representation of nature which also captured the effects of changing light. Included in the patent was a building specifically designed by Daguerre in which to exhibit the picture.<sup>4</sup> The original diorama, then, was both an illusionistic technique and an architecturally devised stage.

Almost immediately after Daguerre's Diorama was first exhibited, it was noted that the idea for it had been "borrowed from the panorama."<sup>5</sup> The term "panorama" had been invented in 1789 by Robert Barker to describe a scenic innovation that he had patented in 1787. The OED (1971) defines the Greek origins of panorama to mean "an all-encompassing view." Like the diorama, the panorama was an illusionistic representation of nature, the major difference being that Barker's patent had called for the scene to be painted on a cylindrical surface.

In reference to the "lexical anarchy" and "easy-going semantics" that plagued these two forms of pictorial exhibitions during the early nineteenth century, the historian, Richard Altick, pointed out that, "The initially very specific meaning of 'diorama' disintegrated even more quickly than did that of 'panorama.'"<sup>6</sup> This fact was acknowledged as early as 1829, by a contemporary critic:

The term Diorama has . . . been strongly corrupted since its successful adoption in Regent's Park--it being now almost indefinitely applied to any number or description of paintings.<sup>7</sup>

From the available information, it is quite evident that the historical precedents for the term diorama had many different connotations and applications within a short period of time from its first appearance.

As a principal term used throughout this thesis, the

many variations in meaning which characterize the lexical history of diorama will cause considerable confusion unless clearly defined from the outset. For the purpose of this study, therefore, a diorama is defined as a life-sized exhibit of wildlife specimens that are displayed in a facsimile of their natural environment which merges into a painted background landscape. Although this type of exhibit originated during the early twentieth century, many of the illusionistic techniques that had characterized the nineteenth century panoramas and dioramas were incorporated into it. For example, the framing device of "seeing through," inherent in Daguerre's Diorama, was adapted in the natural history diorama to a transparent glass picture plane, through which the stage-like setting could be viewed. Likewise, the curved background surface of the panorama, onto which was painted a wide-angled topographical view (intended to create the impression of distance), is a technique essential to dioramas in natural history museums.

In the mid-nineteenth century with the decline of the illusionistic spectacle as a form of mass entertainment, the word "diorama" seems virtually to have disappeared.<sup>8</sup> On the other hand, "panorama" remained in common usage, probably because of its rather indiscriminate application as a generalized, descriptive term.

An article written in 1928 by Helen Coffin entitled "Dioramas, Panoramas, Cycloramas," concluded that the first

reappearance of Daguerre's exhibition technique resulted from the combination of a panoramic background with a modelled foreground:

The Paris Exposition of 1900 was the first to use the method to any extent, one of its particular attractions being a "dioramic panorama" called "Tour of the World" in which the perspective of a background of canvas "carried the spectator successively by visions" over various parts of the world.<sup>9</sup>

Although the display at the Paris Exposition of 1900 may have been advertised as a "dioramic panorama," after that date there is no published evidence to suggest that the word "diorama" was used to connote an exhibition technique until the 1930s.<sup>10</sup>

During the Century of Progress Exposition in Chicago (1932 to 1933), the word "diorama" was revived to describe the miniature groups and models which were displayed at the exposition.<sup>11</sup> Its popular usage spread so quickly that in 1939 the production of miniature dioramas was quoted as "the gigantic growth of a new American industrial development."<sup>12</sup> The following description indicates the new commercial connotation of the word:

Since the dawn of history, the diorama has been a miniature representation of a scene made lifelike by clever application of foreshortened perspective and realism. Down through the centuries it has remained a miniature.<sup>13</sup>

In fact, Daguerre's Diorama had *not* been a miniature.

His patent called for a large picture plane (71 ft 6 in. x 45 ft 6 in.) and, as part of the staging effect, he often used life-sized objects.<sup>14</sup> More important, the essential illusionistic quality of a diorama is lost on a small scale; the spectator must be able to relate directly to a life-scaled representation of reality to experience an effective optical illusion. Despite the many variations of Daguerre's original exhibition technique, during the nineteenth century dioramas remained a life-sized illusionistic spectacle.

Somewhat surprisingly, the commercial application of the diorama was quickly appropriated by museums to denote their miniature historical groups. In an article published in *Museum News* entitled "The History of Dioramas" (1940), N. J. Burns suggested that the museological use of "diorama" was not "entirely correct" in this commercial context, but as he explained it:

The public is rapidly becoming familiar with the word through the increased applications of models in advertising, thus making us "diorama conscious," and lexicographers will eventually take note and include it in future dictionaries in the new sense.<sup>15</sup>

Even more surprising was a doctoral dissertation completed in 1942 at New York University by Irene Cypher entitled "The Development of the Diorama in the Museums of the United States." Cypher was correct in her observation that the lack of agreement of a standardized terminology for

museum practices and exhibition techniques caused major problems in the study of dioramas. She found that, although "diorama" was a contribution of American museums to the terminology of visual education, "there is no agreement as to exactly what the diorama really is, what its possibilities and limitations are, nor the exact nature of what may or may not be shown in a diorama."<sup>16</sup> However, by limiting her study to the following definition, Cypher engaged in a major and incorrect historical oversight:

*Diorama* - The miniature, three-dimensional group consisting of an arrangement of small modeled and colored figures and specimens, with accessories, in an appropriate setting, and in most instances artificially lighted. The scale and size of the groups is variable; there is no limitation as to subject matter, which may be realistic or imaginative, according to what the creator of the group wishes to portray.<sup>17</sup>

Cypher's definition was intended to differentiate what she believed to be the erroneous use of "diorama" and "habitat group" as interchangeable terms by some museums.<sup>18</sup> "Habitat groups" was a term invented by Frank Chapman, curator at the American Museum of Natural History, to describe the wildlife exhibits which he had initiated at the museum in 1902.<sup>19</sup> The exhibits featured naturalistic groups of stuffed animals which were placed in a three-dimensional foreground that simulated their native environment. Of vital importance to the habitat group was the panoramic background painting that was meant to create an

illusionistic impression of the topographical scenery. From the time of their first inception, habitat groups became an enormously popular exhibition technique that spread virtually to every natural history museum in North America.

Cypher viewed the development of miniature dioramas as the logical outgrowth of the habitat group. She made the distinction between them on the grounds of size (the habitat group--always life-sized), and veracity (the habitat group--always true to life). While Cypher's historical account of the habitat group (based largely on previously published material) is informative, her conjectural analysis of the diorama was based on false premises and misleading information. By declaring that, "The diorama needs not to have an element of 'truth' in it; it may depend wholly on the aesthetic instead of the scientific elements for its effects,"<sup>20</sup> Cypher was unintentionally denying the very qualities which are essential to the diorama as an illusionistic exhibition technique. Although dealing with Cypher's misrepresentation of the diorama's development is outside the scope of this study, it should be noted that the construction of miniature dioramas, from an historical perspective, was an exhibition technique which lasted only briefly and is now largely forgotten.

Despite what might be considered, in retrospect, as the misguided museological use of "diorama" to describe

miniature historical groups, it did have one significant effect. The widespread commercial and museological popularization of the word during the 1930s assured its revived usage in the English vocabulary. After the fad for miniature dioramas had passed, the word was increasingly used to describe habitat groups in natural history museums, an exhibit technique which more truly resembled the original nineteenth-century illusionistic spectacles.

According to a survey of popular literature, the interchangeable use of "diorama" and "habitat group" appears to have begun in the 1950s. The first mention of "diorama" in this context appeared in *Time* (1951).<sup>21</sup> By 1969 "diorama" had largely supplanted the term "habitat group." An article on the American Museum of Natural History (A.M.N.H.) in *Newsweek* (24 March 1969) asserted that: "Indeed, of the museum's 2,300 exhibits, the most popular and eye-catching are doubtless the 200 dioramas--three-dimensional, realistic representations of plant and animal life in a natural setting."<sup>22</sup>

In conclusion, it may be of value to review briefly a few recent definitions of the word "diorama." The OED (1971) defines the term in the technical context of the original diorama as described by Daguerre's patent of 1824. A later, concise edition of the same dictionary includes an additional meaning of the word--that of a small-scale model.<sup>23</sup>

The *Encyclopaedia Britannica* (1980) defines "diorama" as

an adaptation of the panorama, and describes it as an illusionistic spectacle of reality consisting of real objects which blend into a large painted landscape. Although there is an ambiguous reference to the use of dioramas in museums, it is evident that the description could be directly applied to this type of exhibit technique.

The definition in the *Encyclopedia Americana* (1980) is broadly based on the stage-like qualities which use dramatic perspective to achieve the desired illusionistic effect in a three-dimensional exhibit. Daguerre's contribution to this form of exhibition technique is mentioned, along with the fact that his "techniques survive in present-day dioramas, which are widely employed, especially in museums, and may be on any subject and of any size."<sup>24</sup>

These definitions, and the historical account of the word "diorama," should clearly illustrate the conflicting theories about what constitutes a diorama. The contention of this thesis is that, despite its many transformations, the diorama is essentially an illusionistic, life-scaled exhibition technique which has been adapted most successfully by natural history museums in the twentieth century.

Chapter 1 Footnotes

<sup>1</sup>J. D. Salinger, *The Catcher in the Rye* (Boston: Little, Brown & Co., 1945), p. 121.

<sup>2</sup>In *Oxford English Dictionary* (OED, 1971). From George Elliot, *Middlemarch* (London: n.p., 1872), p. liii.

<sup>3</sup>Louis M. Daguerre, *An Historical and Descriptive Account of the Various Processes of the Daguerreotype and the Diorama* (1839; rpt. New York: Kraus Co., 1969), p. 4. See also Helmut and Allison Gernsheim, *L. J. M. Daguerre: The History of the Diorama and the Daguerreotype*, 2nd ed. (1956; rpt. New York: Dover Press, 1968). [A more detailed description of Daguerre's Diorama is given here in Chapter 2.]

<sup>4</sup>See Gernsheim. Three illustrations of the diorama, in Paris, London, and Berlin, all clearly show the word DIORAMA inscribed in large letters on the outside of the building.

<sup>5</sup>In OED (1971). From *The Annual Register* (London: n.p., 1823), p. 309.

<sup>6</sup>Richard Altick, *The Shows of London* (Cambridge, MA: Belknap Press, 1978), p. 174.

<sup>7</sup>In Altick. From *A Picturesque Guide to Regent's Park* (London: n.p., 1824).

<sup>8</sup>This statement is based on an analysis of a comprehensive bibliography on dioramas compiled by J. K. Wilcox in 1933 (Chicago, IL). Between the mid-nineteenth century and the year 1900, except for historical encyclopaedic references, there were no books or periodicals published on dioramas in English. In French there were only two brief essays on dioramas and panoramas, both related to the Paris Exposition of 1889.

<sup>9</sup>Helen Coffin, "Dioramas, Panoramas, Cycloramas," *Mentor*, 12 (June 1928), 34.

<sup>10</sup>The bibliography by Wilcox cited only a few obscure French references to the diorama in 1900, all directly connected to the Paris Exposition of that year. Between 1900 and 1933, only one reference to the diorama was cited--Coffin's article, published in 1928.

<sup>11</sup>See E. H. Burdick, "Lilliput Outgrows Gulliver," *Popular Mechanics*, 71 (1939), 660.

The origins of this development are not clear. Burdick stated that the (miniature) diorama technique was introduced from Europe to the Chicago Exposition; however, as has been pointed out, the Wilcox bibliography did not cite *any* references to the diorama after the Paris Exposition in 1900 (apart from Coffin's article). Furthermore, from Coffin's brief description of the "dioramic panorama" exhibited at the Paris Expo, it does not appear to have been a miniature exhibition. The only historical association of diorama with a small scale may have appeared in an article by George Tait: "Description of a Portable Diorama," in *Royal Scottish Society of Arts, Transactions*, 3 (1844), 127-132; from the bibliography by J. K. Wilcox.

<sup>12</sup>*Ibid.*, p. 657. Burdick noted that in comparison to the 25 American corporations then specializing in the production of miniature dioramas, there had been only one 18 months previously.

<sup>13</sup>*Ibid.* The author even referred to the fact that nearly every American dictionary gives an "incorrect" definition of "diorama," based on the meaning "to see through."

<sup>14</sup>See Gernsheim, p. 20.

<sup>15</sup>Ned J. Burns, "History of Dioramas," *Museum News* (15 February 1940), p. 8. As chief of the Museum Division in the National Parks, it is quite likely that Burns gave the necessary legitimacy to the museological use of "diorama" as a descriptive term for miniature historical groups.

<sup>16</sup>Irene Cypher, "The Development of the Diorama in the Museums of the United States," Diss. New York University 1942, p. 4.

<sup>17</sup>*Ibid.*

<sup>18</sup>*Ibid.*, p. 2.

<sup>19</sup>See Frank M. Chapman, "The Bird-life and the Scenery of a Continent in One Corridor: The Groups in the A.M.N.H.-- a New Method in Museum Exhibition," *World's Worker*, 17 (November 1908-April 1909), 11365-11374.

<sup>20</sup>Cypher, p. 4.

<sup>21</sup>"Africa Under Glass," *Time Magazine*, 58 (3 December 1951), 72-73.

<sup>22</sup>"What Comes Naturally," *Newsweek* (24 March 1969), p. 80.

<sup>23</sup>*Concise Edition of the Oxford English Dictionary*  
(1980).

<sup>24</sup>*Encyclopedia Americana* (1980).

## Chapter 2

### THE ORIGINS OF THE NATURAL HISTORY DIORAMA

#### Introduction

To understand the historical origins of the natural history diorama, a number of diverse factors which indirectly provided the precedents for this type of museological display must be considered. For example, the illusionistic quality so vital to dioramas did not originate in museums; rather, the technique began in eighteenth century stage productions. As a form of popular entertainment, it became so successful that many subsequent pictorial innovations, such as the panorama and Daguerre's Diorama, evolved from it. This development is central to the origins of the natural history diorama and is considered here in relation to the depiction of nature as a recurring theme in these exhibitions. The popularity that illusionistic spectacles generated as mass entertainment during the early nineteenth century is also considered.

Although zoological specimens are the most important objects in natural history dioramas, they too did not originate in this context. The primary role played by zoological specimens throughout the development of natural

history as a subject for scientific investigation began in the sixteenth century with the early curiosity cabinets. Even at this stage, a discernible conflict of interests (which was to continue into the twentieth century) presented itself. The widespread curiosity about exotic and rare creatures caused them to be collected and exhibited as strange novelty items. In opposition to this popular trend was the systematic effort to examine natural history specimens as an objective aid in scientific research.

Despite a few notable exceptions, the popularization of natural history that occurred in the Victorian era was grounded in a romantic conception of science. Particularly in America, nature was inextricably linked with religion and the national identity, ideological associations which had a strong effect on the collection and exhibition of natural history specimens. These factors, along with reconnaissance efforts by the government and the consequent accumulation of natural history material, were the motivating force behind the establishment of early natural history museums.

As the impact of Darwinism changed the direction of natural science in the second half of the nineteenth century, museums instigated a more concerted attempt to excel in scientific research. During this period, few natural history museums made a notable commitment to the public exhibition of their collections. Toward the end of the century, however, a revived effort was made to utilize the

museum as an instrument of popular and democratic education. Not since Peale's Museum in the late eighteenth century had these enlightened ideals been asserted in museological philosophy.

### Antecedents: Illusionistic Spaces

#### Scenography

Stage settings historically have provided a visual format where perspective could be experimented with by the use of real or modelled foreground scenery that merges into a painted background and creates a dramatic illusion of reality. The late eighteenth century was a time of changing theatrical styles; the baroque stage with its formal, classical perspectives based on a central vanishing point and generalized type of "stock" scenery was gradually transformed to accommodate the popular taste for topographical scenery and illusionistic spaces.<sup>1</sup>

Philippe Jacques de Louthembourg (1740-1812) established the use of topographical scenery in theatre.<sup>2</sup> His revolutionary stage designs recreated the representational views of local and exotic scenes that the public wanted to see, and foreshadowed the romantic scenery so common in the nineteenth century.<sup>3</sup> His use of free-standing, three-dimensional scenic objects set at various angles--rather than the rigid parallelism of fixed grooves--tended to break up the formalized perspectives of the baroque tradition and

resulted in a more natural perspective and convincing illusion of depth. de Louthembourg also experimented constantly with the effects of light. Instead of employing the standard, uniform stage lighting, he developed techniques that increased the physical atmosphere of the scene by using coloured transparencies in conjunction with flexible lighting arrangements.

The London public began to attend these theatrical productions as much for the scenery as for the actors; stage sets were viewed as spectacles which were both educational and entertaining. For the production of *Omai* or *A Trip Around the World* (Covent Garden, 1785), based on Captain Cook's expeditions to the South Seas, de Louthembourg took his designs from the drawings and prints by artists who had accompanied Cook.<sup>4</sup> His production received rave reviews in the press; as one critic wrote:

The scenery is infinitely beyond any design or paintings the stage has ever displayed. To the rational mind what can be more entertaining than to contemplate prospects of countries in their natural colourings and tints--to bring living action, the customs and manners of buildings, marine vessels, arms, manufactures, sacrifices and dresses? These are the materials which form the grand spectacle before us--a spectacle the most magnificent that modern times has produced and which must fully satisfy not only the mind of the philosopher, but the curiosity of every spectator.<sup>5</sup>

de Louthembourg's theatrical spectacle received praise not only for its successful recreation of South Seas scenery, but also for the "exact representations" of

cultural artifacts from a distant society. The concept of staging an educational and informative exhibit based on the recent discoveries of a geographical exploration was later adopted by one of the first public museums in 1822. It remained a central theme for public exhibitions throughout the nineteenth century. As scientific expeditions made new discoveries, public curiosity about the geography and natural history of far-off lands increased.

de Louthembourg's efforts to produce a more effective illusion of reality resulted in the invention of the "Eidophusikon or Representation of Nature," also called "Various Imitations of Natural Phenomena, represented by Moving Pictures" (London, 1781).<sup>6</sup> The Eidophusikon made use of motion achieved by mechanical tricks to create a deeper sense of perspective and to add the dimension of time to the exhibition. The effects were produced in a box 10 ft wide, 6 ft high, and 8 ft deep, and viewed by an audience through a vertical picture area approximately 60 sq ft. (see Figure 1). [All figures are located here in Appendix A.] In a darkened room, a series of landscapes was performed on the darkened stage, concluding with a shipwreck in a storm at sea.<sup>7</sup>

Distance was depicted by means of a background painting of the landscape and a series of cut-out wings which were scaled to the correct perspective. Clouds were painted in transparent colours on cloth-covered frames operated by

a windlass. Some of the objects represented in motion were pasteboard cutouts; others were three-dimensional models. Natural foreground material was often added to the landscape scenes to increase the illusion of reality. In his description of the Eidophusikon, Altick noted how this particular characteristic is similar to the modern museum diorama.<sup>8</sup>

Although the Eidophusikon did not cause the revolution in art that de Louthembourg had expected, by the time its popularity had diminished the public appetite for other forms of pictorial entertainment had increased. Further experiments with illusionistic techniques resulted in a diverse range of inventions, of which the most significant were the panorama (originally designating Barker's and Horner's circular paintings), and the diorama (originally designating the illuminated show presented in a specially designed building by Daguerre and Boulton). The immense popularity of these visual spectacles was exploited by various entrepreneurs who devised new names and descriptions for their exhibitions. It is generally accepted by historians, however, that all these forms of illusionistic entertainment were descendants of de Louthembourg's Eidophusikon.<sup>9</sup>

### Panoramas

An Edinburgh painter was the first artist to discover the technique of painting a realistic landscape on a

cylindrical surface.<sup>10</sup> In 1787, Robert Barker received a patent for an invention called by him "*La Nature a Coup d'Oeil*, for the purpose of displaying Views of Nature at large, by Oil-Painting, Fresco, Watercolours, Crayons, and any other Mode of painting or drawing,"<sup>11</sup>

In 1789, Barker invented the word "panorama" to describe the picture which he had previously advertised as an "exhibition." A circular building designed to exhibit panoramas was constructed in Leicester Square, London, according to the specifications of Barker's patent (see Figure 2). Natural lighting came in through windows on top of the building, and architectural blinds prevented the viewer's perception of the scene from being interrupted. Placed in the semi-darkness, and at the centre of a circular painting illuminated from above, the viewer lost all judgement about distance and space. Intrusive elements that might have created a reference to real life were eliminated, thus wrapping the viewer up in a world of illusion.

Opening in 1794, the panorama was an immediate success; imitations were quickly established in all the major European capitals. Their magnitude, the directness of the presentation, and the circular horizon line, created a dramatic and compelling picture which was consequently adapted for epic subjects. As the popular definition of the word panorama was extended to include large-scale historical paintings, complete circularity ceased to be a necessary

requirement. Public interest in panoramas lay in their topicality and their realism; although military themes became common, many of the exhibitions remained purely topographical in nature. The public desire for picturesque or sublime topographical views of foreign, far-off places was stimulated by the current vogue for travel. By substituting a life-sized illusion of the real scene for the actual experience of being there, the panorama was able both to entertain and to educate the spectator. Although it performed many of the functions of today's news media, the large scale and topographical subject matter of the panorama were also characteristics of nineteenth century art.<sup>12</sup>

Subjects of the Leicester Square panorama included scenes of Lausanne, Venice, Florence, Mont Blanc, Niagara Falls, Rome, the Bernese Alps, Paris, Geneva, and New York. They were painted from sketches made on site by artist-travellers in search of the sublime and picturesque subjects found in nature. The same oil paints and techniques as those used in gallery pictures were applied to these 90-ft diameter canvases at Leicester Square. Although Sir Joshua Reynolds died before he saw the fully developed panorama, he was very enthusiastic about Barker's invention, which he admired as a technique capable of representing nature more effectively than gallery pictures.<sup>13</sup>

In 1823, plans were made to construct a permanent installation for the world's largest and most spectacular

panorama, which had been conceived by Thomas Horner, a land surveyor. He intended to use the 2,000 sketches, that he had drawn from the top of St. Paul's Cathedral, to recreate an indoor illusion of the 120-mile view. The panorama was designed to be part of a magnificent entertainment palace called the Collosseum, which was located in Regent's Park.

When the Collosseum opened in 1829, the most popular experience was to see the painted view of London from the top of the imitation of St. Paul's. The viewing galleries corresponded to those of the cathedral itself and, beyond the railing of the platform, realistic foreground models of the cathedral's roofs and towers blended into the painting. Verisimilitude was achieved by the use of three-dimensional objects which further extended the illusion of atmosphere and distance. The realism of the scene was also enhanced by the natural gradation of light which came from 75-ft skylights installed in the dome's top.

Although the Collosseum caused a sensation as a celebrated entertainment centre in its first few years, new illusionistic spectacles were sought as the novelty wore off. In an effort to revive public interest in the Collosseum, a second "Panoramic Painting" depicting South African Kaffir country was advertised in 1834.<sup>14</sup> Among other topical subjects, the massacre of an English expedition to Africa in 1829 was depicted. The entrance to this exhibit was made through a reconstruction of African scenery,

populated by stuffed, wild animals, and lighted to represent the changing effects of morning and night. This panorama indicated the growing popularity of natural history (with a dramatic emphasis) as a subject appropriate for public exhibition. It was also a direct antecedent of the concept of recreating a realistic, natural environment for the display of natural history specimens.

### Dioramas

We have always considered the Diorama one of the most extraordinary and ingenious exhibitions ever presented to the public, and the most strikingly correct representation of the beauties of nature and the wonders of art . . . .<sup>15</sup>

In 1824, an English patent described the specification for "an improved Mode of publicly exhibiting Pictures or Painted Scenery of every Description and of distributing or directing Day Light upon or through them, so as to produce many beautiful Effects of Light and Shade."<sup>16</sup> This new type of illusionistic entertainment--the diorama--was created by L. J. M. Daguerre (1787-1851) and Charles M. Bouton (1781-1853). It was first exhibited in 1822 inside a building that Daguerre had designed and erected in Paris specifically for that purpose (see Figure 3). The English patent was taken out to protect a similar diorama modelled after the Paris original, and built in London by Daguerre's brother-in-law in 1823. Daguerre had already received recognition

as an assistant to Pierre Prevost (1764-1823), the well-known panorama painter, and in particular as an innovative stage designer capable of producing spectacular *trompe l'oeil* effects.

The diorama was an immediate success; as a pictorial illusion, the artificial perspective and atmospheric rendering of the scene combined with the changing light effects to create such a convincing view of nature that few people believed what they saw was a mere painting.<sup>17</sup> In London, the two pictures that had opened the Paris diorama--"Canterbury Cathedral" and "The Valley of Sarnen"--were shown first. The reviews they received from the English critics were equally as enthusiastic as those from the French:

Among the many exhibitions in the metropolis, there is not one which has excited more surprise, or has been more attractive, than the Diorama. The novelty of the plan, and the singular illusion of the views, took the town by surprise, and to one portion of the public at least, it became a matter of dispute whether they really were actually nothing more than paintings.<sup>18</sup>

Two pictures were usually shown simultaneously and, because of their large size (71.5 ft x 45.5 ft), the audience remained stationary in a darkened auditorium which was mechanically operated to revolve from one picture to the other. The pictures were set back from the audience in a large tunnel which gave the scenes depth and concealed the various lighting contrivances. Shutters and coloured

screens, activated by a system of pulleys and counterweights, were used to modify the daylight which entered the tunnel through windows behind and above the background painting. The great diversity of effects that were achieved by combining opaque and translucent painting on transparent cloth, with the changing intensities of reflected and mediated light, gave the impression that the brilliance of the scene was inherent in the picture itself. It was for this reason that Daguerre's contemporaries so meaningfully dubbed the diorama the *Salle de Miracle*, a genuine home of the wondrous.

The popularity of the diorama as a novel form of creating an illusion of nature seems to have increased with every new show that was exhibited. The two dioramas exchanged shows regularly between Paris and London, and a few were even sent to America,<sup>19</sup> Their success caused entrepreneurs to establish similar buildings for this type of entertainment in Breslaw, Berlin, Cologne, and Stockholm--although they were not in any way connected with Daguerre's prototype.<sup>20</sup>

After about a decade of popular acclaim, however, the diorama began to lose some of the topical qualities that had appealed to the public, as fewer paintings were exhibited for longer periods of time. To inject new life into the dioramas, and to recapture public interest in his show, Daguerre sought novel ways to enhance their realism. He

introduced three-dimensional objects into his "View of Mont Blanc taken from the Valley of Chamonix" (1828). A Swiss chalet was imported to Paris, with barn and outhouses to provide the foreground of the dioramic view. A live goat eating hay in a shed was included, as were certain audio effects (an Alpen horn and Swiss songs).

Although it was impossible to distinguish between the real objects and the imitated reality of the view, Daguerre was criticized for the impropriety of his method, which used "artificial and mechanical means" rather than producing the effects "purely by painting." He defended himself by saying:

. . . for this mixture of nature and art . . . many art critics blame me; they say that my live goat, my chalet and my real fir trees are illegitimate aids for the painter. That may well be so! My only aim was to produce the most complete illusion; I wanted to rob nature, and therefore had to become a thief. If you visit the valley of Chamonix you will find everything as it is here: this chalet with projecting eaves, and the tools you see here, even the goat down there, I brought back from Chamonix.<sup>21</sup>

Daguerre's bold and unconventional use of real objects in conjunction with a painted background to produce the "most complete illusion" was an exhibition technique later used with great success in museum dioramas. The official emphasis had changed from the optical illusion as entertainment, to the three-dimensional object as education, but the basic concept remained the same. By presenting the actual

vegetation and representational objects from a specific geographic location, both types of exhibits attempted to recreate a realistic picture of the original scene.

In "Panorama of the Nineteenth Century," Dolf Sternberger observed that Daguerre's use of sculptural components in the Chamonix exhibit was consistent with the illusionistic aims of panoramas:

An enclosing artificial Nature, whose relentless illusionistic unity forbade even the faintest hint of a frame and required negating the pictorial character in any way whatsoever as well as reducing or bridging the viewing distance, which was usually taken for granted. So it seems quite consistent for the painted surface to have things added to it, sculptural components in the foreground or actual pieces of nature transported there, stones, bushes, or even tools.<sup>22</sup>

Daguerre, however, realized that he had departed too far from "art" in the Chamonix picture, and discontinued productions of this sort. Instead, he developed a novel type of double-effect dioramic painting, and then went on to invent the Daguerreotype.<sup>23</sup>

After fire had destroyed both the original Paris diorama in 1839, and seven years later its replacement, public interest was no longer sufficient to make it profitable. The last dioramas were shown in Regent's Park in 1851. Despite the fact that various imitations or rival dioramas managed to survive for years later, the lack of advertisements and reviews indicated that this type of

exhibition no longer captured public imagination.<sup>24</sup>

The illusionistic exhibitions introduced by Barker, Horner, and Daguerre were highly characteristic of their time. Much of their popularity derived from their topicality--"their involvement with the preoccupations and tastes of the day."<sup>25</sup> As a form of entertainment they were a recurrent fad for more than half a century. Within a few years of their first appearance, however, the words panorama and diorama had acquired a broad range of additional applications to their original meaning. These terms were often indiscriminately applied to exhibits whose only resemblance to the original was in their large size or optical effect.<sup>26</sup>

### The First Natural History Collections

What in this world can more delight  
Than the nobility of creatures as they really are?  
What can excite joy and wonder in the human soul  
More than viewing the reality of nature?<sup>27</sup>

### Curiosity Cabinets and Naturalistic Perception

As the early forerunners of natural history collections, curiosity cabinets provide a valuable historical reference to the perceptual development of naturalism. Naturalistic perception occurred as scientific attitudes and objective observations about nature became more

predominant. The concept of viewing the reality of nature has undergone many changes since the Middle Ages, when natural curiosities rivalled holy relics and ecclesiastical treasures for popular attention. Artifacts brought back by travellers to foreign lands increased the public curiosity about these mysterious treasures, which were most often displayed in churches.<sup>28</sup> Many of these objects--such as the unicorn's horn, giants' bones, claws of the mythical griffin, thunderbolts, and fossilized sharks' teeth--were believed to have miraculous powers. This supernatural view of reality produced a distorted perception of natural phenomena which was clearly reflected in the highly symbolic illustrations of the time.<sup>29</sup>

In his article, "Art and Science as Influences in the Early Development of Natural History Collections," P. C. Ritterbush posited that the mediating function of curiosity cabinets was an important step in the development of naturalism:

The phenomenological foundations of biological science were laid by naturalistic artists several centuries before the prevailing views came to ascribe the force of evidence to direct observations and objective portrayal of specimens from nature. Thus, we should be on the lookout for new institutions serving to apply the artist's mode of perception to the social enterprise of ascribing reality to man's experience. The cabinet of curiosities, the early forerunner of the natural history collection, served a mediating function of this kind.<sup>30</sup>

Early cabinets were often the private treasure chambers of noble and wealthy men, such as the Duc de Berry (1340-1416), brother of Charles of France. His collection consisted of a few natural history specimens (which included ostrich eggs, polar bear skins, tusks of wild boars, and elephant molars) prized for their rarity, but was mostly made up of precious stones, jewels, and valuable items of decorative art.<sup>31</sup>

During the sixteenth and seventeenth centuries, the princely collections of fabulous or rare objects were gradually replaced with representative specimens.<sup>32</sup> This change resulted from the increased efforts of scholars to utilize the collection as a purposeful instrument of scientific enquiry. An example of this sort of collection belonged to Ferrante Imperato (1550-1630) of Naples. Natural specimens, which formed the basis of the collection, were arranged in a study-style presentation. An obvious attempt was made to observe the reality of the objects themselves, rather than by ascribing their reality to the discourse on natural philosophy which was the prevalent perceptual mode of the time.<sup>33</sup> However, the fact that naturalistic perception was still not the dominant aim of this collection was evident by their inaccessible arrangement. They were displayed without any context, and were intended to be viewed as separate entities; their primary function was not to facilitate scientific examination but to stimulate the curiosity

of wealthy dilettantes.

Ritterbush cited the scientific naturalism of Dutch and Flemish still-life painting (which became immensely popular toward the end of the sixteenth and during the seventeenth centuries) as documenting the force and persistence of naturalism as an artistic motive throughout the development of the natural history collection.<sup>34</sup> In particular, he mentioned Jan van Kessel (1625-1679), whose realistic paintings of life-sized insects appeared in a cabinet of curiosities located in the Smithsonian Institution.<sup>35</sup> Furthermore, Ritterbush observed that:

It is also of interest that van Kessel executed works in which creatures were portrayed almost as in the dioramas of museums (usually considered a nineteenth-century innovation). In the Musee de Dijon are two undated works of this type: one, "L'eau," shows a seal, giant squid, and numerous fish on a beach; the other, "La terre," shows stags, peacocks, roses and other plants, and two hawks tearing at a dead game-bird. Another painting . . . entitled "The night," portrays a lively group of bats, badgers, and wildcats in a nighttime landscape.<sup>36</sup>

van Kessel's paintings of realistic scenes, in which several species of animals interacted in a naturalistic environment, expressed a concept that was not utilized by museum exhibits of stuffed animals until several centuries later.<sup>37</sup> During the artist's own time, specimens in collections of natural curiosities were most often arranged for their decorative effect. One of the most celebrated

collections in the seventeenth century was the museum of Ole Worm (1588-1654) in Copenhagen (see Figure 4). In contrast to the Ferrante museum, an effort was made to separate the collection into natural and artificial objects, with the former then subdivided into minerals, vegetables, and animals.

Despite the inclusion of curiosities such as the "sea-unicorn's horn," the museum's catalogue, the *Musaeum Wormianum* (1655), served as a textbook for natural history. Although the specimens were exhibited according to primary classification, the description indicated that the foremost concern was that of the decorative arrangement:

Freaks and oddities were hung between and among the trays and from the shelves. Statuaries, antiquities, petrifications, stuffed birds, and miscellaneous specimens were placed on the highest shelf. The upper parts of the walls were covered with stuffed tortoises, crocodiles, lizards, skeletons, and armor. Suspended from the ceiling were the stuffed bodies of a large polar bear, a shark, and various fishes and birds, as well as an Eskimo kayak.<sup>38</sup>

Another collection that utilized the decorative features considered particularly desirable by seventeenth century museologists, was the Museo Kircheriano (1709) in Rome. Several conspicuous specimens were displayed at the entrance of the museum to attract the viewer's attention. A crocodile, a stuffed bear, tiger, lion, a dried whale or similar object was intended to impress the spectator by

means of its "splendour, venerable character or ferocious looks."<sup>39</sup> Later on, when collections of natural history were finally opened to the general public, this type of dramatic display remained a fundamental concept in popular museum exhibition.

New preservation techniques discovered during the pre-Linnaean period of natural history (1600-1750) also influenced significant changes in exhibit philosophy. Although taxidermy and chemical forms of embalming had been practised for centuries, the use of alcohol as a preservative revolutionized museum practice and vastly increased the range of specimens that could be displayed and studied.

The curiosity cabinets and museum collections thus far discussed had in common two important features: first, they functioned essentially as private showrooms for personal prestige and scholarly debate. Second, even though objective observation was becoming more prevalent, the natural specimens were most often exhibited for decorative rather than naturalistic purposes. Regardless of these qualities, an important function served by the early collections of natural history specimens was to awaken scholarly interest in viewing the "reality of nature." Naturalist-collectors now began to concentrate on their search for scientific truths through the systematic and objective study of nature.

### Linnaeus and Systematic Collections

The appearance of *Systema Naturae* in 1735 by Linnaeus contributed to a revolutionary change in the development of natural history collections.<sup>40</sup> Linnaeus (1707-1778) devised a system of classification whereby any plant or animal could be identified by separate designatory and descriptive functions, and slotted into an overall plan. The widespread influence of this system, still in use today, caused a gradual shift in emphasis from the "curio" quality of the object to collections that were organized into a rational and methodological system. This framework stimulated the search by explorer-collectors for evermore complete series of specimens. Consequently, many collectors in the eighteenth and early nineteenth centuries were consumed with a determination to display every specimen in the collection.<sup>41</sup> The increased emphasis on scientific observation and classification resulted in the disregard of exhibition techniques. Specimens were systematically arranged for the purpose of convenience to the scholar, but little consideration was given to their presentation for general viewing.

Despite the dominance of systematic displays, a few exceptional collections were exhibited in a more naturalistic manner. When Pehr Kalm, Linnaeus's student, visited the collection of Sir Hans Sloan (1660-1752), he noticed the advanced method of preservation, mounting, and display;

various stuffed birds "often stood fast on small bits of board as naturally as if they had still lived," and the West Indian hummingbirds were "set in their nests under glass as though they had been living."<sup>42</sup> This collection later formed the basis for the first museum in Europe explicitly opened to the public. According to the act of incorporation of the British Museum in 1759, it was intended "not only for the inspection and entertainment of the learned and curious but for the general use and benefit of the public."<sup>43</sup>

This worthy intention was not carried out, however, as the British Museum remained essentially inaccessible to the general public throughout the eighteenth and for most of the nineteenth centuries. Until radical reformation of its exhibition philosophy was instigated by Sir William Flower (director from 1884 to 1898), the British Museum remained an isolated institution whose collections were intended for scholars, not for public display.<sup>44</sup>

#### The Museum Levarian

To satisfy the growing popular interest in natural history, many private collections began to function as public exhibitions. The first and most significant of these was a museum formed by Sir Ashton Lever (1727-1788). The Holophusikon, as it was called, opened in 1775 in Leicester Square, London (see Figure 5). One of the foremost naturalists of the time considered it to be "the most astonishing

collection of the subjects of natural history ever collected in so short a space by one individual."<sup>45</sup> As an enthusiastic naturalist and curio collector, Lever promised (in his own words) "to pursue Natural History and carry the exhibition of it to such a height as no-one can imagine; and to make it the most wonderful sight in the world."<sup>46</sup>

Lever's collection included over 60 species of quadrupeds, 160 of English birds, 100 of foreign birds, and 1,100 fossils, as well as a few "artificial curiosities." Although the scientific value of these specimens was acknowledged, and Lever himself was considered "a very adroit *natural* Naturalist," the added comment that "it is . . . a pity he does not . . . call in the assistance of a system," is revealing.<sup>47</sup> In contrast to most late eighteenth century collectors of natural history, Lever apparently did not organize his specimens according to the rigid system of Linnaean classification. Instead, his emphasis was on the *exhibition* of natural history; hence, he did not hesitate to display monkeys emulating humorous human activities among his scientific specimens.

Not surprisingly, the Levarian Museum was considered superior to the British Museum, both in accessibility and arrangement. A contemporary description of the collection indicated the exotic and dramatic appeal of the specimens:

The birds of paradise, and the hummingbirds were I think among the most beautiful--There were

several pelicans--flamingoes--peacocks (one quite white)--a penguin. Among the beasts a hippopotamus (sea-horse) of an immense size, an elephant, a tyger from the Tower--a Greenland bear and its cub--a wolf--two or three leopards--an Otaheite dog, a very coarse ugly looking creature--a camelion--a young crocodile--a room full of monkeys--one of which presents the company with an Italian Song--another is reading a book--another, the most horrid of all, is put in the attitude of *Venus de Medicis*, and is scarce fit to be look'd at. Lizards, bats, toads, frogs, scorpions and other filthy creatures in abundance.<sup>48</sup>

Until this time, most collections of natural history had belonged to the scholar-naturalist or to the wealthy dilettante, for either the use or admiration of his colleagues and friends. The growing popular interest in natural history, however, had created a pronounced commercial value for such collections. With the advent of the nineteenth century, collections of natural history entered the world of show business, and not until the end of the century did the ideals of a government-supported public museum become asserted.

In summary, the naturalistic perception that developed during the Renaissance increased the value of wildlife specimens in the early curiosity cabinets. As more specimens were collected and exhibited, changes occurred in the philosophy and technique of their presentation. From mere curiosities displayed for their decorative effect, they became specimens valued for their scientific relevance. A separation occurred here which was to have long-lasting

consequence to museological exhibition. Collections of natural history developed in two directions: one toward ever specialized, systematic classification, the other toward public exhibition. Even in natural history museums today, these two functions are usually kept separate.

### The Popularization of Natural History

According to one source, the beginnings of popular interest in natural history can be dated to the decades between 1780-1800, during which time many books were published on the subject.<sup>49</sup> Numerous illustrations of animals and scenes from countries around the world were included, inspired by the celebrated voyages of Captain Cook from 1768 to 1780. Apparently the members of Cook's expedition,

. . . in addition to their explorations and scientific work, hunted and observed polar bears and walrus, serpents, apes, monkeys, peculiar birds, opossums, sea otters, strange turtles, kangaroos, and scores of other animals either wholly or partially unknown to the people of England and the rest of Europe.<sup>50</sup>

The travellers made drawings of these strange creatures and, on the return of the final expedition in 1780, many elaborately illustrated narratives of the voyages were printed and widely circulated as popular "textbooks" on natural history.

The importance of Captain Cook's discoveries and the general interest aroused by them created a stimulus for

many other expeditions around the world, all of which collected natural history specimens for scientific study and exhibition as curiosity objects.<sup>51</sup> Most of the early expedition artists had not been professionally trained, a fact which resulted in illustrations of animals that were neither naturalistic nor accurate. In addition, because adequate methods of preservation were not in common use, the zoological specimens frequently appeared more grotesque than they actually were. The consequent mystification of creatures from far-off lands increased the public desire for more information about them and encouraged the popularization of natural history in Europe.

#### Nature and the American Identity

In North America, popular interest in natural history had a much more indigenous past than in European countries.<sup>52</sup> Geographic explorations of the New World were followed by a widespread effort (which continued into the nineteenth century) to document the flora and fauna by means of description and classification. The first American naturalist to use the Linnaean system of classification was John R. Foster, who published *A Catalogue of Animals in North America* in 1771. This is of consequence in that it indicates an early appearance of the deeply rooted American preoccupation with the native wildlife,

Immediately after gaining political independence,

U.S. nationalists began to investigate the significance of nature as something uniquely "American":

Realizing that natural environment was one of the few bases on which a favorable comparison could be made with other nations, Americans were quick to defend nature in their country against the aspirations of Europeans.<sup>53</sup>

In particular, they sought specific natural objects of unusual size or character. An example of this popular interest in natural history specimens was the American reaction to Count de Buffon's charges that animal life in North America was inferior to that of Europe.<sup>54</sup> Thomas Jefferson's *Notes on Virginia* (1781) was in part a defence against those charges. For evidence that his country was second to none where nature was concerned, Jefferson pointed to the recently excavated skeleton of a mammoth whose descendants, he claimed, might still inhabit the interior of the continent.<sup>55</sup> The author of a 1794 history of Vermont argued similarly, and concluded that America's animals "appear to be marked with an energy and magnitude superior to what is found in Europe."<sup>56</sup>

Public collections of natural history were an important factor in the historical development of America from the very beginning. A. S. Wittlin reported that:

The first museological centers sprang up around learned societies, usually taking the shape of curiosity cabinets where works of art were extremely rare. Specimens of natural history

predominated, reflecting the passionate interest 18th century Americans took in this science.<sup>57</sup>

A well-known example, still in existence today, is the museum annexed in 1773 by the Charleston Library Society (founded in 1743), to present "a full and accurate Natural History" which would include all the "natural Productions, either Animal, Vegetable or Mineral that can be had in their several bounds."<sup>58</sup>

In the eighteenth and well into the nineteenth centuries, it was commonly believed that the natural world provided proof of God's existence, and that the wonders of nature were further reason for worshipping God. For over two centuries, the enormous influence of natural theology was evident in both the cultural and scientific identity of Americans. According to Stow Persons, the concept that God's goodness was most immediately apparent in His creatures characterized the enlightened mind of the late eighteenth century.<sup>59</sup> This concept survived into the second half of the nineteenth century in America, continuing to dominate both scientific and popular interest in natural history.

#### Peale's Museum

The Book of Nature open  
 . . . Explore the wonderous work,  
 . . . an Institute  
 Of laws eternal, whose unaltered page  
 No time can change, no copier corrupt.<sup>60</sup>

Charles Willson Peale (1741-1827) was the epitome of Enlightenment ideas; he attached great importance to the close observation of facts, and to reason, logic, and order --all principles which were embodied in his "Repository of Natural Curiosities."<sup>61</sup> Peale's deep conviction in the order and harmony of the universe was based on his belief in God as the "Divine Architect." He conceived of his museum as a temple, more truly a revelation of God than could be found in any church. Central to this assumption was Peale's belief that each creature had a purpose and could be classified according to the system developed by Linnaeus, thus revealing the logic of natural law.

Throughout its existence (from 1784 to the final dispersion of the collection from 1844-1854), Peale's Museum played a strong supportive role in the development of natural history in America--pre-eminent in its primary goal of *exhibition* in accordance with scientific accuracy. In conjunction with Peal's lectures, publications, research, and expeditions, the museum also inspired and provided an outstanding stimulus for greater public understanding of natural history.<sup>62</sup> In fact, Peale's pioneering contributions to American museology were so extensive that only the most significant aspects of his exhibition philosophy and techniques can be mentioned here.

The first public announcement about Peale's Museum appeared in 1786:

Mr. Peale, ever desirous to please and entertain the Public, will make a part of his House a Repository for Natural Curiosities--The Public he hopes will thereby be gratified in the sight of many of the Wonderful Works of Nature which are now closeted but seldom seen. The several articles will be classed and arranged according to their several species; and for greater ease to the Curious, on each piece will be inscribed the place from whence it came, and the name of the donor, unless forbid, with such other as may be necessary.

Mr. Peale will most thankfully receive the Communications of Friends who will favour him with their Assistance in this Undertaking.<sup>63</sup>

The desire to "please and entertain the Public" must be understood in terms of Peale's educational theory of "rational amusement," which he derived from Jean Jacques Rousseau.<sup>64</sup> Learning through enjoyment was the motivating aspiration for Peale's Museum, and the basis on which his collection was exhibited. He hoped to attract, delight, and inform people through the wonderful works of creation and, in so doing, "To form a school of useful knowledge, to diffuse its usefulness to every class in our country, to amuse and in the same moment to instruct the adult of each sex and age . . . ." <sup>65</sup> There was no precedent, either in America or abroad, for Peale's idea of popular education in natural history, and it is hardly surprising that the concept of the natural history diorama should first appear in his museum. Peale recognized the vital role that artful presentation of scientific information played in gaining public attention more than 100 years before modern natural

history museums claimed to have discovered this principle. In 1800 Peale wrote to his state legislator:

In the first place, I declare that it is only the arrangement and management of a Repository of Subjects of Natural History & c., that can constitute its utility. For if it should be immensely rich in numbers and value of articles, unless they are systematically arranged, and the proper modes of seeing and using them attended to, the advantage of such a store will be of little account to the public.<sup>66</sup>

Peale's professional training was as a genre painter. According to the pragmatic eighteenth century craft tradition from which he had emerged, the artist was not considered a creator, but a maker and arranger.<sup>67</sup> Although he had been sent to London in 1767 to study with Benjamin West for two years, on the whole, "Peale concentrated on learning what he could about practice, technique, and composition rather than theory, and retained his direct, pragmatic approach to the task of making pictures."<sup>68</sup> Peale utilized this same approach in his exhibition of natural history specimens.

In 1786, Benjamin Franklin made one of the first donations to Peale's Museum, contributing the body of an angora cat and a treatise on the preservation of birds and other natural history specimens. Not satisfied with the information obtained from these instructions, Peale worked out new techniques for himself, using his own painter's materials for preservatives at first, and later changing to arsenic

solutions. Over the years, he developed taxidermy into an art, remarkable both for the life-like attitude of the specimen, and for its enduring quality. He believed that mere stuffed skins were a poor resemblance to reality and strove to achieve an animated naturalism in his work which was far ahead of its time.

In a letter written 5 December 1786, Peale remarked that his collection of natural history was growing:

. . . most by my labours in dissecting and preserving Birds and Beasts. I have, I believe, nearly completed the class of wild Ducks belonging to this river, ducks & Drakes which I have disposed in various attitudes on artificial ponds, some Birds & Beasts on trees and some Birds suspended as flying.<sup>69</sup>

This scene was recreated under a skylight in a gallery room of Peale's Museum. It was the first appearance of an environmental display of natural history specimens--an exhibit concept commonly thought to have originated with the bird groups at the British Museum in the 1870s.

The next stage in Peale's construction of exhibits for his museum was to instal glass-fronted cases, each backed with a painting that depicted a landscape view of the particular bird's natural habitat. At the time, it was a controversial innovation which, even years later, Peale found necessary to defend in his autobiography:

It is not customary in Europe, it is said, to paint skys and landscapes in their cases of birds and

other animals, and it may have a neat and clean appearance to line them only with white paper, but on the other hand it is not only pleasing to see a sketch of a landscape, but by showing the nest, hollow, cave or a particular view of the country from which they came, some instances of the habits may be given.<sup>70</sup>

Here, then, was the origin of the natural history diorama. As an exhibit technique, it was an integral part of the total concept of Peale's Museum; each natural form should be shown in all its variations, in its natural environment, and with related species in a comparable view. A description of Peale's 1822 "Self-portrait in His Museum" (see Figure 6), by E. P. Richardson, noted the "row upon row of box-like dioramas with gilt frames in which the natural history collections were installed . . . . Behind each specimen was a background painted by himself, so that the creature and its setting formed a kind of habitat group."<sup>71</sup>

It is unfortunate that not one of these early dioramas has survived. Peale's concept of the ecological presentation of natural history did not reappear until the late nineteenth century in government-supported museums. Furthermore, his astute observation about the pleasing quality of the landscape backgrounds in such exhibits suggested the importance that Peale granted to the viewer's aesthetic appreciation of the scene. This concept did not emerge again until 1902, when the A.M.N.H. included panoramic

background landscapes in a series of bird displays.

During his lifetime, Peale maintained a constant effort to secure his collection by obtaining public funding and official government recognition for the museum. The new Museum d'Histore Naturelle in Paris, formed by the Revolutionary government in 1793, was his ideal of a public institution conceived with a commitment to the teaching of natural history.<sup>72</sup> Peale's unceasing struggle to gain government support for his museum was reflected in his many letters to U.S. President Thomas Jefferson, one of which described the need to enlighten the American public:

. . . the importance of diffusing a knowledge of the wonderful and various beauties of Nature more powerful to humanize the mind, promote harmony, and aid virtue than any other School yet imagined. That in the end these labours would be crowned in a National Establishment of my museum . . . a *part* of an Establishment which, in becoming National, should embrace the *exhibitions of every article* by which Knowledge, in all its branches, can possibly be communicated.<sup>73</sup>

The fact that Peale was not successful in this endeavour was a great loss to the American public. His collection was eventually dispersed, and with it disappeared the enlightened philosophy of bringing natural history to the public and research scholar alike, through methods that combined aesthetic presentation and didactic information. Peale's vision of a national museum was finally realized in 1846, but it would take years, and a political reform of

democratic ideals, to reinstate the importance of *exhibition* within the public museum. As C. Sellers has noted:

For more than fifty years it [Peale's Museum] had stimulated and supported the study of the natural sciences. Curiously, however, the methodology that made it in so many aspects a counterpoint of the modern science museums was lost in the interval between its dispersal and the rise of the later endowed museums, in which similar experience was repeated and its techniques rediscovered.<sup>74</sup>

### Public Exhibitions

The most significant popularization of natural history in the nineteenth century occurred in public exhibitions. Apart from the early Levarian Museum, these were not conceived with the same aim of scientific integrity that Peale had established in his museum. For example, Peale believed that:

. . . a Museum of natural history should possess specimens of every genus, that there should be no c[h]asms, if possible to be avoided; and as the diffusing of knowledge is the great object of such an institution, it ought to display the common as well as the uncommon.<sup>75</sup>

This was *not* the philosophy responsible for the lucrative and popular nineteenth century natural history exhibitions in which the most exotic and spectacular specimens were sought primarily for their novelty and value as entertainment spectacles.

When the Levarian Museum was dispersed in 1806, much of the collection, including many of the specimens

donated from Cook's voyages, was purchased by William Bullock, an amateur naturalist and traveller.<sup>76</sup> In 1809, he moved his collection of natural and artificial curiosities to Piccadilly, London, where it quickly became a fashionable place of amusement, attracting more than 80,000 people in its first few months. Bullock is claimed to have been the first to introduce the habitat concept to the exhibition of natural history specimens in England. The *Companion to Bullock's Museum* (1813) described his central exhibit (see Figure 7):

Various animals, as the lofty Giraffe, the Lion, the Elephant, the Rhinoceros, etc. are exhibited as ranging in their native wilds and forests, whilst exact models, both in figure and colour, of the rarest and most luxuriant plants from every clime give all the appearance of reality; the whole being assisted by panoramic effect of distance and appropriate scenery affording a beautiful illustration of the luxuriance of a beautiful clime.<sup>77</sup>

Altick cited the *Companion*, along with Bullock's election to the Linnaean Society of London, as evidence of his serious educational intentions.<sup>78</sup> However, the preceding quotation clearly delineated the true function of his exhibition. Like the illusionistic spectacles then gaining popular mass appeal, Bullock's exhibit was intended to "give all the appearance of reality." Although the specimens were disposed (according to a contemporary description) "in a manner that will convey a more perfect idea of their haunts

and modes of life,"<sup>79</sup> the primary goal of his exhibition technique was to entertain the public through the illusionistic portrayal of nature. Hence, his use of a panoramic background painting to create the "effect of distance."

Despite the disparate approaches to museum exhibition, in many ways Bullock's conception may have been closer to the aspirations of modern natural history dioramas than Peale's habitat groups could ever have been. This was due to Bullock's use of theatrical devices to create an illusionistic spectacle, as opposed to Peale's intention that the background painting serve only to illustrate a *view* of the specimen's natural environment. Enclosed behind glass, in rows of small cases, his exhibits could never have achieved the dramatic magnitude that Bullock sought.

Bullock is also credited as the first showman to make use of three-dimensional foreground objects in the popular panoramic paintings. His ingenuity went beyond the use of stuffed quadrupeds and models of organic material, to live specimens. He imported a herd of reindeer from Lapland to feature in a 1822 exhibit entitled, "View of North Cape." Included was a family of Laplanders to care for the reindeer, along with various artifacts. Two representative tents were erected against a panoramic background of the snow-covered mountains of North Cape. The exhibit appealed to the popular imagination of the Victorian public, and was a great success, drawing 58,000 visitors in a few months.<sup>80</sup>

Another central figure in the nineteenth century popularization of natural history was P. T. Barnum.<sup>81</sup> In 1841, he bought the old American Museum in New York, and to this collection of primarily natural history materials, he added specimens from the recent dispersal of Peale's Museum, as well as other novelties he had collected in Europe. By the mid-1850s, Barnum's American Museum had the reputation of being "one of the largest and best arranged collections in the known world."<sup>82</sup> Natural history remained the dominant feature of Barnum's various enterprises throughout the years. He recognized the appeal that science and religion had to the Victorian public, and capitalized on their curiosity by stressing the moral overtones and educational value of natural history. In a brochure published in 1866, Barnum proclaimed:

There is no study more important to the youth of a rising generation, or to adult age, than that of Natural History. It teaches man his superiority over brute creation, and creates in his bosom a knowledge of the wisdom and goodness and omnipresence of a supreme and All-wise Creator . . . Hence, it became necessary that man should study the history of animated nature, make himself master of a science on which his own happiness depended, and which, when developed, could not fail to advance the great causes of civilization and learning.<sup>83</sup>

Although the "Prince of Humbug" and "King of Showmen" was not considered to be a man of science, P. T. Barnum "probably did more than any other one person to popularize

the museum idea,"<sup>84</sup> attaining it by stimulating public curiosity through exciting and dramatic exhibitions of natural history. Barnum deplored the fact that "the whole vast continent of America stands today with scarcely an apology for a free public exhibition of Natural History and Art."<sup>85</sup> Like C. W. Peale, he conceived the idea of erecting a national museum. Despite advertising his collection of rare and costly natural history specimens as a "*Vast Living School of Instruction*, where the student could spend hours in wondrous contemplation looking from Nature up to Natural God," Barnum realized the value of objective scientific research.<sup>86</sup> Beginning in 1870, he became increasingly involved with natural history museums--in particular, the newly formed American Museum of Natural History, the Smithsonian Institution, and Tufts College Museum.

#### Science and the *Origin* of *Species*

During his lifetime, Barnum witnessed the rise of scientific institutions which replaced the curiosity type of museum. The new emphasis on research and analysis within specialized areas of science gradually transformed the collecting tendencies of nineteenth century naturalists. Throughout most of that century, however, natural history had remained *the* central current of science. In large part this was due to the enormous popular attraction of the subject: the Victorian public believed that they were

living in a golden age of natural history.<sup>87</sup> An obsession with the discovery of ever new and extraordinary species of animals was stimulated by the classification system devised by Linnaeus in the previous century. As one mid-nineteenth century naturalist put it:

The writings of LINNAEUS, composed in clear and elegant style and offering a systematic arrangement such as all could readily understand, contributed more than those of any other naturalist to the spread of a taste for his favourite science. He was eminently a popular writer . . .

. . .<sup>88</sup>

In the nineteenth century, it was commonly thought that because the natural world provided proof of God's existence, by demonstrating or creating order in the natural environment this evidence would become even more irrefutable. Thus, it became fashionable for laymen to join with scientists (or professional naturalists) in the collection and classification of specimens. In America, the unity of science and theology was popularized by William Paley in his widely read book, *Natural Theology: Or Evidence of the Existence and Attributes of the Deity, Collected from the Appearance of Nature* (1802).<sup>89</sup> Most Americans pursued scientific study on the premise that they were accumulating evidence of God's design, and Paley's materialistic doctrine served to incorporate this science within a comprehensive moral view. Three of the naturalist-scientists who most influenced the course of the popularization of natural

history in nineteenth century America are mentioned briefly below.

Baron Alexander von Humboldt (1769-1859) has been described as a geographer, geologist, world traveller, and philosopher of nature.<sup>90</sup> He was one of the last of the Enlightenment's encyclopaedic synthesizers of knowledge, *Cosmos* (1847), his life's masterpiece, consolidated all the various sciences and was immensely popular in America; his theories of geographical determinism provided a scientific basis for America's own biblically inspired interpretation of God's chosen country. As David C. Huntington put it: "The faith in Manifest Destiny was the faith that natural history had dictated the Anglo-Saxon domination of the great North American continent."<sup>91</sup> C. W. Peale, who intensely admired Humboldt, had a number of profiles made of him for presentation to friends when he brought the famous naturalist to Washington in 1804 to meet another Humboldt admirer--President Jefferson.

Humboldt was also acknowledged as a fundamental inspiration by Louis Agassiz (1807-1873) and Charles Darwin (1804-1877)--both naturalists whose lifework contributed to significant changes in the public attitude toward natural history in America. Agassiz was dedicated to advanced and popular scientific education in nature study.<sup>92</sup> Although he believed that biological phenomena were due to the direct intervention of the Creator, he became one of the great

spokesmen for science in nineteenth century America. In a report of his new Museum of Comparative Zoology at Harvard, opened in 1860, he argued that:

Scientific investigation in our day should be inspired by a purpose as animating to the general sympathy, as was the religious zeal which built the Cathedral of Cologne or the Basilica of St. Peters.<sup>93</sup>

Agassiz made use of this simile to express his hope that the museum would become "a temple of the revelations written in the material universe."<sup>94</sup>

In 1859, Darwin published *Origin of Species*, a book that marked the advent of Darwinism, and the beginning of a new era in scientific investigation of natural history. His views on natural selection were in opposition to the commonly held belief in natural theology, and even other scientists like Agassiz could not accept Darwin's theories on evolution. Despite the numerous public debates on this controversial subject, the publication of his book had no immediate effect on the popular enthusiasm for natural history. The top natural history best sellers for 1860, for example, were Philip Gosse's *The Romance of Natural History*, and Frank Buckland's *Curiosities of Natural History*.<sup>95</sup> Gradually, however, Darwin's stress on the processes and interrelationships of natural history created a new complexity and increasing specialization with which the layman or amateur could no longer keep pace. This important factor,

along with the diminishing influence of the pious rationale of natural history, was responsible for the progressive change in public attitude.

The nineteenth century scientific preoccupation with natural history reflected a parallel development in popular exhibitions of the same subject. Humboldt is of particular interest in that he spanned the world of enlightenment and the age of romanticism. In his early writing, his method of rational empiricism could be compared to Peale's effort to present natural history specimens in a logical and informative manner. Humboldt's view of nature later changed to emphasize the role of human consciousness in the perception of the external world. His egocentric and typically romantic interpretation of nature reached the height of its popularity in America by the 1850s. This period (beginning at the turn of the century) corresponds with the increasing tendency in public exhibitions to appropriate the popular appeal of natural history for commercial ventures. Most often it was the romantic personification with nature and, in particular, the wild and exotic animals that captured the public imagination in such exhibits as those found in Bullock's or P. T. Barnum's museums. Although their educational value was always emphasized, they must be seen as a popular extension of the romantic interpretation of "science."

Edward Lurie concluded that the popular mind embraced

an attitude toward science that:

. . . translated its character and objectives into the psychological equivalent of natural romanticism grounded upon the social and moral uplift derived from common association with nature and its axiomatic cosmic relationship.<sup>96</sup>

Viewed in this light, it is not surprising that the technique of recreating a dramatic and illusionistic natural environment for stuffed animals was developed as a form of popular entertainment within the museological context. This development cannot be related to the objective, educational concept behind the exhibits of natural history specimens in Peale's Museum. His exhibition philosophy did not reappear until late in the nineteenth century.

Natural history lost much of the romantic attraction it had gained during the first half of the nineteenth century through popular exhibitions, as it became increasingly specialized and consequently institutionalized. By the 1880s it had become a school subject, with natural history specimens isolated in research collections of government-supported museums. The art of exhibition had also been lost, and it would take time before the ecological and evolutionary impact of Darwinism, along with the regeneration of democratic ideals in public education, would inspire a new reform in museological exhibition.

## Development of American Natural History Museums

### Government Exploration, Surveys, and Scien- tific Research

According to one historian, the three phases in the development of the natural history movement in America were discovery, description, and classification.<sup>97</sup> Similarly, a factor that greatly contributed to the growth of natural history museums was the pressing need to house the specimens discovered and collected on exploratory expeditions funded by the government. Among the first of these was the Lewis and Clark Expedition (1804-1806), planned and funded by U.S. President Jefferson. Lewis had studied natural history with Peale, and it was to his museum that much of the expedition material was donated.<sup>98</sup> An early Philadelphia historian described the Quadruped Room in Peale's Museum as containing approximately 200 mammals, "mounted in their natural attitudes," among the most remarkable of which were the "long-clawed grizzly bear from the Missouri" and the "big-horned sheep and the pronghorned antelope, both brought by Captain Lewis from the Rocky Mountains."<sup>99</sup> Of all the natural history specimens collected by the expedition, the only surviving one is a Lewis Woodpecker (No. 2020 in Peale's Museum), now at the Harvard Museum of Comparative Zoology. In gratitude for the Lewis and Clark donations to the museum, Peale made drawings of the specimens for use as

illustrations for the explorers' journal.

The Lewis and Clark journals and collections had the immediate effect (like Captain Cook's voyages) of "stimulating zoological activity in such diverse fields as taxonomy, animal portraiture, publication, and museum development."<sup>100</sup> Other naturalists, excited by Lewis and Clark's zoological discoveries, soon joined successive government-sponsored expeditions. Laurence V. Coleman observed that, "The government became an ally of museums as the army, and to some extent the navy, got into exploring."<sup>101</sup> For example, by 1842, when the Wilkes Expedition returned from five years in the southern ocean, they brought back 10,000 specimens of plants, 5,000 of invertebrates, and nearly 1,000 vertebrate animals, all of which were deposited in the "National Cabinet of Curiosities" under the care of the National Institution.<sup>102</sup> Subsequent government explorations continued to donate material to the national collection during the ensuing years.<sup>103</sup>

Government funding was also directed to reconnaissance efforts such as the Pacific Railroad Surveys, beginning in 1853, and individual state surveys; first in the 1830s, then in the 1850s and 1860s. In addition to providing more materials for the national collection, the surveys contributed to the founding of many state museums.<sup>104</sup> The practical application of these collections of natural history was to determine the extent of the new nation's

natural resources.

Although Goertzman suggested that these enormous natural history collections characterized the age of Humboldtian science in America, they also typified a problem that was to become increasingly apparent in the development of modern natural history museums. As the romantic Humboldtian view of nature began to lose its predominance, natural history became more specialized, and the pressure to utilize the collection for scientific research superseded the commitment to public exhibition.

The early Smithsonian Institution exemplified the struggle created by the two conflicting museological interests of research and education. Its first secretary, Joseph Henry, interpreted the increase and diffusion of knowledge desired by Smithson as research and as a dissemination of research among scholars and scientific institutions.<sup>105</sup> During his tenure (1846-1878), Henry restated his conviction that the Smithsonian needed the collections only as research material, and that the maintenance and exhibition of objects was *not* within keeping of the institute's original conception:

However valuable these collections may be in themselves, they are but the rough materials from which science is to be evolved; and so long as the specimens remain undescribed, and their places undetermined in the system of unorganized beings, though they may serve to gratify the unenlightened curiosity, they are of no importance in the discovery of the laws of life.<sup>106</sup>

Henry actively opposed the creation of a museum to house the collections as an unnecessary squandering of funds, and although he was not successful in blocking its construction, he adamantly refused to accept the responsibility of a national museum.<sup>107</sup> In the *Annual Report for 1876*, he concluded that the Smithsonian was not a public establishment, despite the presence of the museum, and did not depend on popular patronage for its support. He further insisted that the research function of the institution was incompatible with continued interruption from large numbers of visitors.<sup>108</sup>

Spencer F. Baird (appointed Assistant Secretary of the Smithsonian in 1850) conducted the type of systematic research, based on the description and classification of natural history specimens, deemed appropriate by Henry. Most important of his works were the zoological volumes of the Pacific Railroad Surveys, to which he added some seventy new species of animals. Despite the comprehensiveness of the zoological surveys, however, there was no attempt to relate the animals to their environment in the Darwinian realm of evolution.<sup>109</sup> In this important aspect, scientific research based on zoological specimens did not have the foresight, or ecological integrity, of the natural history exhibits in Peale's Museum, or even the Museum Levarian. In other words, the concept of ecological relationships (fundamental to the rationale of museum dioramas), did not

necessarily develop out of scientific research. Rather, a strong point could be made that this concept was, in part, derived from the narrative quality that characterized popular exhibits of natural history specimens. Here, the object was to present life-like animals in a realistic environment more for entertainment than for educational motives.

### Expositions and World Fairs

The international expositions, inaugurated in 1851 in the Crystal Palace in London, offered incentives for new museums and promoted new techniques in exhibition.<sup>110</sup> Although commercial ventures, by drawing large audiences they compelled government officials to recognize that formal learning and social needs were public concerns.<sup>111</sup> After the Paris Exposition of 1867, the construction of permanent buildings, or museums, was advised to house the huge collection of materials which resulted from the exhibits of each world fair.<sup>112</sup> For example, the Philadelphia Centennial Exposition in 1876 constructed a special building to contain the American wildlife exhibits, and the Chicago Columbian Exposition in 1893 resulted in the establishment of the Field Museum of Natural History.<sup>113</sup>

More important to this thesis, however, is the fact that the international expositions "opened the way for the renaissance of the modern museum in terms of *dramatic*

*displays* relevant to the social life of the community" [emphasis added].<sup>114</sup> They set in motion a trend in presentation that rescued natural history from the increasingly exclusive enclaves of scientific research collections.<sup>115</sup>

#### Public Profile and Government Support

The appropriate method for museum presentation was an issue debated by both American and European institutions.<sup>116</sup> One school of thought was that scientific museums should present their objects in an "analytical," systematic manner; the other favoured a "synthesis" of appropriate objects to a meaningful whole, in the form of habitat groups of animals or period rooms. In European museums, the synthesis manner of presentation remained an exception, while in the United States it later became widely accepted as a popular means of communication with the general public. This was largely due to the influence of George Brown Goode (third Secretary of the Smithsonian), who instigated a significant museological commitment to the exhibition of the collections as a means of achieving greater public education in natural history.<sup>117</sup> As A. S. Wittlin pointed out: "In matters of interpretation, of using museums as mediators between research and general education, museums in the United States were on the way to becoming innovators."<sup>118</sup>

When it became evident that natural history museums

played a vital, popular, and educational role in American society, public funding was more forthcoming.<sup>119</sup> According to F. P. Alexander:

By 1900 American museums were becoming centers of education and public enlightenment. This development was natural in a country that prided itself on its democratic ideals and placed deep faith in public education both as a political necessity and as a means of achieving technological excellence.<sup>120</sup>

In natural history museums, this period was marked by the popular absorption in wildlife and wilderness, a direction that greatly influenced the subject matter and government funding for such exhibits.

#### Private Collections and Donations

Wittlin described the new manner introduced by the U.S. for establishing and maintaining museological institutions.<sup>121</sup> This was accomplished through donations from groups of wealthy individuals, a large number of subscribers who made small contributions, and committees of private citizens and public authorities. The primary example of a great natural history museum formed in this way is the A.M.N.H. in New York.

Albert S. Bickmore, who was responsible for establishing the A.M.N.H., had studied natural history with Louis Agassiz.<sup>122</sup> As a result of a disagreement with him, Bickmore subsequently decided to found a museum of his own,

which would be run on democratic principles.<sup>123</sup> He succeeded in gaining the support of a group of wealthy and influential philanthropists, including Theodore Roosevelt, father of the future U.S. president. These sponsors drew up a document in 1869, calling for a Museum of Natural History,

. . . for the purpose . . . of encouraging and developing the study of Natural Science and of advancing the general knowledge of kindred subjects, and to the end of furnishing popular instruction and recreation.<sup>124</sup>

In 1871, the museum had joined the Metropolitan Museum of Art in a successful petition to the state legislature for permanent sites and suitable buildings. The founding cornerstone was laid by U.S. President Grant on 2 June 1874, and on 22 December 1877, the A.M.N.H. opened its doors to the public.<sup>125</sup> The world-wide reputation this museum was to establish for itself was based on its policy of providing "popular instruction and recreation," in addition to specialized scientific research. In keeping with this policy, the A.M.N.H. instigated a vigorous exhibition program that resulted in the most outstanding collection of dioramas to be found in any museum of natural history.

Part of the A.M.N.H.'s success was due to private donations of natural history specimens. For example, in the first year of its existence, P. T. Barnum promised Bickmore that, "If any of our animals die we will present

them to your institution with pleasure . . . .<sup>126</sup> Barnum had also made the same offer in 1873 to Joseph Henry at the Smithsonian, who noted that the specimens from Barnum were among the most important contributions to the National Museum.<sup>127</sup> This intriguing relationship suggests that the museums were not solely interested in the specimens for scientific research.<sup>128</sup> It is quite likely that these exotic and rare mammals (such as giraffes, zebras, lions, tigers, and apes) were displayed both in museums and circuses for similar motivations--they appealed to *popular* curiosity. The famous elephant, Jumbo, for example, was the object of much curatorial squabbling between the National Museum and the A.M.N.H., both of whom wanted the remains for exhibition.

The tendency toward "showmanship" that appeared in natural history museums during this period was nothing new. From the time of curiosity cabinets, zoological specimens had captured human imagination with their strangeness and novelty. Despite scientific attempts throughout the late eighteenth and nineteenth centuries to observe such specimens objectively, their popular appeal predominated in public exhibitions and international expositions. While the development of American natural history museums is inextricably linked to the collection of zoological specimens, it was not until late in the nineteenth century that creative techniques for exhibiting them--which combined

popular appeal with scientific information--began to be explored. Chapter 3 contains an analysis of the development of the museum group as an exhibition technique which led directly to the modern, natural history diorama.

Chapter 2 Footnotes

<sup>1</sup>The majority of this material is based on information found in Richard Altick, *The Shows of London* (Cambridge, MA: Belknap Press, 1978), and Sybil Rosenfeld, *Georgian Scene Painters and Scene Painting* (Cambridge, England: Cambridge University Press, 1981).

<sup>2</sup>Rosenfeld, p. 34. Rosenfeld stated that the romantic landscape scenes in "The Wonders of Derbyshire" (Drury Lane, 177) were revolutionary in that they replaced architecture by landscape, and the formal and ideal by the picturesque and sublime.

<sup>3</sup>Altick, pp. 119-120. Born in Strasbourg, de Louthembourg went to London in 1771 to establish a career in the English theatre at Drury Lane while continuing to exhibit as a painter at the Royal Academy.

<sup>4</sup>Rosenfeld, pp. 34-35.

<sup>5</sup>In Altick, pp. 120-121. From the *Daily Universal Register*, n.d.

<sup>6</sup>*Ibid.*, p. 121.

<sup>7</sup>*Ibid.* Altick noted that this last scene represented one of the first appearances in London of the tempest and shipwreck scene, later to become common Romantic iconography.

<sup>8</sup>*Ibid.*, p. 123.

<sup>9</sup>Helmut and Alison Gernsheim, *L. J. M. Daguerre*, 2nd ed. (1956; rpt. New York: Dover Press, 1968), p. 43.

<sup>10</sup>There has been no formal, systematic history of panoramas published, likely because very few pictures have survived the nineteenth century. The most comprehensive source of information is Richard Altick, *The Shows of London*, which contains extensive bibliographic notes on the subject. Unless cited otherwise, the material on panoramas is based on this book. The following articles were also consulted: Dolf Sternberger, "Panorama of the 19th Century," *October*, 4 (Fall 1977), 3-7; Arthur Gill, "The London Diorama," *History of Photography*, 1 (January 1977), 31-36.

<sup>11</sup>Altick, pp. 128-129. Altick suggested that Barker's

"invention" was derived from two, older artistic techniques: the Renaissance tradition of decorating interior walls with illusionistic landscapes, and the seventeenth century, large-scale topographical views found in engraved prospects.

<sup>12</sup>Ibid., p. 187.

<sup>13</sup>Ibid., p. 132.

<sup>14</sup>Ibid., p. 150.

<sup>15</sup>In Gernsheim, p. 25. From *The Mirror of Literature, Amusement and Instruction*, 26 March 1825.

<sup>16</sup>Ibid., p. 14. Unless cited otherwise, the material on dioramas is based on this book.

<sup>17</sup>Ibid., p. 18. Gernsheim said newspaper accounts showed that: "Opinion was unanimous that Daguerre and Bouton had produced the *ne plus ultra* of pictorial illusion."

<sup>18</sup>Ibid., p. 23. From *The Mirror of Literature, Amusement and Instruction*, 26 March 1825.

<sup>19</sup>Gernsheim, p. 24. Apparently the pictures were exhibited in New York at the Lyceum (1841), Philadelphia at the Masonic Hall (1841), Boston, Baltimore, Charleston, and Washington, DC, at the Carusi's Assembly Room (1842).

<sup>20</sup>Very little information is available about these dioramas. In addition to Gernsheim, see Werner Neite, "The Cologne Diorama," *History of Photography*, 3 (April 1979), 105-109.

<sup>21</sup>In Gernsheim, p. 31. From an account of the German author and actor, August Lewald, who had visited Daguerre's Diorama in 1832.

<sup>22</sup>Sternberger, p. 5.

<sup>23</sup>All the succeeding dioramas produced by Daguerre made use of the double-effect technique whereby the two sides of a transparent cloth were carefully painted in translucent and opaque gradations of colour. With the manipulation of coloured screens, Daguerre was able to create an optical illusion of changing light. For a full description of this method, see Daguerre, *Daguerreotype and the Diorama* (London, 1839; rpt. New York: Kraus Co., 1969).

<sup>24</sup>The two most significant factors which contributed to the demise of the illusionistic spectacle were the advent of the photographic image and the improved printing and distribution of lithographic images. Because these images could be mass produced, they replaced the reportorial role of illusionistic spectacles.

<sup>25</sup>Altick, p. 173. *The Shows of London* thoroughly documents the sociological background surrounding the popular appeal of these exhibitions.

<sup>26</sup>The speed with which the two words came to be used almost interchangeably, with no regard to the original meaning, can be illustrated as follows: during the rage for panoramas, theatrical productions commonly advertised a "moving panorama" to describe their scenic pantomimes. This term was abruptly changed to "diorama" after the extraordinary success of the London diorama in 1824 had made it a fashionable word to exploit other forms of entertainment.

<sup>27</sup>In P. C. Ritterbush, "Art and Science as Influences on the Early Development of Natural History Collections," *Proceedings of the Biological Society of Washington*, Vol. 82 (1969), p. 576. From an early eighteenth century treatise on museums and collections; C. F. Neickelius, *Museographia*, ed., D. J. Tanold (Leipzig, 1727).

<sup>28</sup>For a brief description of natural curiosities that were preserved in Medieval churches see O. C. Farrington, "The Rise of Natural History Museums," *Science* (13 August 1915), pp. 197-208.

<sup>29</sup>An example of the prevailing theological conceptions is the allegorical drawing by Albrech Dürer (1471-1528), in which locusts are depicted as devils. See Ritterbush, p. 564. For a different point of view, see Lynn White, "Natural Science and Naturalistic Art in the Middle Ages," *American Historical Review*, 5 (n.d.), 421-435. The author postulated that early manifestations of naturalism began in the Middle Ages as a minority tendency on the part of the few artists who were not under direct ecclesiastical control.

<sup>30</sup>Ritterbush, p. 568.

<sup>31</sup>See G. E. Hutchinson, *The Ecological Theatre and the Evolutionary Play* (New Haven, CT: Yale University Press, 1965), p. 95. These data were obtained from the earliest inventory of a princely collection, based on J. Guiffrey, *Inventaires de Jean Duc de Berry* (Paris, 1894). For a concise, historical development of natural history

collections based on zoological specimens, see P. J. P. Whitehead, "Museums in the History of Zoology," *Museums Journal*, (September 1970), pp. 50-57; and March 1971, pp. 155-150. Much of the material presented in this section is based on this account. See also Alma S. Wittlin, *Museums: In Search of a Usable Future* (Cambridge, MA: M.I.T. Press, 1970).

<sup>32</sup>This development was discussed by Hutchinson, pp. 95-108.

<sup>33</sup>I refer here to the Aristotelian philosophy (which dominated Western thought until the Enlightenment) that found both qualifying distinctions and purposes in nature.

<sup>34</sup>Ritterbush, p. 573.

<sup>35</sup>See Ritterbush, pp. 573-574, for a more thorough analysis of this cabinet. Although not absolutely attributed to van Kessel, the cabinet does reflect his work of 1658.

<sup>36</sup>*Ibid.*, pp. 574-575.

<sup>37</sup>Ritterbush was incorrect in making an analogy between van Kessel's paintings and natural history dioramas. Although the concept and subject matter can be compared, dioramas are a life-sized, three-dimensional illusionistic exhibition technique--which is in no way similar to a flat, miniature illustration of natural history specimens.

<sup>38</sup>In Farrington, p. 200, and Silvio Bedini, "The Evolution of Science Museums," *Technology and Culture*, 6 (1965), 26. Original source not cited in either case.

<sup>39</sup>In Bedini, p. 26. From Rev. Filippo Bonanni, *Musaeum Kircherianum* (Rome, 1709).

<sup>40</sup>See Lynn Barber, *The Heyday of Natural History: 1820-1870* (London: Jonathan Cape, 1980), Chapter III.

<sup>41</sup>Bedini, p. 27.

<sup>42</sup>William T. Stearn, *The Natural History Museum at South Kensington: A History of the British Museum (Natural History) 1753-1980* (London: Heineman, 1981), p. 6. From an 1892 English translation of Kalm's *Account of a Visit to England*, written in 1748.

<sup>43</sup>In Altick, p. 26. Original source not cited.

<sup>44</sup>Flower's contribution to museological exhibition is discussed in Chapter 3.

<sup>45</sup>In P. J. P. Whitehead, p. 158. Original source not cited.

<sup>46</sup>In Altick, p. 28. Original source not cited.

<sup>47</sup>In Altick, p. 29. This comment was made by Gilbert White of Selborne. Original source not cited.

<sup>48</sup>In Altick, p. 29. From *London in 1710*, p. 98.

<sup>49</sup>See W. S. Dunbar, "Beginnings of Popular Interest in Natural History," *Outing*, 31 (1902), 201-209.

<sup>50</sup>Ibid., pp. 202-203.

<sup>51</sup>Sir Joseph Banks, for example, having sailed on Captain Cook's first voyage as official naturalist, donated much of his collection of natural curiosities to the British Museum.

<sup>52</sup>Many historians have attempted to isolate the ideas and define the major role that nature has played in shaping America's identity. This theme is thoroughly documented in the social and scientific history of America in the following: Hans Huth, *Nature and the American: Three Centuries of Changing Attitudes* (Berkeley, CA: University of California Press, 1957); Perry Miller, *Nature's Nation* (Cambridge, MA: Belknap Press, 1967); Roderick Nash, *Wilderness and the American Mind* (New Haven, CT: Yale University Press, 1967); Stow Persons, *American Minds: A History of Ideas* (New York: Holt, 1958).

<sup>53</sup>Nash, p. 68.

<sup>54</sup>Count de Buffon was the most influential European encyclopaedic writer on natural history. He endorsed the doctrine of Western Hemisphere degeneracy in the 15 volumes of *Histoire Naturelle*, between 1749 and 1767. Buffon's views were popularized in the U.S. by William Robertson, a Scottish historian who published the *History of America* in 1777. See also Peter Matthiessen, *Wildlife in America* (New York: Viking, 1959).

<sup>55</sup>The nationalistic identification with the great North American mammoth was evident in the overwhelming popularity of Peale's exhibition of a recently excavated mammoth in 1802. See Charles C. Sellers, *Mr. Peale's Museum: Charles Willson Peale and the First Popular Museum of Natural Science and Art* (New York: W. W. Norton, 1980).

<sup>56</sup>In Nash, p. 68.

<sup>57</sup>Wittlin, p. 241.

<sup>58</sup>In Farrington, p. 203.

<sup>59</sup>See Stow Persons, Part II, "The Mind of the American Enlightenment: 1740-1812," in *American Minds*.

<sup>60</sup>In Sellers, p. 15. The quote is from Fetteplace Bellers, *Injur'd Innocence* (1732) and was inscribed over the doorway to Peale's Museum.

<sup>61</sup>The information on Peale is based on material derived from Charles C. Seller's extensive biography, *Charles Willson Peale* (New York: Scribners, 1969) and his account of the first popular museum of natural science and art, *Mr. Peale's Museum*.

<sup>62</sup>Sellers, *Mr. Peale's Museum*, p. 333. Peale conceived that the function of a museum was to act as a mediator and explicator between the research scholar and the layman.

<sup>63</sup>*Ibid.*, p. 23. From an advertisement published in the *Pennsylvania Packet* (7 July-12 November, 1786).

<sup>64</sup>*Ibid.*, p. 22. In particular, Peale studied *Emilus* by Rousseau.

<sup>65</sup>*Ibid.*, p. 18. From an address delivered by Peale to the corporations and citizens of Philadelphia, 18 July 1816.

<sup>66</sup>*Ibid.*, p. 111. From a letter to William Findley, 8 February 1800.

<sup>67</sup>See Lisa Fellows Andrus, *Measure and Design in American Painting, 1760-1860* (New York: Garland, 1977).

<sup>68</sup>*Ibid.*, p. 52.

<sup>69</sup>In Sellers, *Mr. Peale's Museum*, p. 26. From a letter by Peale, 5 December 1786.

<sup>70</sup>*Ibid.*, p. 28. Peale's autobiography is filed with the Peale Papers at the American Philosophic Society.

<sup>71</sup>E. P. Richardson, *Painting in America: The Story of 450 Years* (New York: Crowell, 1956), p. 119.

<sup>72</sup>Despite its educational intentions, the exhibits of natural history specimens in this museum were known to be badly stuffed, in poor condition, and arranged in uniform rows with little imagination.

<sup>73</sup>In Sellers, *Mr. Peale's Museum*, p. 149. From a letter written on 12 January 1802.

<sup>74</sup>*Ibid.*, p. 331.

<sup>75</sup>*Ibid.*, p. 19. From *A Walk Through the Philadelphia Museum*, by C. W. Peale.

<sup>76</sup>Unless otherwise cited, information regarding Bullock's Museum is based on material presented in Altick, *The Shows of London*. Altick, p. 237; Frederick A. Lucas, "Glimpses of Early Museums," *Natural History* (January-February 1921), pp. 74-77.

<sup>77</sup>In Lucas, p. 77.

<sup>78</sup>Altick, p. 235.

<sup>79</sup>*Ibid.*, p. 237. No source cited.

<sup>80</sup>*Ibid.*, p. 274.

<sup>81</sup>The information on P. T. Barnum is largely derived from John R. Betts, "P. T. Barnum and the Popularization of Natural History," *Journal of the History of Ideas*, 20 (1959), 353-368.

<sup>82</sup>*Ibid.*, p. 355. No source cited.

<sup>83</sup>*Ibid.*, p. 358.

<sup>84</sup>*Ibid.*, p. 359. From Mildred Porter, "The Educational Effectiveness of a Museum of Natural History," Diss. Yale University, 1937, p. 23.

<sup>85</sup>In Betts, p. 361. No source cited.

<sup>86</sup>*Ibid.*

<sup>87</sup>See Lynn Barber.

<sup>88</sup>*Ibid.*, p. 47. From W. H. Harvey, *The Sea-Side Book* (London, 1849), pp. 2-4.

<sup>89</sup>See Roger B. Stein, *John Ruskin and Aesthetic Thought in America 1840-1900* (Cambridge, MA: Harvard University Press, 1967), pp. 157-185.

<sup>90</sup>See Edward Lurie, *Louis Agassiz: A Life in Science* (Chicago: University of Chicago Press, 1960), pp. 64-67.

<sup>91</sup>David C. Huntington, *The Landscapes of Frederick Edwin Church: Vision of An American Era* (New York: Braziller, 1966), p. 17.

<sup>92</sup>See Edward Lurie, *Nature and the American Mind: Louis Agassiz and the Culture of Science* (New York: Science History Publications, 1974).

<sup>93</sup>In Stein, p. 161. From Agassiz, *Agassiz II*, pp. 670-671.

<sup>94</sup>Ibid.

<sup>95</sup>Barber, p. 286.

<sup>96</sup>Edward Lurie, "An Interpretation of Science in the Nineteenth Century: A Study in History and Historiography," *Journal of World History*, 8 (1964-1965), 681-704.

<sup>97</sup>Persons, p. 110.

<sup>98</sup>See Sellers, *Mr. Peale's Museum*, pp. 168-188. Lists of the Lewis and Clark Expedition material were entered in the museum accession book in 1809, although thought to be incomplete. Other material was kept by Clark for his Indian museum in St. Louis.

<sup>99</sup>In Paul R. Cutright, *Lewis and Clark: Pioneering Naturalists* (Chicago: University of Illinois Press, 1969), p. 353. From James Mease, *The Picture of Philadelphia* (Philadelphia: n.p., 1811), pp. 311-314.

<sup>100</sup>Ibid., p. 395.

<sup>101</sup>Laurence Vail Coleman, *The Museum in America: A Critical Study*, 3 vols. (Washington, DC: American Association of Museums, 1939).

<sup>102</sup>The National Institution for the Promotion of Science was formed in 1840 with Joel R. Poinsett, Secretary of War, as its central figure. He urged the formation of a national museum in Washington as a repository for the rapidly accumulating collections, deploring the fact that ". . . after all the labour, pains and expense incurred in procuring them, these specimens are not to be brought back to Washington to be arranged and exhibited here." See George Brown Goode, "The Genesis of the United States National Museum," *Report of the National Museum* (Washington, DC: Government Printing Office, 1891).

<sup>103</sup>For more information on nineteenth century scientific explorations and their contribution to natural history collections, see William H. Goetzmann, *Exploration and Empire: The Explorer and the Scientist in the Winning of the American West* (New York: Alfred Knopf, 1966).

<sup>104</sup>For example, the 1830s surveys led to the establishment of state museums in New York (1843), Vermont (1845), Alabama (1845), and so on.

<sup>105</sup>A will written in 1826 by James Smithson bequeathed over half a million dollars to the U.S. to found in Washington, "an establishment for the increase and diffusion of knowledge among men." The long debate over his will evolved in the establishment of the Smithsonian Institution on 10 August 1846. The decision was finally made to erect a building to house objects of natural history. From Wilcomb E. Washburn, "Joseph Henry's Conception of the Purpose of the Smithsonian Institution," in *A Cabinet of Curiosities: Five Episodes in the Evolution of American Museums*, ed. Walter M. Whitehall (Charlottesville, VA: Virginia University Press, 1967), pp. 106-166.

<sup>106</sup>In Wittlin, p. 273. From the Smithsonian Institution *Annual Report of 1856*, by Joseph Henry.

<sup>107</sup>See Washburn.

<sup>108</sup>Ibid., p. 163.

<sup>109</sup>See Goetzmann, Chapter IX, "The Great Reconnaissance," pp. 303-331.

<sup>110</sup>Among the important nineteenth century expositions were: London (1851, 1862), Paris (1867, 1878, 1889), Philadelphia (1876), and Chicago (1893). See also Kenneth W. Luckhurst, *The Story of Exhibitions* (London: Studio Publications, 1951).

<sup>111</sup>See Kenneth Hudson, *A Social History of Museums: What the Visitors Thought* (London: Macmillan, 1975), Chapter II, "Entry as a Right," pp. 31-47.

<sup>112</sup>See Gordon Reekie, "Expositions, Exhibits, and Today's Museums," *Natural History* (June-July 1964), pp. 21-29.

<sup>113</sup>The enormous haul of objects donated to the National Museum, after the Philadelphia Centennial Exposition in 1876, resulted in what Joseph Henry termed "a crisis" for the Smithsonian--which lacked adequate space to accommodate all of them. See Washburn, pp. 144-145.

<sup>114</sup>In Hudson, pp. 41-42. From T. R. Adam, *The Museum and Popular Culture* (New York: n.n., 1939), p. 10.

<sup>115</sup>Specialized curators, whose job was to organize systematic collections, began to replace the amateur collector in the 1870s. The full impact of the change occurred in the next few decades, as paid curatorship became an established occupation in natural history museums. See Coleman, pp. 222-223.

<sup>116</sup>See Wittlin, pp. 134-135.

<sup>117</sup>Goode considered the history of the Smithsonian to fall into three periods: first, from its founding to 1857, during which time the specimens were collected solely as research material; second, from 1857 to 1876, during which time the museum became a repository for scientific collections already studied; and third, the period that began in 1876, after the Centennial Exposition.

<sup>118</sup>Wittlin, p. 135.

<sup>119</sup>See Farrington, p. 204. He referred to this development as the democratization of natural history museums.

<sup>120</sup>Edward P. Alexander, *Museums in Motion* (Nashville, TN: American Association for State and Local History, 1979), p. 11.

<sup>121</sup>Wittlin, pp. 135-136.

<sup>122</sup>See Lurie, *Louis Agassiz*, "Building a Museum: 1857-1861," Chapter VI, pp. 212-251.

<sup>123</sup>See Geoffrey Hellman, *Bankers, Bones and Beetles: The First Century of the American Museum of Natural History* (New York: Natural History Press, 1968).

<sup>124</sup>In Hellman, p. 19. Original source not cited.

<sup>125</sup>Ibid., p. 23.

<sup>126</sup>In Betts, p. 363. From a letter written by Barnum to Bickmore, 10 February 1870.

<sup>127</sup>Ibid., p. 363. Later, the new secretary of the Smithsonian, Spencer F. Baird, wrote to Barnum to ask his permission that a bust be prepared of him for display at the National Museum in recognition of his promotion of the natural sciences.

<sup>128</sup>In fact, Betts showed that, by the 1880s, the National Museum (among others) was obtaining all of its rare animals from the same dealers that supplied Barnum's popular shows.

## Chapter 3

### THE HISTORY OF MUSEUM GROUPS

#### Introduction

The modern museum group idea has revolutionized museum exhibits. By this medium we are able to visualize the whole realm of nature, history, and art.<sup>1</sup>

The museum group is an exhibit technique based on the display of several natural history specimens which are carefully posed in life-like attitudes by skilled taxidermists; in addition, a representational piece of the natural terrain is often included to achieve a more realistic setting.

Although the nineteenth century origin of this technique occurred in the context of dramatic popular exhibits (such as those at Bullock's Museum), by the end of the century the group method had been completely appropriated by natural history museums. The emphasis on sensational animal groups as a form of novel entertainment changed during this period. Natural history museums valued the group method of presentation as a means through which to educate the public about wildlife; its primary purpose was to communicate scientific facts, not to entertain the curious.

During this course of development, increasing attention

was given to the environmental context of the exhibit. Consequently, the educational role of museum groups evolved to include the ecological interaction between wildlife and their natural habitat. A background landscape painting was introduced to the museum group to enhance the effect of the habitat concept, and the new exhibits that resulted were called "habitat groups." Not until recent times did the word "diorama" supplant "habitat group" as a descriptive term for this type of museum exhibit.

#### The Early Artist-Naturalist

The precedent for portraying natural history specimens in life-like poses within a natural environment was established by the early artist-naturalists, who sought to achieve a more accurate representation of American wildlife by personal observations in the field. While it is true that the concept of ecology was a major factor in the development of habitat groups, the attribution of this concept to Darwin's *Origin of Species* in 1859 is correct only in the strict scientific application of the word. Ecological relationships, suggested by the naturalistic perception of the early artist-naturalist, preceded the objective investigation of nature by scientists.<sup>2</sup> This fact is particularly evident in the wildlife illustrations of Mark Catesby, Alexander Wilson, and James Audubon.

A brief examination of these illustrations will

substantiate the considerable influence of the early artist-naturalist in determining the course of nineteenth century nature study. Wildlife illustrations were also an important part of the vigorous American tradition in natural history which was later characterized in art by the profusion of landscape painting. In 1867, art critic H. T. Tuckerman noted that, "A characteristic fact in the brief history of American art is that among its earliest products which attracted notice abroad, were illustrations of natural history."<sup>3</sup> This fact is not at all surprising when viewed in relation to the strong associations with nature and wildlife that so predominated throughout American history.

The first notable artist-naturalist to pioneer the realistic observation of nature in America was Mark Catesby (1682-1749), who wrote and illustrated *The Natural History of Carolina, Florida and the Bahama Islands* (1731-1743). This two-volume work was filled with detailed descriptions and habits of birds, plants, and animals, as well as over 200 illustrations.<sup>4</sup> Catesby explained his methodology:

As I was not bred a Painter I hope some faults in perspective, and other Niceties, may be more readily excused, for I humbly conceive Plants, and other Things done in a Flat, tho' exact manner, may serve the Purpose of Natural History, better in some Measure than in a bold and Painter like Way. In designing the plants, I always did them while fresh and just gather'd; And the Animals, particularly the Birds, I painted them while alive (except a very few) and gave them their Gestures peculiar to every kind of Bird, and where it would admit of, I have adapted the Birds to those Plants on which they fed, or have any Relation to.<sup>5</sup>

Catesby's book was the only illustrated account of natural history in America until the end of the eighteenth century, and set the standard for future artist-naturalists. Their contributions contained both scientific observations and aesthetic beauty, qualities that are also essential to understanding the art of dioramas in natural history museums.

Catesby devised a new approach to illustrating natural history specimens. Instead of perpetuating the conventional style of a stiff and lifeless manner, he observed the animated qualities of live specimens whenever possible, and then combined the depictions of plants and animals in logical, naturalistic groupings which often reflected an accurate sense of scale and proportion. Although his acknowledged lack of training in perspective obstructed his efforts to situate the specimens in an environmental context, this was not his major objective. More important was that the "flat" illustration would "serve the purpose of Natural History" by depicting the characteristic gestures of the bird or animal, and by representing those plants commonly associated with the specimen. As E. P. Richardson pointed out, Catesby's illustrations of wildlife specimens clearly foreshadowed "future ideas of habitat or ecology."<sup>6</sup>

Naturalistic illustrations of birds historically have been more successful than those of wild animals for several practical reasons. Birds were not difficult to observe in

the field, thus making it easier to represent their characteristic habits and actions. Furthermore, artist-naturalists routinely shot the birds, which were subsequently preserved or mounted in life-like poses to act as models for their drawings. The integral relationship between mounted bird specimens and their realistic representation was fundamental in establishing the habitat concepts both in wildlife illustrations and, later, in museum groups.

Alexander Wilson (1766-1813) and John James Audubon (1785-1851) are the most renowned of the artist-naturalists to study the ornithology of North America. Wilson contributed 264 species of indigenous birds to *American Ornithology* (1808-1814), an enormous nine-volume undertaking. More significant was the eloquent love of nature that Wilson communicated through his attractive illustrations and lucid descriptions of wild birdlife, thus making it an extremely popular subject.<sup>7</sup> Wilson described his overall intentions:

Biased, almost from infancy, by a fondness for birds, and little less than an enthusiast in my researches after them, I feel happy to communicate my observations to others . . . . To furnish instructions blended with amusement, to correct numerous errors by European writers, and to draw attention of fellow citizens from the discordant jarrings of politics to a contemplation of the grandeur, harmony and wonder of Nature.<sup>8</sup>

Wilson's aim was derived from the enlightened philosophy of museological exhibition established earlier by Charles Willson Peale in his outstanding museum. Wilson's concept

of popular education can also be compared to the founding charter of the A.M.N.H. in 1869, whose stated purpose was to furnish "popular instruction and recreation."<sup>9</sup> Like Peale's Museum, the A.M.N.H. achieved this aim through a vigorous exhibition program centring on the display of wildlife specimens depicted in their natural environment. Its enormous popular appeal should be recognized as the continuation of a well-established tradition shared by both the illustrations and exhibitions of such specimens.

Charles C. Sellers observed that Wilson's inspiration to begin his ornithology project was Peale's Museum; in fact, the museum's large collection of over 1,000 bird specimens was the basis for his book.<sup>10</sup> Where possible, Wilson keyed each entry to the museum specimen; by this means, readers would have a type specimen, as well as a description and illustration of the bird.

More significantly, many of Wilson's illustrations were drawn from Peale mountings. As mentioned earlier, Peale's exhibition techniques were artistically and scientifically far in advance of his time. His birds, for example, were typically mounted in naturalistic, animated poses on branches or other suitable props, and exhibited in glass cases, the interiors of which were painted to represent the appropriate scenery of the specimen's natural habitat. Although none of these exhibits have survived, a few isolated examples of Peale's taxidermy still exist. "The

National Bird" is a specimen from Peale's Museum now reposing in the Museum of Comparative Zoology at Harvard University (see Figure 8).<sup>11</sup> It was identified through a drawing (also at the Harvard museum) by Alexander Wilson, on the same subject. Wilson's depiction of the "White-Headed Eagle" shows that the bird was originally mounted on a rock with a large fish under its claw (see Figure 9).

The realistic presentation of this eagle, shown in the process of devouring the fish, was not characteristic of Wilson's work. His specimens were usually depicted in a crowded composition that gave little indication of the environmental context or spatial relationships of the scene. In contrast, the eagle's interaction with its habitat is an animated and naturalistic representation. A possible explanation is that Wilson not only copied Peale's mounting of the eagle, but also based his entire illustration on Peale's original exhibit. This example suggests the importance of taxidermy, both in early wildlife illustrations and in the early development of habitat groups.

Peale's revolutionary advances in the art of taxidermy emanated from his artistic talents and from his skills as a naturalist. As his son remarked, it was "with the knowledge of an artist in drawing, modeling and anatomy" that the quadrupeds and birds in Peale's Museum were preserved to "possess all the beauty and character of living animals."<sup>12</sup> The naturalistic qualities of the stuffed specimens in

Peale's Museum were not only documented by Alexander Wilson's drawings--other illustrators also made frequent reference to his collection.<sup>13</sup> Compared to many zoological illustrations of the time, those drawn from Peale's specimens were unusual for the degree of realism they reflected. Most of the large and rarer North American animals had not been well-documented and remained something of an enigma even to those artists who attempted to portray them. Peale, however, kept a large menagerie for the purpose of studying wild animals that had been captured alive.<sup>14</sup> In his subsequent preservation of the wildlife specimens, Peale was able to use his live observations of them to create more accurate taxidermic displays,

America's greatest popularizer of ornithology was John James Audubon, an amateur naturalist who began his first bird studies in 1804. Like Peale, whose museum he considered "so valuable and so finely arranged," Audubon was an enthusiastic collector of natural history specimens, and a talented taxidermist.<sup>15</sup> He began posing his birds in life-like attitudes, and imparting appropriate actions to them, early in his career. Audubon's culminating achievement was the final printing, in 1839, of *The Birds of America*, a monumental portfolio of over 400 plates--all life-sized, hand-coloured, aquatint engravings.

Audubon's dramatic illustrations and often fanciful descriptions were well suited to increase and spread popular

interest in American wildlife. Although his aim was scientific accuracy, his love and enthusiasm for birdlife imparted in them a personified quality which was often criticized.<sup>16</sup> The romantic interpretation of nature that so dominated nineteenth century America was epitomized by Audubon's combination of vivid artistic imagination and informative scientific fact in these wildlife illustrations. As E. P. Richardson observed, "Birds, one might say, are his subject: but his theme is Nature--wild, grand, multi-complex, and infinitely beautiful."<sup>17</sup>

A final observation regarding the relationship of the illustrated wildlife specimen to its background landscape is necessary to exemplify a characteristic which is also important to the development of habitat groups. Generally, in the illustrations by artist-naturalists, the specimen was the dominant object of interest; little effort was made to relate it to an environmental whole. Thus, although a representative branch or rock may have been included, there was little attempt to achieve a spatial relationship within the composition of the illustration. This was most likely due to the artist's lack of professional training, which was responsible for what Catesby had noted as his "faults in Perspective, and other Niceties." Certainly, Alexander Wilson had also expressed his frustration in depicting the specimen's habitat, and Audubon even hired a professional landscape painter, George Lehrman, to provide backgrounds

for many of his illustrations.<sup>18</sup> Consequently, despite the frequent suggestions of ecological relationships in the early wildlife illustrations, there was insufficient interaction between the specimen and landscape to explore this theme fully.

A similar observation can also be made about the early habitat groups. Even adding a flat, painted landscape as a background to the stuffed specimens was most often merely considered a picturesque device, and was not necessarily intended to increase the ecological lesson of the exhibit. Thus, the educational and artistic challenges posed by an investigation of the relationship between wildlife and environment could not be met until such exhibits adopted the illusionistic techniques of the early panoramas and dioramas.

#### The Art of Taxidermy

The art of taxidermy . . . has had far too little attention bestowed upon it. Very few people seem to know the difference between a really well-mounted bird or mammal and an inferior one, but there is as much difference between them as between a picture of a loon by Landseer or Rosa Bonheur, and a picture of the same animal depicted by a village artist on the sign for a public house.<sup>19</sup>

#### Romantic Animal Sculpture

The lion is dead! Come at a gallop!  
It is time for us to set to work.<sup>20</sup>

Delacroix's imperative note, written in 1828 to Antoine-Louis Barye, indicated that the two artists shared a common interest in the dissection of wild animals for the purpose of achieving a more scientifically accurate degree of realism in their art. One of the subjects that characterized romantic art in the nineteenth century was the dramatic and realistic representation of animals struggling or confronting the elements.<sup>21</sup> An interesting relationship may be observed between romantic animal art and the artist's use of mounted specimens. A few of the parallels between animal sculpture and the art of taxidermy are examined below in the context of the museum group.

According to the OED (1971), taxidermy is the art of preparing and arranging animal skins so as to present a life-like appearance. The word first appeared in 1800 in *Taxidermy: Of the Art of Collecting, Preparing and Mounting Objects of Natural History*.<sup>22</sup> Although taxidermy was used in natural history museums to exhibit wildlife specimens, the concept for the museum group did not originate in this context. This is because government-supported museums did not attempt to experiment with any of the artistic possibilities of taxidermy in their exhibits until the late nineteenth century. Museum authorities believed that a scientific collection should be displayed in systematic, uniform rows for scholarly examination, rather than for public education. Typical was this view in 1874 by a prominent

English naturalist:

"Spread eagle" styles of mounting, artificial rocks and flowers, etc., are entirely out of place in a collection of any scientific pretensions . . . . Besides, they take up too much room. Artistic grouping of an extensive collection is usually out of the question; and when this is unattainable, halfway efforts in that direction should be abandoned in favour of severe simplicity. Birds look best, on the whole, in uniform rows, assorted according to size, as far as a classification allows.<sup>23</sup>

Real advances in artistic taxidermy occurred in the popular, early nineteenth century public exhibitions. Among the most significant were the wildlife displays created by William Bullock, of which there remains one surviving example (see Figure 10).<sup>24</sup> This display, which depicts a tiger and snake in battle, was first described in the fifteenth edition of Bullock's *Companion* (1813):

*The Royal Tiger* (F. Tigrina). This is represented expiring in one of those dreadful combats which take place betwixt this powerful and sanguinary destroyer of the human species, and the immense serpent of India, called the Boa Constrictor, in whose enormous folds its unavailing strength is nearly exhausted, and its bones crushed and broken by the strength and weight of its tremendous adversary.<sup>25</sup>

The exaggerated presentation was obviously intended to capture the romantic imagination of the viewer, rather than to communicate scientific information about the tiger. Despite its sensational function, however, the naturalistic scene--complete with plant-like accessories--makes it a

direct forerunner of the habitat group in the natural history museum.<sup>26</sup> Furthermore, the animated, narrative quality of the interaction between the tiger and snake was an exhibit device later to become common practice in museological displays. It could also be argued that this type of taxidermic spectacle provided a direct stimulus for romantic animal art. Like the artist-naturalists, many of the early nineteenth century romantic artists made studies from mounted natural history specimens. Certainly in this case, it was proven that Bullock's "Royal Tiger" was the prototype for a large painting in 1814 by Chevalier de Barde.<sup>27</sup>

Official recognition of animal sculpture as a major artistic mode occurred in the Salon of 1833 (Louvre), when the French crown purchased a sculpture by Antoine-Louis Barye (1796-1875) entitled "Lion Crushing a Serpent."<sup>28</sup> The scientific basis of Barye's advanced knowledge of the lion's anatomy is well documented; apart from his dissection of the lion with Delacroix, Barye studied preserved specimens and skeletons in the Cabinet d' Anatomie Comparée in Paris, as well as living animals in the menagerie of the Jardin des Plants.<sup>29</sup> He also taught drawing for natural history, and later became master of zoological drawing in the Musée d'Histoire Naturelle of Paris from 1854 until his death. It is quite likely that Barye produced many of his studies from animals mounted into suitable positions by

skilled taxidermists.

However, even formal recognition in 1833 did not prevent future juries from rejecting Barye's zoological sculptures.<sup>30</sup> The problem was due to the fine arts aesthetic, which determined that animal images belonged to the realm of mere popular art, rather than to the official hierarchy of appropriate subjects.<sup>31</sup> This stigmatization clearly applied to the art of taxidermy. Despite its early application to subjects later exploited by romantic painting and sculpture, taxidermy has failed to receive recognition within the fine arts realm. Instead, it developed as a separate genre which first attracted public awareness within the context of large international expositions--and later, within the context of the natural history museum.

At the Paris Exposition of 1867, Jules Verreaux, a naturalist and taxidermist, created a famous exhibit entitled "Arab Courier Attacked by Lions," which won a gold medal for excellence<sup>32</sup> (see Figure 11). After the acclaim received by Verreaux's group, many similar taxidermic spectacles were produced in Europe, most commonly the lion and tiger struggles.<sup>33</sup> The frequent repetition of the lion as principal subject in these exhibits suggests that it served an allegorical function similar to that of the romantic painting and sculpture of the age.

Barye's specialization in animal sculpture had created

a new, immensely popular genre.<sup>34</sup> In his wake there emerged a distinguished group of *animaliers* who continued his practice of representing animals in dramatic and anatomically accurate poses that created an unresolved relationship between the animal passion and human emotion of the viewer:

In this sense they take on a symbolic function of a kind envisaged by Carl Gustav Carus when he supposes that the "only kind of Romantic sculpture" that could arise would be in the "symbolic" genre of the *animalier*.<sup>35</sup>

It is possible that the taxidermist, like the *animalier*, utilized romantic symbolism in the presentation of wild animals. Although the symbolic connotation of zoological specimens should not have been within the educational and scientific scope of natural history museums, it is interesting to note that an African lion (also mounted by Verreaux in 1865) was Number 1 in the *Catalogue of Mammals* at the A.M.N.H.<sup>36</sup>

The "Arab Courier" group by Verreaux is mentioned here as evidence of the continuation of Bullock's form of theatrical taxidermy, and as a comparison to Barye's form of romantic animal sculpture. Common to all these displays was the intention to sensationalize the depiction of the wild animals in order to appease public demand. The lurid quality of Verreaux's display was emphasized by its label:

"The Jaws of Death." Action that cries for sound --a vibrating roar from the big cat mingled with the bellowing groans of the terror-stricken Dromedary. The one-ball flintlock, lying with ramrod twisted and useless across the slain lioness, has done its work. One thin blade remains to stand off the finality of the charge--a charge with the swiftness of death in it.<sup>37</sup>

What is so remarkable is that this group was purchased in 1869 by the A.M.N.H.<sup>38</sup> Despite its obvious scientific weaknesses, it was the first group displayed at the new museum, and reflected the dramatic change in American museological policy toward public exhibits of natural history during the late nineteenth century. Previously, the exhibition policy, instigated by Joseph Henry at the Smithsonian Institution, had been the standard organizational method: collections were maintained primarily for scientific research, and little effort was directed to public exhibits. The purchase of the "Arab Courier" group indicated the first official acceptance of romantic taxidermic spectacles for the purpose of popular education within the museological context.

### Victorian Wildlife Tableau

Visual appeal was one of the factors which enhanced the popularity of natural history during its heyday in the Victorian era: "Natural objects were not only beautiful in themselves, but could be imported into the home and used to

decorative purpose."<sup>39</sup> Exotic natural environments, such as parlour aquariums, Wardian cases (botanical arrangements), and bell jars were among the most popular methods of displaying these objects. The Victorians also had a penchant for stuffed birds and animals, which were frequently mounted in a natural setting by commercial taxidermists.<sup>40</sup> These decorative displays were the popular equivalent of the museum group. Although their intention was to simulate a picturesque view of nature, rather than to present objective information, the concept for a limited environmental display of natural history specimens may have originated in this context.

Ornamental taxidermy became a flourishing business in the late nineteenth century. The types of mounted birds and animals that were popular in the homes of "lovers of animated nature" included table groups, dead-game panels, fire screens, single specimens, and grotesque groups.<sup>41</sup> Many specimens were displayed in wall cases (shallow boxes with glass fronts) that had painted backgrounds and natural accessories, such as branches, in the foreground. This type of display had a definite affinity with the concept of the early habitat groups.

One aspect of ornamental Victorian taxidermy that may have contributed to the habitat group idea was suggested by A. E. Parr.<sup>42</sup> He pointed out that, in the early days of stereoscopic home entertainment, the camera was too slow to

capture the living scenes from nature which were so popular: "In order to manufacture stereoscopic pictures showing birds and beasts in their natural state, the photographic firms had to enlist the aid of taxidermists."<sup>43</sup> As a result, stuffed wildlife specimens were often placed in entire indoor habitat groups that had been created especially for the photographic image. Parr said that, although many of these pictures survive, he had not been able to locate any of their three-dimensional prototypes.

The Society of American Taxidermists was formed in New York in 1880. In his book, *Taxidermy and Zoological Collecting* (1891), William Hornaday described some of the decorative pieces that were exhibited by the society.<sup>44</sup> For example, "Coming to the Point," a group by Hornaday, won the first medal at the 1884 Cincinnati Exposition for its realistic presentation of a scene featuring a setter dog and several grouse. Although the case was only 10 in. deep, Hornaday stated that the background painting by Mary E. W. Jeffrey was so successful that, "the apparent distance was one mile."<sup>45</sup> This was one of the first references to the illusionistic intention of a background landscape in the display of stuffed specimens.

Another award-winning display was a table group by F. A. Lucas entitled "An Interrupted Dinner." It depicted a goshawk disrupting a red-tailed hawk's meal of a freshly killed grouse. Hornaday commented that "the illusion is

perfect," again implying that the recreation of a life-like scene was the underlying intention of the display.<sup>46</sup> Interestingly, F. A. Lucas later became the director of the A.M.N.H. and his contributions to the institution are discussed below.

Also included in the exhibit of ornamental taxidermy were scenes of frogs skating, a hummingbird group, a peacock fire screen, and a piece entitled "The Wounded Heron," showing a snowy heron whose breast was pierced by a gilt arrow. This romantic idealization of nature could be attributed to the influence of Jules Verreaux, who was the acknowledged master of this genre.<sup>47</sup> The fact that, in 1891, these wildlife tableaux were presented to the National Museum in Washington (the Smithsonian Institution), where they were exhibited for a lengthy period, indicates the credibility they were accorded as exceptional examples of the art of taxidermy.

Obviously the widespread popularity of decorative taxidermy had created a demand for such displays in public natural history museums. In view of their questionable scientific value, their exhibition in the museological context is surprising. On the other hand, it should be remembered that a new trend in the museological exhibition of zoological specimens had been initiated by the purchase of Verreaux's group in 1869 by the A.M.N.H. The dramatic, personified presentation of wildlife specimens in a

romantic context revolutionized the pedantic, scientific exhibits of natural history museums, and opened the door for a more imaginative use of taxidermy. Despite the strong influence of Victorian wildlife tableaux on the development of the habitat group idea, their historical significance was never acknowledged by later museum officials--who may have been reluctant to expose the popular roots of an exhibit technique generally believed to have originated in the museum context.

#### Ward's Natural Science Establishment

Founded in 1861 at Rochester, N.Y., Ward's Natural Science Establishment was a fundamental link between commercial taxidermy and the development of the habitat group in American natural history museums. The successful Maison Verreaux in Paris had given Henry A. Ward the idea of establishing a similar institution in which to train young taxidermists to fill the increasing demand created by expositions and collections of natural history specimens. Ward was one of the most outspoken advocates of the public museum in America.<sup>48</sup> He had developed a lucrative business selling natural history specimens by touring the country with a large collection of mounted animals, which not only attracted public attention but also promoted the establishment of local museums.

A great number of Ward's mounted specimens were also

exhibited at expositions in various U.S. cities during the late nineteenth century. Afterward, they were often acquired by local citizens as a basis for a museum; for example, specimens he exhibited at the 1875 Chicago Exposition and the 1893 Chicago World's Columbian Exposition were later acquired by the Field Museum of Natural History.

However, Ward's most significant contribution to the exhibition of natural history specimens was in providing a centre for the advancement of techniques in taxidermy. Many of Ward's graduates later became some of the most prominent museum directors, curators, and technicians in America; for example, W. T. Hornaday, F. A. Lucas, and Carl Akeley. Together, their careers constituted a formidable chapter in the history of the habitat group. As Akeley later noted:

Museums then were interested exclusively in the collection of scientific data. They preferred bird skins to bird groups and wired skeletons to mammal groups, and cared little for exhibitions that would appeal to the public.<sup>49</sup>

The remarkable changes in the museological philosophy and techniques of exhibiting natural history specimens were due largely to the efforts of these men.

Hornaday worked at Ward's as a zoological collector and taxidermist for seven years before being appointed chief taxidermist at the National Museum in 1882. Upon his return from a collecting trip to the East Indies in 1879, he prepared a group of orang-utans at Ward's entitled "Battle in

the Treetops." Despite his description that it was "a trifle sensational," the group was exhibited later that year for the American Association for the Advancement of Science, to illustrate a paper on "The Species of Bornean Orangs."<sup>50</sup> Hornaday's display attracted a great deal of attention as it was commonly thought to be the first example produced in the U.S. of the "group method" of arranging zoological specimens. The A.M.N.H. quickly ordered a similar exhibit, also prepared at Ward's, at a cost of \$2,000. As Hornaday noted, it "marked the beginning of an era in the progress of museum taxidermy in the United States."<sup>51</sup>

The orang-utan group also won an award in 1880 for the best piece in an exhibition sponsored by the newly founded Society of American Taxidermists. In 1883, the group was acquired by the National Museum, where it was reported in 1920 still to be on exhibit and in good condition.<sup>52</sup> Here was another example of an animal group prepared *outside* the auspices of the scientific authorities--subsequently to be incorporated into the natural history museum as an educational exhibit. Hornaday's appointment to the National Museum signalled the creation of many other mammal groups, such as the moose group in 1887, and the bison group in 1888. As the first museum to adopt the group method of exhibition, it was a radical change from the policies instigated by Joseph Henry. This reformation was due largely to

G. B. Goode, director of the National Museum. He was instrumental in overcoming the conservative opposition to the adoption of attractive methods of exhibition in scientific museums, an accomplishment noted by Lucas:

The recognition of the educational value of animal groups by such an acknowledged authority as a government museum had much to do with their adoption by other institutions; once entrenched behind the bulwarks of high scientific authority, they began to find their way into all museums.<sup>53</sup>

Frederick A. Lucas worked as an assistant taxidermist at Ward's from 1871 to 1882, during which time he founded the Society of American Taxidermists. Later, he became a curator at the National Museum, and in 1911 was appointed director of the A.M.N.H.--a position he held until 1929. During this time, the A.M.N.H. developed its outstanding reputation as the world's foremost centre for the imaginative exhibition of wildlife specimens. Lucas was a great proponent of the habitat concept of exhibition, and under his directorship the museum advanced its founding mandate of "furnishing popular instruction and recreation" through a consolidated exhibition program which featured entire thematic halls of dioramas. In his own words, the A.M.N.H. "took the lead in the popularizing of museum exhibits."<sup>54</sup>

Part of the A.M.N.H. success in this area was due to the accomplishments of Carl Akeley, a taxidermist who had also trained at Ward's. He was hired in 1910 by Lucas to

create the monumental African Hall for the museum; "a great museum exhibit in which the wildlife of the African continent will be truthfully represented in its natural habitat."<sup>55</sup> Although the African Hall was Akeley's culminating tour de force, he had received recognition for his taxidermic work early in his career. In 1885, while still at Ward's, Akeley had mounted "Jumbo," P. T. Barnum's famous elephant. "Prior to this time the realistic mounting of as large a specimen as Jumbo was considered difficult, if not impossible. Akeley's work in this instance laid the foundation for the method of mounting large specimens."<sup>56</sup> His innovations in taxidermy were based on a sculptural method of modelling the anatomical features of the animal in clay; then, by making a plaster mould, a replica could be cast in a light-weight material onto which the animal's skin was carefully arranged. After working at Ward's, Akeley went to the Milwaukee Public Museum, and then to the Field Museum in Chicago where he created the first large-scale mammal groups to include painted backgrounds.

In summary, the art of taxidermy which developed during the nineteenth century was a critical component in the history of the museum group. Without the significant technical advances made in the mounting of birds and animals, no attempt would have been made to change the static, systematic method of exhibiting wildlife specimens in natural history museums. The use of animated taxidermy was

not initiated within the museum context, however, but rather in public exhibitions. Victorian wildlife tableaux also contributed to the popularization of taxidermy as a valid artistic genre and stimulated the commercial production of such pieces.

A comparison between romantic animal art and dramatic taxidermic spectacles suggests the common use of scientific realism as a method for presenting wild animals. These displays also functioned as symbolic allegories in the nineteenth century; for example, the widespread popularity of Jules Verreaux's 1867 Arab courier group may have been caused by an allegorical interpretation of the display. Verreaux's group set a precedent for theatrical taxidermy that was continued into the twentieth century by natural history museums. More important was the group's significance as "an attempt to show life and action and an effort to arrest the attention and arouse the interest of the spectator . . . ." <sup>57</sup> These were qualities that prepared the way for the later educational concept of the habitat group as an effective method of communicating scientific information about the natural environment.

#### Public Education

It is not the objects placed in the museum that constitute its value, as much as the method in which they are displayed, and the use made of them for the purpose of instruction. <sup>58</sup>

### The Group Method

In the late nineteenth century, the increasing use of the public museum as a means of disseminating knowledge brought to the fore exhibition techniques that were developed beyond all precedent. According to Kenneth Hudson:

What changed the relationship between museums and the public in a fundamental way was not the insight of museologists or the enterprise of curators, but a long succession of international exhibitions, begun by the Great Exposition in London in 1851.<sup>59</sup>

These expositions emphasized the greater need for popular education within the democratic ideal, and gave museums a social power they had not previously enjoyed. In North America, the first institutions to assume responsibility for public education in the popular context were natural history museums. The concerted effort of these museums resulted in many innovative exhibition techniques. Foremost among them was the habitat group, a concept which had developed from the group method of arranging natural history specimens,

By the end of the century, the study of natural history in America had changed considerably from the initial three phases of discovery, description, and classification. In the years from the 1820s through the 1890s, professional naturalists had worked with a compulsive obsession to learn as much about the "almost virgin land of the natural environment" as quickly as possible.<sup>60</sup> After this had been

accomplished, and vast amounts of specimens had been collected, the scientific study of nature became increasingly specialized into specific and separate research disciplines. The layman, however, was encouraged to continue a generalized interest in natural history that embraced all the various aspects of nature. Consequently, the original meaning of natural history as the systematic study of all natural objects (animal, vegetable, and mineral) evolved to imply a popular, rather than strictly scientific treatment of the subject.<sup>61</sup> In this context the natural history museums of North America were established in the late nineteenth and early twentieth centuries.

The precedent for popular scientific education in nature study had been set by Louis Agassiz (1807-1873), who epitomized the synthesis of romance and science through his teaching based on the direct observation of nature in the field.<sup>62</sup> Although modern science rejected Agassiz's personified conception of nature, many of his ideals were perpetuated within the confines of the natural history museum. The habitat group, for example, was based on the premise that by presenting a simulation of the natural environment, the viewer would receive an educational experience similar to the direct observation of nature in the field.

The A.M.N.H. is an exceptional example of a public museum that made an early commitment to public education,

Albert Bickmore, a former student of Agassiz, founded the A.M.N.H. with the expressed intention that it be a democratic institution.<sup>63</sup> To this aim, in 1880 Bickmore initiated an extensive educational program which was continually expanded over the years. Of primary importance was the development of innovative exhibition techniques. The massive popularity of the educational thrust of the exhibits was attested by the dramatic increase in attendance--by 1900 the museum attracted over one million visitors annually. It is not surprising, therefore, that the group method and habitat concept of exhibiting natural history specimens reached their fullest development at the A.M.N.H.

In the U.S., the first recorded mention of the group method of exhibiting natural history specimens (apart from Peale's Museum) occurred at the 1876 Centennial Exposition in Philadelphia.<sup>64</sup> An exhibit of Colorado birds and animals incorporated the various species into mounted groups and arranged them on a miniature mountain intended to simulate a natural environment.

The British Museum was the first government-supported institution to adopt the group method of presentation in an exhibit of birds installed in 1877 or 1878. Under the directorship of Sir William Flower from 1884 to 1898, many subsequent bird groups were created to emphasize the educational factors in museum exhibits. Flower felt that the educational value of the bird groups could be enhanced

further by recreating a semblance of their natural habitat, and encouraged the production of artificial foreground materials for the exhibits:

Artistic reproductions of natural environments, illustrations of protective resemblances, or special modes of life, all require much room for their display. This method of exhibition, wherever faithfully carried out, is, however, proving instructive and attractive, and will doubtless be greatly extended.<sup>65</sup>

Many of the techniques for creating the bird groups at the British Museum were derived from the private collection of E. T. Booth of Brighton, England. Booth had begun his collection of British birds mounted in life-like attitudes in 1858, and in 1890 donated it to the town. He said the chief object was, "to endeavour to represent the birds in situations somewhat similar to those in which they were obtained, many of the cases, indeed, being copied from sketches taken from actual spots where the birds were shot."<sup>66</sup> A possible forerunner to the concept was the ornamental arrangement of birds on a bush, so popular in Victorian homes as "conversation pieces."<sup>67</sup>

The leading American museologist of his day, G. Brown Goode (director of the National Museum from 1887 to 1896) was an ardent admirer of Sir William Flower and his work at the British Museum. In his efforts to advance the standards of the National Museum, Goode made several important distinctions in the separate functions of the

institution: as a museum of record, to preserve the material foundations of scientific knowledge; as a museum of research, to further scientific investigation; and as an educational museum, to illustrate "by specimens every kind of natural object and every manifestation of human thought and activity."<sup>68</sup>

Goode's policy of separating the various functions of the museum later became the standard organizational method for most American natural history museums. It had a profound effect due to the fact that zoological specimens were divided into two primary collections: one for scientific research and the other for public education and exhibition. Without the constraints of a strictly didactic purpose, the public collection could be utilized to make natural history available and intelligible to the "every-day man" through popular and attractive exhibits."<sup>69</sup>

As the educational value of the public museum became recognized as its most important function, the focus on exhibition increased dramatically. For example, in 1918, one writer observed:

Perhaps the greatest advance of recent years in making museums really educational is in the matter of the installation of animals and plants. The improvement has been chiefly with habitat and ecological groups, in giving the animals their natural surroundings, placing them in their natural environment.<sup>70</sup>

The first American museum to utilize the group method

of exhibiting zoological specimens was the National Museum; Hornaday's moose group in 1887, followed by the display of a large bison group in 1888, have already been mentioned. Previously, there had been one attempt to present a bird group to the organizational meeting of the American Taxidermists in 1880.<sup>71</sup> It was criticized on the basis that such groups were not suitable for scientific museums, which is rather ironic considering the precedent set a few years earlier by the British Museum, and the prominent future role that bird groups would have in establishing the habitat concept as a form of exhibition.

Although the National Museum was the first to install groups of mounted animals, no additional information was presented in the foreground of these exhibits. It was at the A.M.N.H. that the associated techniques of the group method of display were most fully explored. Morris K. Jessup, the first president of the Board of Trustees, had seen the bird groups at the British Museum, and decided to have a similar series for the museum in New York. He engaged the people who had created the foliage for the groups in London to make the realistic accessories, and hired Jeness Richardson (Hornaday's assistant taxidermist at the National Museum) to mount the specimens.<sup>72</sup> The 1887-1888 *Annual Report* called for:

. . . a series of bird groups, 18 in number, each consisting of a pair of birds, with its nest and

eggs, mounted in characteristic attitudes and surrounded by natural accessories, each group being a facsimile reproduction from nature of the vegetable and other surroundings of the nest.<sup>73</sup>

The purpose of the bird group series was to depict the local species of birds found within a 50-mile radius of New York City. First among these displays was a family of robins, resting in a spray of apple blossoms and set into a four-sided glass case (see Figure 12).

As soon as the series of bird groups at the A.M.N.H. was completed in 1890, Richardson and his assistant, John Rowley, mounted a group of bison. Later that year, upon the death of Richardson, Rowley created a moose group that incorporated the new techniques for making artificial foliage.<sup>74</sup> This exhibit was considered to be the first large mammal group to be embellished in an elaborate way with modelled accessories.<sup>75</sup>

### The Habitat Concept

The transition from the group method of mounting animals and birds to the concept of arranging them in their natural habitat is largely a question of semantics, as is the distinction between a habitat group and a diorama. According to F. A. Lucas, the early bird groups at the A.M.N.H. quickly became obsolete because of their "pre-Raphaelistic character," which consisted of making exact copies of the spot or surroundings where the specimen was

taken. In his opinion, the next step was the habitat group which:

. . . does not copy nature slavishly, even though an actual scene forms the background; it aims to give a broad and graphic presentation of the conditions under which certain assemblages of bird-life are found, to bring home to the observer the atmosphere and vegetation of some typical part of the country.<sup>76</sup>

Cypher maintained that the turning point between the museum group and habitat group was when the specimens were mounted in a natural setting, among artificial accessories representative of the specimen's native environment.<sup>77</sup> Her definition of the habitat group, which she said was the "contribution of museums of natural history of the United States to museum methods of display," was:

. . . the life-sized, life-scale, three-dimensional group erected as a fixed part of the exhibits in a museum, for the purpose of displaying materials and specimens against a painted background which depicts, or is a composite approximating an actual location, with accessories arranged so as to form an integral part of the group and usually artificially lighted.<sup>78</sup>

Albert E. Parr, director of the A.M.N.H. from 1942 to 1959, has written extensively about habitat groups. In 1959, Parr described the early bird displays at the A.M.N.H. as "semi-habitat groups," due to the intimate detail of natural life they recreated by directly reproducing a small, rectangular section of the surrounding environment.<sup>79</sup> He

explained further that:

The dawn of a new era, already heralded by the semi-habitats, began with the introduction of the full-fledged habitat group. In the habitat group the museum tries not only to present the appearance of the species but also to tell as much as possible of its ways of life and its relationship to the environment.<sup>80</sup>

The first official proclamation of the habitat group as a new method in museum exhibition was published in 1908 by Frank Chapman, curator of ornithology at the A.M.N.H. He said that, while the earlier groups had

. . . served to illustrate the nesting habits of our smaller birds, it was felt that they did not adequately tell the story of the homelife of our larger species; particularly such as nesting colonies. In 1902, therefore, groups were constructed on a larger scale, and to a foreground of 160 square feet was added a painted background.<sup>81</sup>

Chapman originated the term "habitat group" to describe this new exhibition technique.<sup>82</sup> His first experimental group in 1901 had resulted in such enthusiastic approval that an entire hall of habitat groups depicting North American birds was installed in the A.M.N.H. under Chapman's direction. H. C. Bumpus, then director of the museum, realized the educational value of habitat groups as a replacement for "dreary scenes of stuffed animals" and as a method to silence "the pedantry of scientific labels." He believed that:

The function of the exhibition hall is the intelligible exposition of ideas. It is the practical elucidation of underlying principles. It is the forceful illustration of fact.<sup>83</sup>

The aim to create exhibits that would both inform and attract the museum visitor was the fundamental motivation behind the habitat groups at the A.M.N.H. Chapman's conception of the museum as a popular teacher was expressed in a 1902 article: "The museum reaches the public first through its exhibit collections," and that these "should appeal to sight-seers as well as fact-finders."<sup>84</sup>

At about the same time that Chapman produced his first habitat groups for the A.M.N.H., Carl Akeley was experimenting with new ways to mount mammals at the Chicago Field Museum. Although Akeley's greatest contribution lay in his development of the art of taxidermy, he also pioneered the habitat concept of exhibiting natural history specimens. An example was his "Virginia Deer Group" known as "The Four Seasons" because it depicted deer in their natural habitat during the four seasons of the year. Installed in 1901 (the year that Chapman completed his first bird habitat group), it also incorporated a background painting to produce a more complete ecological environment. In 1911, Akeley moved to the A.M.N.H. where he continued to perfect his sculptural method of taxidermy, using techniques later adopted by taxidermists in natural history museums throughout North America. Akeley's method greatly enhanced the

life-like quality of the mounted specimen, thereby creating a more successful illusion of the natural scene. Like C. W. Peale, Akeley's skill in taxidermy was conditioned by his belief that it was a creative expression that depended on artistic talent.<sup>85</sup>

In summary, the introduction of the group method of arranging natural history specimens coincided with a change from the concept of the museum as a mere repository for the preservation of the collection, or as a research resource for scholars, to that of an institution whose primary objective was to provide popular instruction. As a result of pioneering efforts by several early American museum professionals, the museum's educational function was seen as an essential part of its social responsibility. The increased emphasis on education in natural history museums stimulated innovative exhibition techniques which culminated in the habitat group at the turn of the century.

Interpretation, or teaching through the use of original objects, was the fundamental basis of instruction at these museums. Sir William Flower's theory that it was not the objects in themselves that were of the greatest value, but rather the method by which they were displayed, was reflected in the development of museological exhibition in North America. The educational philosophy expressed in 1909 by John Cotton Dana, founder of the Newark (New Jersey) Museum, was typical of his time: "A *good* museum attracts,

entertains, arouses curiosity, leads to questioning and thus promotes learning."<sup>86</sup>

In *The Museum Age*, Germaine Bazin asserted that:

"Perhaps the most significant contribution America has made to the concept of the museum is in the field of education."<sup>87</sup> Of paramount importance to the educational programs in American natural history museums were the illusionistic techniques of displaying mounted birds and animals. During the great period of expansion among such museums, from 1900 to 1935, habitat groups were the most prevalent form of exhibit techniques.<sup>88</sup> The prominent role they attained as a means of popular education was due to their unusual visual appeal; not only in relation to the specimens themselves, but also to the illusionistic perspective of distance created by the background landscape.

Cypher's assertion that the habitat group was an exhibit innovation that originated in American natural history museums deserves further study. Certainly, while early prototypes for the group method of wildlife display did exist elsewhere, it was in the U.S. that the illusionistic potential was explored most fully within the romantic context of the disappearing wilderness.

#### The Wilderness Cult

Many are the rudenesses and wilds of Nature's works, which are destined to fall before the deadly axe and desolating hands of cultivating

man . . . and the further we become separated from that pristine wilderness and beauty, the more pleasure does the mind of enlightened man feel in recurring to those scenes, where he can have them preserved for his eyes and his mind to dwell upon.<sup>89</sup>

George Catlin was the first to recognize the value of the American wilderness and to call for its preservation. Although the destructive effects of civilization on nature were noted by subsequent artists and writers, not until the end of the century did the American public realize that many of the forces which had shaped its national character were disappearing.

As the twentieth century approached, a back-to-nature movement became the preoccupation of an urban middle class who were concerned about the disappearing American wilderness: "Nature lovers, as they called themselves without embarrassment, believed their urban vantage point gave them a special sensitivity toward the world around them."<sup>90</sup> Motivated by a sentimental approach to the study of nature, the urban public joined the conservation crusade to save the wildlife from extermination, and the wilderness from economic exploitation. Natural history museums also became a catalyst in the back-to-nature movement as their emphasis on popular education increased. The change in attitude was observed by O. C. Farrington in 1915:

The widespread public interest and support accorded to natural history museums which we have noted as occurring in recent years seem

to mark a new era in their history. In earlier years these museums, partly perhaps because of the auspices under which they were founded, addressed their appeal chiefly to the learned and the specialist. They either did not endeavor to develop or did not succeed in developing wide public interest.<sup>91</sup>

Farrington also listed the most significant factors that contributed to the new awakening of the natural history museum: the introduction of art to exhibition techniques (habitat groups); a growing appreciation for the value of nature study (through the reproduction of nature in museum exhibits); and the "realization of how rapidly many of the forms of nature are disappearing" (conservation).<sup>92</sup> Part of the reason that habitat groups were so successful can be attributed to their topicality. They exemplified certain qualities that expressed the concerns of the age, such as the American identification with the wilderness, the sentimental appeal of wild animals, and the public commitment to conservation. Also significant was the effort extended in habitat groups to educate the museum viewer through popular and attractive methods.

The immense public appeal enjoyed by habitat groups, especially during the early twentieth century, probably resulted from the psychology characterized by William Smallwood in 1941: "Popular aspiration tended toward nature in proportion to its decreasing role in American life."<sup>93</sup> This observation certainly applies to habitat groups which,

in many ways, are the ultimate embodiment of the fact that the wilderness *had* disappeared from American life.

A further manifestation of the nature movement was the rise of the big-game trophy hunter. In the early twentieth century, the pursuit of magnificent wild animals quickly became a prestigious activity among wealthy "sportsmen" who considered themselves ardent naturalists. Frequently, the specimens they "bagged" were donated to natural history museums, where they were imbued with life-like splendour by skillful taxidermists, and displayed against an impressive background landscape intended to evoke the sublime scenery of the wilderness. In fact, sportsmen often financed entire museum expeditions so that they could participate (along with the museum professionals) in the "collecting" of specimens from the world's vanishing wildlife population. Although the exhibition of sensational specimens from distant countries seems more congruous with early public spectacles (such as Bullock's Museum), the underlying intention of these habitat groups remained the educational elucidation of natural history.

#### Nature Lovers

As a unique visual idiom which displayed wildlife specimens in their natural environment, habitat groups were at the forefront of the nature worship that continued in fashion until the late 1920s. They epitomized the nature

study idea that had been widely popularized by Liberty Hyde Bailey, who argued in his 1903 book that the nature movement must begin with education:

More than any other recent movement, it will teach the masses and revive them. In time it will transform our ideals and then transform our methods. Nature study stands for directness and naturalness. It is astonishing, when one comes to think of it, how indirect and how unrelated to the lives of pupils much of our education has been.<sup>94</sup>

The nature study idea was also an important foundation for the concept of the habitat group. Also in 1903, Frank Chapman clearly propounded the museum's responsibility to popular teaching through attractive exhibits in his article "Natural History for the Masses":

The museum reaches the public first through its exhibition collections . . . . And everything possible has been done to make the exhibits of the greatest practical value to the visitor, not only by showing the natural relationships of the objects displayed, but by illustrating the facts for which they stand.<sup>95</sup>

Nature study and conservation were popularized by a literary form, often referred to as "nature lore," that first appeared at the end of the nineteenth century. As a style of writing it became so widespread that virtually every popular family magazine contributed regular columns or feature articles on the nature movement. Nature writers such as John Burroughs and Ernest Thompson Seton became

well known for their portrayal of wild animals in essays that combined scientific fact and romantic sentiment, thus giving the animals an appealing, human-like quality.<sup>96</sup>

Seton published his most popular book, *Wild Animals I Have Known*, in 1898; by the 1930s over one-half million copies of it had been sold, along with nearly two million copies of his other titles. Seton said that he had ". . . tried to emphasize our kinship with the animals by showing that in them we can find the virtues most admired in Man."<sup>97</sup>

In 1903, Burroughs attacked what he claimed were the exaggerated fabrications by Seton and other nature writers, in an article entitled, "Real and Sham Natural History."<sup>98</sup> President Theodore Roosevelt, who had coined the term "nature fakers" for the purveyors of ersatz natural history, read the article and sent Burroughs a letter of congratulation and support. As Elman explained:

Roosevelt was annoyed that the popularization of scientific studies should be adulterated, thus perpetuating misconceptions among most laymen, and he was especially angry over the fact that school children were reading fictitious accounts which could undermine the value of the Burroughs essays then being used as natural history texts.<sup>99</sup>

These were unfair criticisms because *all* nature lore (including that by Burroughs) simulated a romantic personification of natural history, while at the same time claiming to be scientifically veritable. Despite its questionable scientific value, however, nature lore provided a favourable

public atmosphere for the development of habitat groups in natural history museums--primarily in the popular association of wild animals with aesthetic and spiritual qualities.

Nature lovers also cultivated a voracious appetite for bird lore during the early twentieth century. Burroughs' avid reporting of American bird life was reflected in the titles of eighteen of his books--which sold well over a million copies between 1880 and 1933. As birds came to have a larger influence in nature lore, turn-of-the-century bird watchers came to believe in a system of "Christian ornithology," by which they gave a moral interpretation to the habits of birds. Nature's amorality was an unacceptable concept to Victorian ethics; "Both scientist and sentimentalists believed that man could interpret ethical lessons from the lives of birds."<sup>100</sup> Some examples of birds commonly attributed with spiritual qualities were the mourning dove, for romantic affliction; robins, for domesticity; chickadees, for cheerfulness; song sparrows, for innocence; and hawks, for cruelty. It seems, therefore, that despite the incumbent age of science, association with wildlife was not based on objective observations of animal behaviour. Rather, public attitude toward wildlife was conditioned by popular concepts about nature that were an integral part of the American wilderness myth.

It is interesting to note that Frank Chapman admired Burroughs, and even paid him a visit in 1896. Although

the nature writing and philosophy expounded by Burroughs likely provided a stimulus to Chapman's conception of the bird habitat groups at the A.M.N.H., such speculations remain unverifiable. Elman suggested that, despite the fact that the foundations of natural science in America had already been established, Burroughs was an influential pioneer among naturalists in another sense: "as the foremost literary publicist among all of America's naturalists, he kindled public (and indirectly, professional and governmental) interest in the study of nature."<sup>101</sup>

The observations made by William Hornaday (Chapman's contemporary) about the early bird groups at the A.M.N.H. suggest the influence that the narrative style of nature writing may have had on the conception of this type of exhibition technique:

To my mind the American Museum group entitled "Summer Birds of the San Joaquin Valley" is particularly fine in artistic qualities, perfectly balanced, and thoroughly pleasing. At one glance it tells the story of California's most lovely valley and the richness of its bird life at its most charming season. The outdoor effect is perfect and the birds excellently done. Every picture like this is calculated to inspire in the beholder a love of birds and a desire to protect them from slaughter.<sup>102</sup>

The emphasis was clearly *not* on the scientific information, but rather on the pictorial and sentimental qualities of the group. The function of the exhibit seemed

intended primarily to inspire an emotional reaction in the viewer, rather than to assist in didactic communication. A comparison can be made here between these early habitat groups and early nineteenth century wildlife illustrations. Despite their common intention to provide an objective documentation of nature, both forms of presentation endowed the wildlife specimens with a romantic persona. Such an interpretation of nature should be viewed from the contemporary perspective--the popular appeal of attractive wildlife scenery often superseded the importance of the scientific information revealed by the specimens.

The contemporary standards for popular museological exhibition at the turn of the century were well stated by President Roosevelt in 1917: Often, Roosevelt

. . . referred to such men as Hornaday, Osborn, and Chapman as living examples of scientists who, without less accuracy or substance, had "made the vivid and past history of this planet accessible in vivid and striking forms to our people generally."<sup>103</sup>

Roosevelt admired these museum professionals for their ability to popularize natural history through attractive exhibits which did not diminish their educational value.

### Conservation

We need the tonic of wildness--to wade sometimes in marshes where the bittern and the meadow-hen lurk, and hear the booming of the snipe, to smell the whispering sedge where only some wilder and

more solitary fowl builds her nest, and the mink crawls with its belly close to the ground. At the same time that we are earnest to explore and learn all things, we require that all things be mysterious and unexplorable, that land and sea be infinitely wild, unsurveyed, and unfathomed by us because unfathomable. We can never have enough of wild nature.<sup>104</sup>

The recognition that the American wilderness was not an inexhaustible resource occurred toward the end of the nineteenth century. Public concern over the disappearing wildlife was the primary motivation behind the conservation movement.<sup>105</sup> The vast herds of buffalo had all but disappeared, and the last passenger pigeon (once the nation's most popular bird) died in 1914. Despite the decision of the U.S. Supreme Court in 1896, that all wild game belonged to the state rather than the landowner, there were few legal restraints on the commercial slaughter of wild birds and animals. Finally, the Migratory Bird Treaty in 1918 outlawed profitable market shooting. Wild nature suffered continually from the effects of progress; even the fledgling U.S. National Parks, ardently supported by conservationists, were the centre of fierce arguments over their economic potential by private enterprise.

The *Call of the Wild* by Jack London became an immediate best seller when it was released in 1903. As an allegory on over-civilization, it remained so popular that 30 years later it still ranked among the top ten best sellers. Its success underlined the common nostalgia for an earlier era

when the wilderness was still the dominant feature of the American identity.<sup>106</sup> Issues involving the conflict between the wilderness and civilization were produced by the twentieth century change from rural to urban population. With the disappearance of the American frontier in the 1890s, the myth of the national hero as a pioneer and frontiersman ended. Wilderness had come to be associated with many unique and desirable national characteristics, and the utilitarian conquest of it created a general mood of pessimism at the turn of the century.<sup>107</sup> In 1941, William W. Smallwood concluded that:

In a real sense the conservation movement assumed the role of the recently vanished frontier. It attempted to keep the nation vigorous, prosperous, democratic, replete with the opportunity for the individual, and, because of its relation to nature, wholesome and moral.<sup>108</sup>

These qualities were all propagated by Theodore Roosevelt, who catalyzed an astonishing advance in conservation through his own personal crusade. For this reason Smallwood regarded Roosevelt as a national "hero" figure between the years 1900 and 1919. As evident further on in this chapter, Roosevelt was directly involved with the development of habitat groups in natural history museums.

Conservation and the concept of ecology were inextricably linked. The science of ecology had been launched much earlier, in Darwin's epic book, with its constant stress on

the interrelations between species and their dependence on the environment. In regard to museological display, it is important to remember that C. W. Peale had exhibited wild-life specimens in relation to their natural habitat back in the eighteenth century. Peale's foresight did not reappear until the educational policies of public museums were reformed in the late nineteenth century. The new emphasis on exhibition resulted in the most significant museological contribution to the concept of ecology--the habitat group. R. C. Murphy defined the specific purpose of this exhibition technique:

The aims of a habitat group go beyond the reconstruction of a "pretty picture" transferred behind glass from the outer world. Its purpose ought also to be ecologic, that is, it should elucidate natural interrelationships between organism and organism, and between all and the physical environment.<sup>109</sup>

The use of museum groups as a somewhat ironic forum for public consciousness about the fate of an endangered species is historically well founded. For example, in the mid-1880s Spencer Baird, second secretary to the Smithsonian Institution, in deciding to find a representative buffalo before the species' extinction, directed the chief taxidermist, W. Hornaday, "to take immediate steps toward the accomplishment of that end."<sup>110</sup> The resulting exhibit in 1888 was the second museum group to be produced in the U.S. In 1890, a bison group was the first exhibit of large mammals to be

installed in the A.M.N.H. One of the very last remaining groups of buffalo was discovered in 1897 by poachers, who promptly shot all four of them. The poachers were caught, and the hides confiscated, later to become part of a habitat group at the Denver Museum of Natural History.

A buffalo was also the first large animal to be mounted in Peale's Museum, known today only through a sketch in J. D. Godman's *American Natural History* (1826), drawn from the museum specimen. Mounted natural history specimens historically have provided visual information for wildlife illustrators, and later nature writers. Even in the age of photography this was a common practice; Ernest Seton, for example, often used museum groups as the basis for illustrations that accompanied his nature essays. By publicizing wildlife in this way, museum groups further contributed to increasing the public awareness of the need for conservation.

Other examples of habitat groups that featured endangered species included "The Egret Group," one of the first constructed under the direction of Frank Chapman at the A.M.N.H. in c. 1902. At that time, egrets were in immediate danger of extermination due to the heavy market demand for their beautiful feathers as hat ornaments.<sup>111</sup> At about the same time, "The Pelican Group" was installed, featuring the Pelican Island in Florida, where plume hunters had destroyed so much birdlife that several species were in danger of

extermination (see Figure 13). Concerned about the plight of the birds, President Roosevelt established the first Federal Wildlife Refuge on Pelican Island in 1903.

Also representative of the crisis facing bird wildlife was the "Laysan Island Group," a circular habitat group at the Natural History Museum, University of Iowa. Despite its establishment as a federal bird sanctuary in 1909, poachers harvested over 300,000 sea birds from the Laysan Island that same year. Although the specific effect of habitat groups on the conservation movement cannot be documented, in fostering a sympathetic attitude toward the relationship between wildlife and their natural environment, these exhibits were extremely important. Coleman asserted that:

Habitat groups and the beginning of ecological study reflected the desire of the layman and scientist alike to accept nature whole. Appreciation of nature now became the theme. Conservation was taking the place of use as the ultimate motive.<sup>112</sup>

Despite Coleman's optimistic forecast and assessment of the early twentieth century conservation movement, significant reforms did not occur in the U.S. until the 1930s. Scientists were slow to recognize the ecological interdependence of living organisms and their delicate relationship to the environment. In *A Century of Progress in the Natural Sciences*, this oversight was summarized briefly:

The shortcomings of simple protection and of propagation as methods of managing wildlife led finally to appreciation of the *habitat* as the transcendent force that, more than any other, determines the level of wild populations.<sup>113</sup>

Appreciation of nature was a motivating factor in the creation of habitat groups. Often the feeling of vast distances and pristine wilderness were experiences available to the urban dweller only through these exhibits, which offered "a glimpse of wildlife as it is, or more often as it has been before man took over complete possession of the land."<sup>114</sup> When the impressive new Hall of North American Mammals opened at the A.M.N.H. in 1942, the habitat groups were publicized as a way of escaping "the sphere of man's domination" in a "war-mad world":

The finer things of Nature are immutable, and man will be the better for it if he can divest himself of his own interferences with the universe and get back to first principles. The habitat groups of the North American mammals offer a valuable refuge and an opportunity for eyes weary of city streets to enjoy a grand tour of the North American continent. For a while at least, the visitor can lose himself in *communion with Nature*. [emphasis added]<sup>115</sup>

In addition to the wildlife specimens, the painted background of the habitat group was of utmost importance in creating the atmospheric ambience of a scene from nature. The use of scenery from National Parks as backdrops for wildlife specimens had resulted from the A.M.N.H. policy "to bring to the public many of nature's wonders which are

found in our own North America,"<sup>116</sup> Examples of this policy include the "Mountain Lion" with the Grand Canyon of Colorado in the background, and the "Coyote" with the impressive mountains of Yosemite National Park in the background. Although both are located at the A.M.N.H., similar background scenery can be seen at many other natural history museums.

The search for picturesque scenery originated in the romantic, nineteenth century concept of nature, which was partly responsible for designating Yosemite and Yellowstone as "scenic reservations" many years prior to the National Parks Act of the 1890s.<sup>117</sup> Urban parks were also subject to a similar conception, except that their immediate benefit was as an urban amenity to fatigued city dwellers. The value of New York Central Park (established in 1858), was judged, in 1888, by its "pastoral scenery and its restful, healing influence upon the minds of those who are worn and wearied from the strained and artificial conditions of life in the city."<sup>118</sup> In the twentieth century, habitat groups in natural history museums were often publicized as performing a similar function.

The lament of John Burroughs in 1908 expressed a common attitude toward the commercial exploitation of the natural environment:

One cannot help but reflect what a sucked orange  
the earth will be in the course of a few

centuries. Our civilization is terribly expensive to all its natural resources; 100 years of modern life doubtless exhausts its stores more than a millennium of the life of antiquity.<sup>119</sup>

These thoughts were echoed in 1913 by Hornaday, in *Our Vanishing Wildlife*.<sup>120</sup> When it first appeared, the book was a timely document of America's diminishing wildlife resources. Published and widely distributed by the New York Zoological Society, when the Migratory Bird Treaty Act was under consideration, a copy was sent to every member of the U.S. Congress. It had a significant impact and contributed to changes in the legislative and regulatory reforms in wildlife protection. For textual illustrations, Hornaday used photographs of habitat groups, which suggests the strong connection between this type of museum exhibit and the conservation movement. Certainly, one of the central justifications for the production of habitat groups was their value as documentation of a passing era, not only in U.S. history, but in the history of the world.

#### Museum Expeditions

As the social power of the natural history museum increased, it gained the needed financial support to conduct more frequent expeditions around the world in search of materials for the research and exhibition collections. Because of their high visual profile and popular veneration, habitat groups were often the main beneficiary of

these expeditions. Cypher noted that each museum "more or less vied with each other to produce the most life-like and magnificent groups."<sup>121</sup> This trend was quite different from the original habitat groups at the A.M.N.H., which portrayed the intimate surroundings of North American birds. Although their educational aim remained the same, the displays of large, exotic specimens attracted public attention more for their sensational qualities than for the integral ecological relationships revealed by the exhibits. The prevalent public attitude toward these exhibits was reflected in *Time Magazine*, 1942, which described the "realistic taxidermic spectacles" in the Hall of North American Mammals, and the "zoo-like panoramas" of the African Hall at the A.M.N.H.<sup>122</sup>

The popular appeal of spectacular wildlife displays had been recognized early on in the development of natural history museums. As previously mentioned, museums often obtained their specimens from the same sources as circuses and zoos. The National Museum and the A.M.N.H. even competed with each other to solicit donated carcasses from P. T. Barnum. However, the full theatrical effect of large specimens was not achieved until new techniques in taxidermy had been invented by Carl Akeley. From his first experiments with "Jumbo" at Ward's Natural Science Establishment in 1885, Akeley went on to mount a group of elephants at the Field Museum, and in 1911 was given charge

of a newly conceived plan for an African Hall at the A.M.N.H. During the succeeding years, a strong sense of rivalry developed between the large museums, all of which attempted to produce the most monumental African habitat groups. A direct influence on this phenomenon was the rise of the "gentlemen" sportsman in the early twentieth century.

The mass popularity that hunting enjoyed among North Americans should not be underestimated. Despite the conservation movement, in 1911 three million hunters took to the field each season; by 1920, the figure had increased to twenty million. Paul Shepard concluded that hunting not only put people back in touch with nature, it also provoked the study of natural history and nourished the idea of conservation:

The idea of organic interrelationship which ecologists explore may spring not from inductive science at all, but from a rather fundamental human attitude toward the landscape. In these terms, the hunt is a singular expression of our identity with natural processes and is carried on with veneration appropriate to the mystery of those events.<sup>123</sup>

The epitome of the "gentleman sportsman," and one who provided a role model for countless Americans in the early twentieth century, was Theodore Roosevelt. As a talented taxidermist, dedicated naturalist, and avid sportsman, Roosevelt combined the qualities of an outdoorsman with his outstanding ability for leadership. He captured public

imagination with his vision of the heroic servant of the people, whose love of nature would advance the nation. Early in his career, Roosevelt expressed his enthusiasm for sportsmanship through a series of books he wrote based on his experience while hunting big-game animals in the West. These books set a new style in writing that was not just a narrative of the trophies bagged, but rather was a "faunal biography" which included extensive information about the natural history of the species and their environment.<sup>124</sup>

Roosevelt's enthusiasm for hunting and conservation led him to establish the Boone and Crockett Club in 1888, an organization of which he remained president until 1894. The club was a powerful group of big-game hunters whose purpose was to promote sportsmanship, the preservation of large game, and the study of natural history. To gain membership in the club, it was necessary, among other things, to have collected three trophy heads.

Despite his later anti-hunting sentiment, William Hornaday was an original member of the Boone and Crockett Club. On Roosevelt's recommendation, Hornaday was appointed director in 1896 of the New York Zoological Park-- recently established by the Boone and Crockett Club to preserve wildlife (especially big-game animals) from extinction. As an institution closely linked with hunters, it was not surprising when Hornaday announced plans for a

permanent exhibition of superior wildlife trophies at the Zoological Park. In fact, Hornaday even donated his own personal collection of over 100 trophies to the exhibit. By 1922 the collection had become so large that a "Head and Horns Museum" was erected by the Zoological Society to house it.<sup>125</sup> During the formative years of zoological exhibition in natural history museums, the Boone and Crockett Club remained influential in promoting the display of spectacular wildlife specimens.

Roosevelt's deep commitment to conservation may seem hypocritical in view of his active participation in big-game hunting. However, even John Burroughs, a well-known proponent of conservation, considered Roosevelt to be a "born nature-lover," and was "impressed by his rare combination of the sportsman and the naturalist."<sup>126</sup> In 1975, John Reiger argued that historians have failed to see "that most of those they have labeled as 'ornithologists,' 'scientists,' or 'nature lovers' could just as easily be categorized as 'sportsmen.'"<sup>127</sup> He cited a list of 80 leading naturalists (including Audubon, Burroughs, Chapman, and Hornaday), to support his theory that, "The dividing line between scientific 'collecting' and recreational 'hunting' was often indistinct or nonexistent."<sup>128</sup>

Certainly, there was no dividing line made in the numerous museum collecting expeditions financed by wealthy sportsmen. Roosevelt was among the first sportsmen to set

a precedent for ambitious collecting expeditions for natural history museums. In 1908, the U.S. president proposed an African expedition, sponsored by the National Museum, which would provide specimens for exhibition and research. His viewpoint was based on the trip's validity as scientific documentation of natural history, rather than big-game hunting, clearly expressed in a 1909 letter:

I used to be quite a taxidermist myself and I should like to make this trip essentially a naturalist trip . . . I should expect the chief value of my trip to consist of the observations I was able to make upon the habits of the game, and, to a lesser extent, on the habits of the birds, smaller mammals, and the like . . . I am much more pleased at making the trip a scientific one with a real object than merely a holiday after big-game.<sup>129</sup>

Nonetheless, Roosevelt prepared a list of 21 exotic big-game animals that he was anxious to get. In fact, the Smithsonian-African Expedition enriched the National Museum to the extent of 5,013 mammals, 4,453 birds, and 2,322 reptiles and amphibians.<sup>130</sup> The most extensive collection of large animals ever brought out of Africa, it put the African section at the National Museum at the forefront of zoological collections. Many of the specimens were mounted in impressive habitat groups, such as the African Black Rhinoceros. Roosevelt's comment that, "I wanted to have Uncle Sam have a first-class collection, possibly a little better than anybody else,"<sup>131</sup> underlined the rivalry this

expedition initiated among other museums to produce the most magnificent African habitat groups.

During his years as a museum professional, Carl Akeley made four collection trips to Africa. Like Roosevelt, Akeley was an avid big-game hunter. His monumental conception of the African Hall at the A.M.N.H. included 16 habitat groups of Africa's most spectacular wildlife and scenery. These groups were centred around a dramatic group of elephants, several of which had been shot by the U.S. president (see Figure 14). Akeley had purposely included Roosevelt's trophies to reinforce the magnificence of the exhibit. He was "particularly anxious to include in his elephant group a specimen killed by America's most famous and most distinguished hunter."<sup>132</sup> According to the prevailing viewpoint, the African Hall project was "a page of natural history that will survive, perhaps after much of this animal life has been wiped out--a record of something which never can be again--a document of inestimable value . . . ." <sup>133</sup>

Akeley's final trip to Africa in 1926 was sponsored by Daniel Pomeroy (a trustee of the museum) and George Eastman (of Eastman Kodak Company). They provided financial backing for the trip, "with the understanding that they would go along to enjoy the experience of an African safari and to collect a few game trophies for themselves."<sup>134</sup> As a result of Akeley's death in Africa during this expedition, James L.

Clark was appointed director of the African Hall project, which was later named after Akeley as a memorial to the man whose vision it had been. Clark, also a taxidermist and big-game hunter, participated in numerous other museum expeditions. His account of these expeditions was published in *Good Hunting: Fifty Years of Collecting and Preparing Habitat Groups for the American Museum*.<sup>135</sup> The revealing title of his book characterizes the common association between hunting, museum collecting, and habitat groups.<sup>136</sup>

On the West coast, the most prominent sportsman was Leslie Simpson. In 1919, he travelled to Africa, in the tradition of Roosevelt and Akeley, to collect specimens for a proposed museum of natural history in Oakland, California. When the new museum did not materialize, Simpson donated his collection to the Los Angeles County Museum (completed in 1912). Simpson undertook several collecting trips to Africa in subsequent years and specimens from these trips are enshrined in the habitat groups at the Simpson African Hall, California Academy of Science, in San Francisco.<sup>137</sup>

A common practice in natural history museums was to pay tribute to the sportsman who "collected" the specimens in habitat groups. In exceptional cases, such as the contributions made by Akeley and Simpson, entire halls of habitat groups were dedicated to specific sportsmen. Thus, a wing of the A.M.N.H. was dedicated to the memory of

Theodore Roosevelt as an outstanding naturalist who had greatly enhanced the U.S. conservation movement. Credit was also frequently given to the individual hunter who often financed the complete production of the exhibit. At the Denver Museum of Natural History, credit is given to the museum's director, A. M. Bailey, for collecting the wildlife specimens in many of the habitat groups. There is little doubt that such groups provided a prestigious setting for the display of big-game animals; the fact that some of the specimens were of trophy quality (due either to their large size or rarity) was frequently included in the exhibit information.

Habitat groups function as an assimilation of many different expressions about the wilderness; their application as showcases for wildlife trophies does not demean their overall significance as a unique idiom in American culture. If understood in the context of Shepard's analysis of the hunt as a singular expression of the American identity with the wilderness, habitat groups reveal a fundamental human attitude toward nature and the landscape.

### Chapter 3 Footnotes

<sup>1</sup>In Irene Cypher, "The Development of the Diorama in the Museums of the United States," Diss. New York University, 1942, p. 5. From A. E. Butler, "Building the Museum Group," *Guide Leaflet Series No. 82*, American Museum of Natural History, October, 1934.

<sup>2</sup>See William Goetzmann, *Exploration and Empire: The Explorer and the Scientist in the Winning of the American West* (New York: Alfred Knopf, 1966), p. 345. Goetzmann made a similar observation about the illustrations of artist-naturalists who accompanied nineteenth century scientific expeditions to the American West.

<sup>3</sup>Henry T. Tuckerman, *Book of the Artists* (1867; rpt. New York: James F. Carr, 1966), p. 494.

<sup>4</sup>See Robert Elman, *First in the Field: America's Pioneering Naturalists* (New York: Mason/Charter, 1977), p. 12. Catesby's trip to the Colonies in 1722 was sponsored by a group that included Sir Hans Sloan, president of the Royal Society in London. Although Catesby believed in the "grand design" of Providence, Elman stated that *Natural History* was "the most complete and authoritative work of its time, and for a century the best account of North American flora and fauna."

<sup>5</sup>In Martina Norelli, *American Wildlife Painting* (New York: Watson-Guptill, 1975), p. 61.

<sup>6</sup>E. P. Richardson, *Painting in America: The Story of 450 Years* (New York: Crowell, 1956), p. 22.

<sup>7</sup>See Hans Huth, *Nature and the American: Three Centuries of Changing Attitudes* (Berkeley, CA: University of California Press, 1957), Chapter II.

<sup>8</sup>In Norelli, p. 88.

<sup>9</sup>See Geoffrey Hellman, *Bankers, Bones and Beetles: The First Century of the American Museum of Natural History* (New York: Natural History Press, 1968), p. 19.

<sup>10</sup>See Charles Sellers, *Mr. Peale's Museum* (New York: W. W. Norton, 1980), pp. 204-206.

<sup>11</sup>*Ibid.*, p. 86.

<sup>12</sup>In Sellers, p. 260. From Rembrandt Peale, *Notes on Italy . . . Written During a Tour in the Years 1828 and 1830* (Philadelphia, 1831), pp. 317-318. This remark was made by Rembrandt Peale in relation to his disappointing visit to the National Museum in Paris, where he found the stuffed animals poorly mounted and the exhibits of inferior quality to those at Peale's Museum.

<sup>13</sup>See Sellers, *Mr. Peale's Museum*. Among them was Thomas Doughty, who drew several plates from the museum's specimens for his *Cabinet of Natural History and American Rural Sports* (1830-1834). Another artist who made frequent drawings from Peale's mountings was Charles A. Lesueur, whose illustrations were engraved for J. G. Godman's *American Natural History* (1826).

<sup>14</sup>Peale's son, Titian, was a talented artist-naturalist who routinely produced illustrations from his father's wild-life collection. An example is a watercolour inscribed, "MISSOURI BEAR. ursus horribilus: Ord. Specimens col'd by Lt. Pike, presented to C. W. Peale." These two grizzly cubs had been donated to the museum as live specimens by U.S. President Jefferson.

<sup>15</sup>In Ellman. Original source not cited.

<sup>16</sup>An example is Audubon's illustration of the mockingbird whose nest had been raided by a hungry rattlesnake. Despite the criticisms of the plate (when it first appeared in 1827) from naturalists who were convinced that rattlesnakes never climbed trees, Audubon's illustration was later deemed scientifically correct.

<sup>17</sup>Richardson, p. 161.

<sup>18</sup>See John Chancellor, *Audubon* (New York: Viking, 1978), pp. 103-104.

<sup>19</sup>William Henry Flower, *Essays on Museums and Other Subjects Connected With Natural History* (London: Macmillan, 1898), p. 71.

<sup>20</sup>In Peter Fusco and H. W. Janson, eds., *The Romantics to Rodin: French Nineteenth Century Sculpture* (Los Angeles: Braziller, 1980), p. 129. From H. Jouin, *David d'Angers*, 2 vols. (Paris, 1878), n.p.

<sup>21</sup>See William Vaughan, *Romantic Art* (New York: Oxford University Press, 1978), p. 256.

<sup>22</sup>From the OED, 1971.

<sup>23</sup>In Frederic A. Lucas, "Evolution in Museum Techniques," *Scientific American* (June 1922), p. 398. Original source not cited.

<sup>24</sup>The display by Bullock was rediscovered at the Rossendale Museum in the northwest of England in 1977 and was the subject of an article by E. G. Hancock, "One of those dreadful combats--A surviving display from William Bullock's London Museum, 1807-1818," *Museums Journal*, 79(1) (June 1979), 172-175.

<sup>25</sup>In Hancock, p. 173.

<sup>26</sup>Hancock reported that Bullock brought the use of the habitat group to England, after which time its educational value was quickly realized and adopted by public museums (p. 174).

<sup>27</sup>Hancock documented the career of Chevalier de Barde (1777-1828), whose various still-life paintings of animal displays in natural history collections are preserved in the Cabinet des Dessins in the Louvre. He presented undisputable evidence that de Barde made many drawings and paintings from Bullock's exhibits of natural history specimens. An engraved plate, based on de Barde's painting of the "Royal Tiger," even provided an illustration for Bullock's *Companion* (1813).

<sup>28</sup>The material on Barye is from *The Romantics to Rodin*, pp. 124-141. Barye's lion sculpture has been documented in detail by G. F. Bengé, "Lion Crushing a Serpent," *Sculpture of a City: Philadelphia's Treasures in Bronze and Stone*, ed. N. B. Wainwright (New York: n.p., 1974).

<sup>29</sup>In writing of Barye's "Lion Crushing a Serpent" (1831-1832), Delechuze said "The truth of this piece is such that, after having seen it, one is pursued by the stench of the menagerie." In Hugh Honour, *Romanticism* (London: Penguin Books, 1979), p. 140. From Charles Saunier, *Barye* (Paris: 1925), p. 15.

<sup>30</sup>Ibid. Honour suggested that the enthusiastic response that the Romantics had to Barye's sculpture may have been responsible for his exclusion from the Salon between 1837 and 1848.

<sup>31</sup>See *The Romantics to Rodin*, p. 129. An anonymous contemporary writer reported that Barye's type of sculpture had developed because it was "so easy and so popular." Original source not cited.

<sup>32</sup>Frederick A. Lucas, "The Story of Museum Groups," American Museum of Natural History, *Guide Leaflet Series*, No. 53 (1921), p. 11.

<sup>33</sup>George D. Schrimper, "Taxidermy--Past and Present," *University of Iowa*, Museum of Natural History, p. 7 (n.d.).

<sup>34</sup>See Honour, p. 139.

<sup>35</sup>Vaughan, p. 272.

<sup>36</sup>Lucas, p. 17.

<sup>37</sup>In Schrimper, p. 6. Original source not cited.

<sup>38</sup>Lucas, p. 10.

<sup>39</sup>Lynn Barber, *The Heyday of Natural History: 1820-1870* (London: Jonathan Cape, 1980), p. 84.

<sup>40</sup>"Cases of birds and animals were used as household decoration, so that there were many sidelines to be developed besides the actual mounting of Natural History specimens." In Sue Herriot, ed., *British Taxidermists: A Historical Directory* (Leicester, England: Leicester Museums, 1968), p. 6.

<sup>41</sup>William Hornaday, *Taxidermy and Zoological Collecting* (London: Trubner, 1891), p. 220.

<sup>42</sup>Albert E. Parr, "Habitat Group and Period Room," *Curator*, 6(4) (1963), 325-336.

<sup>43</sup>Parr, p. 325.

<sup>44</sup>Hornaday, p. 223.

<sup>45</sup>Ibid.

<sup>46</sup>Ibid.

<sup>47</sup>Ibid. Hornaday noted that Verreaux's portrait was prominently placed in the exhibit of ornamental taxidermy.

<sup>48</sup>Schrimper, p. 5.

<sup>49</sup>In Clyde Fisher, "Carl Akeley and His Work," *Scientific Monthly* (February 1927), p. 99.

<sup>50</sup>Hornaday, p. 230.

<sup>51</sup>Hornaday, p. 230.

<sup>52</sup>William Hornaday, *A Wild Animal Round-up* (New York: Scribners, 1925), p. 274.

<sup>53</sup>Frederick A. Lucas, *Fifty Years of Museum Work* (New York: American Museum of Natural History, 1933), pp. 16-17.

<sup>54</sup>Lucas, *Fifty Years*, p. 18.

<sup>55</sup>This comment was made by Akeley's wife in her account to the African Hall Expedition; Mary Jobe Akeley, *Carl Akeley's Africa: An Account of the Akeley-Pomeroy African Hall Expedition of the American Museum of Natural History* (New York: Dodd and Mead, 1930), p. vii.

<sup>56</sup>Cypher, p. 35.

<sup>57</sup>Lucas, "The Story of Museum Groups," p. 11.

<sup>58</sup>Flower, p. 55.

<sup>59</sup>Kenneth Hudson, *Museums for the 1980's: A Survey of World Trends* (London: Butler & Tanner, 1977), p. 8.

<sup>60</sup>Edward Lurie, "An Interpretation of Science in the Nineteenth Century: A Study in History and Historiography," *Journal of World History*, 8 (1964-1965), 684.

<sup>61</sup>Definition of "natural history" from OED, 1971.

<sup>62</sup>See Edward Lurie, *Nature and the American Mind: Louis Agassiz and the Culture of Science* (New York: Science History Publications, 1974).

<sup>63</sup>See Hellman, pp. 9-18.

<sup>64</sup>This information is based on an article by J. T. Henderson, "A Pioneer Venture in Habitat Grouping," *American Association of Museums, Proceedings*, 1915, p. 87. See also Lucas, "The Story of Museum Groups," p. 17. Lucas referred to W. H. Werner, a bird collector and taxidermist, who exhibited groups "illustrating the life histories of our native birds" at the Centennial Exposition in 1867.

<sup>65</sup>Flower, p. 19.

<sup>66</sup>In Lucas, "The Story of Museum Groups," pp. 8-9. Original source not cited.

<sup>67</sup>See Albert E. Parr, "The Habitat Group," *Curator*, 2(2) (1959), 107.

<sup>68</sup>George Brown Goode, "The Genesis of the United States National Museum," *Report of the National Museum* (Washington, DC: Government Printing Office, 1891), Section III, pp. 183-191.

<sup>69</sup>Popularized science in the form of attractive exhibits at the A.M.N.H. was the subject of an article by Everett Wallace Smith, "Natural Science for the Every-day Man," *Outlook* (May 1908), pp. 183-191.

<sup>70</sup>Barton Warren Evermann, "Modern Natural History Museums and Their Relation to Public Education," *Scientific Monthly*, 6 (January-June 1918), 11.

<sup>71</sup>Hornaday specifically referred to a group of three flamingos prepared by Frederic S. Webster. See *Taxidermy and Zoological Collecting*, p. 230.

<sup>72</sup>See Lucas, "The Story of Museum Groups," p. 16. Lucas reported that a Mrs. Mogridge was responsible for constructing the foliage for the groups at the British Museum, and that the art of making wax leaves and flowers had originated with Victorian ladies. This information suggests a relationship may have existed between the arts and crafts movement in England and the production of artificial foreground material in museum groups.

<sup>73</sup>In Gordon Reekie, "Expositions, Exhibits and Today's Museums," *Natural History* (June-July 1964), p. 24.

<sup>74</sup>See John Rowley, *Taxidermy and Museum Exhibition* (New York: Appleton-Century, 1935), p. 302. Rowley said his techniques were based on instructions from Mrs. Mogridge.

<sup>75</sup>Cypher, p. 28.

<sup>76</sup>Lucas, "The Story of Museum Groups," p. 30.

<sup>77</sup>Cypher, p. 19.

<sup>78</sup>*Ibid.*

<sup>79</sup>Parr, "The Habitat Group," p. 107.

<sup>80</sup>*Ibid.*

<sup>81</sup>Frank M. Chapman, "The Birdlife and the Scenery of a Continent in One Corridor: The Groups in the American Museum

of Natural History--A New Method in Museum Exhibition," *World's Worker*, 17 (November 1908-April 1909), 11365-11374.

<sup>82</sup>The first mention of the term occurred in the article cited in note 81 above. Lucas also supported Chapman's origination of the term.

<sup>83</sup>Herman C. Bumpus, "A Great American Museum," *World's Worker*, 15 (November 1907-April 1908), 10028.

<sup>84</sup>Frank M. Chapman, "Natural History for the Masses," *World's Worker*, 5 (November 1902-April 1903), 2765.

<sup>85</sup>See J. E. Fraser, "Akeley the Sculptor," *Natural History*, 27 (June 1927), 121-144.

<sup>86</sup>In Edward P. Alexander, *Museums in Motion* (Nashville, TN: American Association for State and Local History, 1979), p. 13. From the *Newark Museum, A Survey: 50 Years* (Newark, NJ), p. 9, from Richard Grove, "Pioneers in American Museums: John Cotton Dana," *Museum News*, 56 (May-June 1978), 32-39.

<sup>87</sup>Germain Bazin, *The Museum Age* (New York: Universe Books, 1967), p. 260.

<sup>88</sup>Cypher, p. 81.

<sup>89</sup>In Roderick Nash, *Wilderness and the American Mind* (New Haven, CT: Yale University Press, 1967), p. 101. From George Catlin, *North American Indians* (2 vols., Philadelphia, 1913), Vol. I, p. 289. These volumes were first published in 1841 as a collection of articles which Catlin had written in the 1830s.

<sup>90</sup>Peter J. Schmitt, *Back to Nature: The Arcadian Myth in Urban America* (New York: Oxford University Press, 1969), p. 3.

<sup>91</sup>O. C. Farrington, "The Rise of Natural History Museums," *Science* (13 August 1915), p. 206.

<sup>92</sup>*Ibid.*

<sup>93</sup>William Martin Smallwood, *Natural History and the American Mind* (New York: Columbia University Press, 1941), p. 3.

<sup>94</sup>Liberty Hyde Bailey, *The Nature Study Idea* (New York: Appleton, 1903), p. 18.

<sup>95</sup>Chapman, "Natural History for the Masses," p. 2765.

<sup>96</sup>See Joseph Wood Krutch, ed., *Great American Nature Writing* (New York: Sloane, 1950). In his essay, "The Gospel of Nature," John Burroughs offered the premise of all nature writers: "I know it is one thing to go forth as a nature-lover, and quite another to go forth in a spirit of cold, calculating, exact science. I call myself a nature-lover and not a scientific naturalist" (p. 143).

<sup>97</sup>Ernest Thompson Seton, *Lives of the Hunted* (New York: Doubleday, 1901), p. 9.

<sup>98</sup>John Burroughs, "Real and Sham Natural History," from *The Writings of John Burroughs* (Boston: Houghton Mifflin, 1904-1919), p. 19.

<sup>99</sup>Elman, p. 210.

<sup>100</sup>Schmitt, p. 36.

<sup>101</sup>Elman, p. 202.

<sup>102</sup>Hornaday, *A Wild Animal Round-up*, p. 322.

<sup>103</sup>In Paul R. Cutright, *Theodore Roosevelt: The Naturalist* (New York: Harper and Bros., 1956), p. 143. From the University of the State of New York *Bulletin* (March 1917), p. 34.

<sup>104</sup>In Peter Mathiessen, *Wildlife in America* (New York: Viking, 1959), p. 233. From Henry David Thoreau.

<sup>105</sup>See James B. Trefethen, *An American Crusade for Wildlife* (New York: Winchester Press, 1975).

<sup>106</sup>See Perry Miller, *Errand Into the Wilderness* (Cambridge, MA: Belknap, 1956), p. 207. At the turn of the century, many writers and artists endeavoured to associate the wilderness with sacred American values. Miller said the problem of American self-recognition was the essentially irreconcilable opposition between nature and civilization.

<sup>107</sup>See Nash, p. 157. Nash declared that a major component of the wilderness cult was the association of nature with beauty and spiritual truth.

<sup>108</sup>Smallwood, p. 8.

<sup>109</sup>Robert C. Murphy, "Natural History Exhibits and Modern Education," *Scientific Monthly* (July 1937), p. 78.

<sup>110</sup>In L. C. Mitchell, *Witness to a Vanishing America* (Princeton, NJ: Princeton University Press, 1981), p. 56. From Spencer F. Baird, *Annual Report of the Board of Regents of the Smithsonian Institution, June 30, 1887* (Washington, DC: 1887), pp. 5-6. Despite Baird's recognition that, "The work of exterminating the American buffalo has made most alarming progress . . .," Hornaday collected 28 specimens from one of the last surviving bands of buffalo that had been discovered in years, leaving its number at only 12 head. This information is from Trefethen, p. 17.

<sup>111</sup>Not only egrets, but herons, ibises and all other attractively feathered birds were subject to massive poaching for the millinery trade. In New York in 1907, \$7 million worth of skins and plumage was sold. Trefethen said bird plumage was so stylish for women's fashions that, "Some hats were essentially habitat groups festooned with mounted warblers, cardinals, or bluebirds arranged in life-like poses." *Ibid.*, p. 129. See also, Peter Verney, *Animals in Peril* (London: Mills and Boon, 1979).

<sup>112</sup>Coleman, p. 51.

<sup>113</sup>E. L. Kossler, ed., *A Century of Progress in the Natural Sciences: 1853-1953* (San Francisco, CA: California Academy of Sciences, 1955), p. 800.

<sup>114</sup>In Nash, p. 151. From Herman C. Bumpus, Jr., *Herman Cary Bumpus: Yankee Naturalist* (MN: n.p., 1948), p. 57.

<sup>115</sup>Harold Anthony, "A Grand Tour of North America," *Natural History* (April 1942), p. 190.

<sup>116</sup>*Ibid.*

<sup>117</sup>Nash discussed the popular appeal of wild scenery (pp. 157-158), citing the sentiment expressed in 1890 by Frederick Law Olmstead (designer of New York's Central Park). Olmstead generalized that any time a wilderness preserve was endangered the public should respond as they would "to any crisis threatening a national treasure of art." From F. L. Olmstead, "Governmental Preservation of Natural Scenery," *Sierra Club Bulletin*, 29 (1944), p. 62.

<sup>118</sup>In Schmitt, p. 56. From "A Proposed Speedway in Central Park," *Garden and Forest* (21 March 1888), p. 38.

<sup>119</sup>In Elman, p. 217. Original source not cited.

<sup>120</sup>William Hornaday, *Our Vanishing Wildlife* (New York: New York Zoological Society, 1913).

<sup>121</sup>Cypher, p. 81.

<sup>122</sup>"Please Do Not Feed the Animals," *Time Magazine*, 6 April 1942, p. 36.

<sup>123</sup>Shepard, p. 211.

<sup>124</sup>See Cutright, Chapter 6; "Western Animals and Conservation," pp. 43-53.

<sup>125</sup>Hornaday's achievements at the New York Zoological Park won him three honorary doctorate degrees conferred by the University of Pittsburgh, Yale University, and Iowa State College.

<sup>126</sup>Cutright, p. 114. Burroughs furthermore stated that, "I have never been disturbed by the President's hunting trips. It is to such men as he that the big game legitimately belongs." Both quotes from John Burroughs, *Camping and Tramping with Roosevelt* (New York: Houghton Mifflin, 1907).

<sup>127</sup>John F. Reiger, *American Sportsmen and the Origins of Conservation* (New York: Winchester Press, 1975), p. 66.

<sup>128</sup>*Ibid.*

<sup>129</sup>In Cutright, p. 189.

<sup>130</sup>*Ibid.*, p. 209.

<sup>131</sup>*Ibid.*, p. 210. From *Works*, Memorial Edition, Volume 4, p. 454.

<sup>132</sup>Trefethen, p. 199. Akeley's first trip to Africa was for the Field Museum in 1896, accompanied by a charter member of the Boone and Crockett Club. In 1905 he returned to collect specimens for his elephant group, "The Fighting Bulls," and in 1909 he went again, this time to collect specimens for the A.M.N.H. elephant group. On this trip he joined his acquaintance, Theodore Roosevelt, to conduct an elephant hunt.

<sup>133</sup>This observation was made by W. R. Leigh, the museum artist who accompanied Akeley's expedition to Africa in 1926. William R. Leigh, *Frontiers of Enchantment* (New York: Simon & Schuster, 1938), p. 32.

<sup>134</sup>James L. Clark, *Good Hunting: Fifty Years of Collecting and Preparing Habitat Groups for the American Museum* (Norman, OK: University of Oklahoma Press, 1966)..

<sup>135</sup>Clark.

<sup>136</sup>The fact that Roosevelt, Hornaday, Akeley, and Clark were all members of the Boone and Crockett Club reinforces the strong association between trophy hunting and the history of habitat groups.

<sup>137</sup>See Michael R. Waiczis, "John Rowley, Museum Pioneer," *Pacific Discovery* (July-August 1980), pp. 1-8.

## Chapter 4

### DIORAMAS AS POPULAR ART

#### Introduction

Although the development of habitat groups in natural history museums has been described as the emergence of a "new popular art form,"<sup>1</sup> this observation is not entirely true. As an exhibit technique that is both entertaining and instructive, habitat groups are the continuation of a tradition in popular art established by the early panoramas and dioramas. The fact that habitat groups are now most commonly referred to as "dioramas" acknowledges their strong historical link with those nineteenth century illusionistic spectacles. Like their forerunners, museum dioramas capture the viewer's attention through optical devices that serve as a popular means to entertain the public while at the same time providing geographical or historical information.

Natural history dioramas achieved their earliest application and most significant success as an exhibition technique in North American museums. The major educational reform in museological theory that occurred in the late nineteenth century emphasized the need to arouse public curiosity and support through attractive exhibitions. At

the A.M.N.H. the belief that "popular interest must precede the desire for purely technical knowledge,"<sup>2</sup> became a fundamental principle in the exhibit philosophy of the institution, as well as the motivating factor behind the instigation of dioramas as a method by which to display natural history specimens. Public support stimulated by museum dioramas exceeded all expectations and led to the construction of entire halls devoted to dioramas in most major natural history museums.

To understand this phenomenon, it is necessary to examine both the illusionistic style and iconographical content of natural history dioramas--apart from their didactic function as educational exhibits. Dioramas not only entertain the viewer through the life-like representation of nature, they also document a uniquely American attitude toward the wilderness. The contention of this thesis is that natural history dioramas are a popular continuation of the nineteenth century American preoccupation with nature that manifested itself in the panoramic style of landscape painting.

According to A. E. Parr, the natural history museum's role as a "channel of communication" between nature and humanity, "found its ultimate expression in habitat groups on the scope of entire landscapes."<sup>3</sup> By encouraging the viewer to experience nature directly, through a combination of real objects and painted background scenery, these

exhibits perform a function comparable to the panoramic landscape paintings by nineteenth century artists like Frederic Church (1826-1900), Albert Bierstadt (1830-1902), and Thomas Moran (1837-1926).

Many of the affinities that dioramas share in style and subject matter with their fine arts predecessors were caused by a similar reaction to the disappearing American wilderness. The landscape painters imbued their art with nostalgic references to an earlier era when there had been no separation between man, nature, and God. By the end of the century, however, no such metaphorical references were necessary; the reality of modern urban society was evident in the vanished wildlife and polluted environment. Dioramas provided the only sanctuary where city dwellers could find a communion with nature through illusionistic scenes of the primordial wilderness.

In 1909, Frank Chapman described a hall at the A.M.N.H. that had been explicitly designed "for a series of groups which should depict not only the more interesting types of American birds, but America as well."<sup>4</sup> Of utmost importance to the concept of these groups as visual documentation of American scenery were the panoramic background landscapes, about which Chapman wrote:

Wholly aside from their zoological interest, as they illustrate the haunts of various birds, such a series of paintings has the greatest geographical value. To pass through the hall in which they are placed is like a tour of America, while the

interest they arouse, particularly among foreigners, makes one wonder why we, in this century, have not already established a museum for the display of paintings of American scenery?<sup>5</sup>

Paintings of American scenery historically have played an important role in forming the national identity of the new country. With its large-scale, horizontal format, and illusion of three-dimensional space, the panorama was quickly adopted as an effective means to communicate geographical information about the landscape. It influenced a generation of easel painters to use similar means to imitate nature, thus encouraging the development of a panoramic style of landscape painting.

As a theatrical mode of painting in which art functions as both spectacle and documentary, the panorama contributed to a popular convention in the representation of American scenery--a convention which also underlies the art of dioramas in natural history museums. A contemporary evaluation of a famous Mississippi panorama (painted in 1846) summarized the utilitarian qualities common to both the panoramic style of landscape painting in the mid-nineteenth century, and to natural history dioramas in the twentieth century:

The immense extent of the picture, its truthfulness to nature, its minuteness of detail, the wonderful illusion of its perspective, and the great variety of its scenes and objects render it a useful medium for imparting correct information of our beautiful country.<sup>6</sup>

The popular character of natural history dioramas is first elucidated in this chapter by examining illusionism as a means of public exhibition. Next, the nineteenth century convention of panoramic landscape painting is considered, with particular emphasis on the pragmatic aesthetic embodied in the concept of landscape painting as a medium for imparting geographical information about American scenery. Finally, a comparison is made between landscape scenery in natural history museums and the paintings of Church, Bierstadt, and Moran, in an attempt to illustrate the affinities in style and subject matter between both art forms.

#### A Mirage of Nature

. . . an art of mixing and combining natural and artificial elements--and its goal is not art nor even beauty and enjoyment of beauty, but a new and different, a man-made Nature. A mirage of Nature, admittedly, for everyone, the industrious creator like the admiring observer, is from the very outset aware of, and agreeable to, being deceived. Again, such deception is not meant to deceive . . . but to exist for its own sake.<sup>7</sup>

In *Panorama of the Nineteenth Century*, Dolf Sternberger described the illusionism of panoramas and dioramas as a black art or alchemy, intended to create a mirage of nature. He wrote of the "strange blend of real, measurable, spatial distances and their deceptions in the pictorial surfaces, of the imperfections of the human eye and an objective

structure in the things it perceives."<sup>8</sup> The optical devices that were used to create a deceptive perception of distance and space in these nineteenth century spectacles are similar in technique and intention to those used in museum dioramas.

For example, the incorporation of three-dimensional life-sized objects into a painted background landscape was a technique first devised by Daguerre in 1828 to enhance the viewer's impression of Swiss scenery in his diorama of Mont Blanc. A nineteenth century panorama artist from Germany explained the value of this theatrical use of real objects in the illusionistic representation of nature:

The natural, sculptural foreground of grass, earth, rocks, weapons and the like imperceptibly blending into the painted foreground, achieved a pretense of reality in a fashion unattainable for paintings in exhibits or other environments.<sup>9</sup>

The "pretense of reality" evoked by these works captivated the nineteenth century public. Sternberger suggested that often it was the technical skill involved in reproducing life-like scenes from nature that elicited the admiration of the viewer, rather than the optical experience of the actual illusion: "In a word, illusionistic virtuosity became an end in itself."<sup>10</sup> This view contrasts with comments made by the contemporaries of these exhibitions, who seemed all too willing to be entranced by the illusion. One enthusiastic review in the *New York Mirror* (26 September

1829) expressed a response often evoked by the panorama: "Indeed, so complete is the illusion that the spectator might be justified in forgetting his locality and imagining himself transposed to a scene of tangible realities."<sup>11</sup> In one case, illusionistic virtuosity exists for its own sake as a unique art form, and in the other it exists only to deceive the viewer into believing in the illusion. Both interpretations, however, involve an active desire on the spectator's part to be entertained--either by the clever technical manipulations of the illusion, or by the uncritical response of immersing oneself into the artificial scene.

In the nineteenth century, panoramas and dioramas were judged exclusively by their success in producing a vivid picture of external reality; intrinsic beauty was rarely, if ever, mentioned. Verisimilitude was, instead, the aesthetic quality most often referred to in the contemporary reviews of these exhibitions. While they were not granted the status of high art, it was commonly believed that through the application of the truth-to-nature aesthetic, such exhibitions would lead to a greater public appreciation of the fine arts. On the opening of Daguerre's Diorama in 1822, one newspaper reported that:

The Diorama, to which the public has been flocking in crowds since opening day, is one of those inventions which constitute an epoch in the history of painting; it cannot fail to enlarge the boundaries of art by showing painters how to combine new effects . . . .<sup>12</sup>

As an accomplished painter, Daguerre aimed to "produce the most complete illusion,"<sup>13</sup> and this superseded his desire to portray interpretive scenes from nature. In comparing Daguerre's Diorama to great landscape painting, Constable remarked that while "it is very pleasing and has great illusion--it is without the pale of Art because its object is deception . . . ." <sup>14</sup> His reaction underlines the fundamental distinction often made between popular and fine art; while one merely records visual information, the other interprets reality through the artist's sensibility. This distinction was recognized by nineteenth century critics who often referred to illusionistic spectacles as a separate category of art. A newspaper account of the diorama, published in 1832, noted the popular character of the exhibit:

The Diorama seems to be a division of art, expressly invented for the gratification of many--the general dissemination of taste, and a means of stimulating the appetite, for the enjoyment of the higher branches of art; their popularity is evidence of the improvement and extension of a taste, and that too, amongst many, who, a few years ago, were wholly indifferent to such subjects.<sup>15</sup>

Described as a "division of art" that appealed primarily to popular taste, panoramas and dioramas were successful because of their fidelity to nature and the relentless realism of the scenes they portrayed. Here, Truth was conceived as Beauty; the aesthetic response evoked by the

spectacle resided in the viewer's belief that the picture was absolutely faithful to external reality. In fact, the illusion of reality was often so convincing that the viewer would proclaim it to be "more beautiful than nature!"<sup>16</sup> Even David, the famous French realist painter, was reported to have remarked upon viewing a panorama, that "Really, one has come here to study nature!"<sup>17</sup> David's opinion was shared by the general public, who also believed that such exhibitions aided the viewer in experiencing more fully the reality of nature. The following review, published in 1827, expressed the admiration that panoramas elicited as a method of exhibition based on the principles of art:

The efforts of art were never, perhaps, directed to a more enchanting result than in the painting of panoramas, representing, as they do, so perfect and illusive a representation of nature. . . . The pictorial beauties of the present view could not well be exceeded by the original. . . . The beholder is involuntarily transported to the identical scene of his admiration--he believes himself contemplating not a draught, but in reality the overpowering majesty of Mont Blanc and the luxuriance of the valleys and hills which are strewn at its feet.<sup>18</sup>

Central to the success of panoramas and dioramas was their capacity to instruct the viewer while simultaneously providing visual amusement through the perceptual confusion produced by the illusion. In large part it was the topographical information conveyed by the scene that added to the excitement and curiosity of the viewer. By allowing

the illusion to transport him to the actual scene, the viewer could not only study nature, but also obtain geographical knowledge about distant places. This attractive feature was observed by Ruskin, who noted that, "an attention to truth and a splendour and care in the execution" of panoramas made them "very truly a school both in geography and in art."<sup>19</sup> Pictures of foreign scenery had a special appeal to the general public, who had little opportunity of travelling abroad. Some historians have suggested that the social and cultural function of illusionistic spectacles was similar to that of the modern film media in that they fulfilled the nineteenth century requirement of amusement and instruction.<sup>20</sup>

The educational importance attributed to this method of exhibition was readily acknowledged by nineteenth century society. In Cologne, for example, public school students were granted free admission to the diorama on certain days.<sup>21</sup> Deeply impressed by the panorama's ability to recreate scenery that he "had no hope of ever seeing," Ruskin pronounced that Burford's panorama in Leicester Square was "an educational institution of the highest and purest value, and ought to have been supported as one of the most beneficial school instruments in London."<sup>22</sup>

While Ruskin's advice went unheeded in the nineteenth century, his idea seemed to foresee the later development of natural history dioramas in public museums. Like the

early illusionistic spectacles, natural history dioramas are intended to expose the public to places that most people could never expect to experience first-hand. The emphasis has changed, however, from foreign scenes valued primarily for their cultural novelty, to scenes of the primordial wilderness intended to educate the viewer about the region's native flora and fauna. Nonetheless, natural history dioramas perform a function, as a sort of geographic travelogue, similar to the nineteenth century panoramas and dioramas.<sup>23</sup>

In major American natural history museums, entire halls of dioramas are often devoted to a specific geographic area (such as Africa, South America, and the Arctic) where the museum visitor can lose himself in scenes from distant places. The widespread illusionistic appeal of these exhibits was exemplified in 1969 in a remark of the president of the A.M.N.H. who said he enjoyed dioramas as much as anyone. In particular, he mentioned a favourite African scene that he said made him feel as though he were actually at the isolated site, gazing at the distant vista of the mountain landscape.<sup>24</sup>

F. A. Lucas, director of the A.M.N.H. from 1911 to 1927, believed that the object of museum exhibits was "to hold a mirror up to nature and let it reflect an image of nature as she looks when alive."<sup>25</sup> Within the museum environment, dioramas are the most effective means of

communicating an immediate experience of nature. According to William Traher, long-time diorama artist at the Denver Museum of Natural History, the illusion of life is essential to the background painting: "I'm always trying to make the wall transparent; to paint it out of existence entirely so that the viewer isn't thinking of a painting at all, but feeling that he is in front of an actual scene."<sup>26</sup>

Even the earliest natural history dioramas, produced by Frank Chapman for the A.M.N.H. at the turn of the century, were primarily concerned with achieving a successful illusion of nature. A review in the *New York Times* (1932) stated that Chapman's original bird dioramas were still regarded as masterpieces of illusion that could hardly be distinguished from the same subjects in real life.<sup>27</sup> The author made his point by describing the flamingo diorama as though it were a living scene:

Reedy grass growing out of brackish water, rocks on real sand, flamingoes wading or resting; it is like being on the Florida keys . . . . For a moment you are a field naturalist discovering for yourself that flamingoes are wading birds, and that their long bills are used for poking about in the water for food.<sup>28</sup>

Although the official function of natural history dioramas is limited to a didactic exposition of information (within the educational scope of the museum), the illusionistic virtuosity of these exhibits should be evaluated for its own sake--as a unique art idiom. Through intricate

and skillful staging techniques, dioramas create an illusion of nature that encourages the museum visitor to find fascination and beauty in the scene itself, without excessive interpretation. Furthermore, because they emphasize verisimilitude above all other aesthetic criteria, museum dioramas are often more acceptable to a larger portion of the general public than fine art which deals with a more subjective interpretation of reality.

The most immediate historical precedent for art that was based on the realistic recreation of natural scenery was the panoramic style of landscape painting which reached the height of its popularity during the mid-nineteenth century. Despite its illusionistic affinities with the panorama, this painting style was generally regarded as fine art because of the spiritual and philosophical associations of its subject matter. As an art form with which the public could identify, panoramic landscape painting in nineteenth century America is of critical importance to understanding the tradition from which natural history dioramas developed.

Panoramic Landscape Painting:  
An American Tradition

Introduction

Panoramic exhibitions possess so much of the magical deceptions of the art, as irresistibly to captivate all classes of spectators, which

gives them a decided advantage over every other description of pictures; for no study or cultivated taste is required to appreciate the merits of such representations. They have further power of conveying much practical and topographical information, such as can in no other way be supplied, except by actually visiting the scenes which they represent, and if instruction and mental gratification be the aim and object of painting, no class of pictures have a fairer claim to the public estimation than panoramas.<sup>29</sup>

Although virtually none of the original panoramas that caused such a sensation in early nineteenth century America still exist, contemporary reviews are evidence of the esteem in which these pictorial spectacles were held. The description quoted above, from an anonymous memoir, recounted the primary qualities that were so essential to the panorama's success. Along with the magical illusionism which captivated "all classes of spectators," the panorama's power to convey "practical and topographical information" of natural scenery was cited as the reason why they deserved public acclaim. The predilection for specific and recognizable scenery was rooted in the tradition of topographical prints and drawings which had satisfied the topical demand for accurate representations of geographic points of interest.

Realistic views of magnificent scenery also satisfied the growing taste for dramatic landscape effects which increasingly served the need to form a national identity for the arts. Some art historians have suggested that while Europeans regarded the panorama primarily as an entertaining

spectacle, to the American it was "the answer to his natural urge for a visual expression of his experience of space."<sup>30</sup> In other words, its exaggerated, horizontal proportions, expansive views, and shifting vanishing points, expressed "a specifically American sensibility of geographic and pictorial space."<sup>31</sup>

During the 1840s no less than five panoramas of the Mississippi River were exhibited in America and Europe-- each claiming to be more spectacular than the other, John Banvard, the first artist to depict a scenic tour down the Mississippi by means of a moving panorama, was determined, according to his biographer,

to paint a picture of the beautiful scenery of the Mississippi, which should be superior to all other, in point of *size*, as that prodigious river is superior to the streamlets of Europe--a gigantic idea!--which seems truly kindred to the illimitable forests and vast extents of his native lands.<sup>32</sup>

Many of the panoramas exhibited in America at this time were intended primarily as educational entertainment based on the scientific documentation of geographical points of interest. An 1849 newspaper article reported that the "panorama rage is still high," and named several of the most popular of them; titles such as "American Scenery, embracing all that is grand and wonderful in America," "The Falls of Niagara," and the "River St. Lawrence," conveyed the strong associations between the emerging American national identity

and the depiction of the most spectacular geographic features of the native landscape.<sup>33</sup>

In his article, "The Panoramic Landscape as an American Art Form" (1948), Wolfgang Born documented the pervasive influence of panoramas on American landscape painting, contending that,

. . . the panorama offered a model to the landscape painters who made it their goal to paint the landscape of America, the landscape of great open spaces, of the rugged mountains and enormous rivers--an oversize landscape in which the tiny human being did not count at all.<sup>34</sup>

According to Born, the artist whose paintings formed "the first step in the development of the panoramic landscape" was Thomas Cole (1801-1848).<sup>35</sup> Cole's monumental works combined the "Grand Style" of history painting with sublime scenes of the primordial wilderness, transforming an elitist style into what Barbara Novak described as "effective public art."<sup>36</sup> Although Novak ironically noted how "the most ennobling of experiences [communion with nature] very readily became the most widely disseminated form of popular entertainment," she granted that "perhaps from the very beginning the American public . . . approached art with expectations of entertainment and enlightenment."<sup>37</sup>

After 1850, panoramic exhibitions began to lose their mass appeal as a novel form of entertainment; their complete disappearance by the end of the century was most likely due

to changes in public taste and developments in photography and film making. The scientific realism and three-dimensional effects of stereoscopic photography replaced the panorama's function as a "newsreel," or travelogue that provided illusionistic views of distant regions. In addition, if the public wanted realistic panoramic landscapes, it could find these qualities in the huge, spectacular landscapes of Church, Bierstadt, and Moran. These artists employed many of the panorama's most successful optical devices, such as shifting vanishing points, photographic realism, and immense scale to make the spectator feel as though he could actually walk into the painted landscape.

James Jackson Jarves was one of the few contemporary critics to protest the panoramic qualities, or "the direction of exaggerated actions and effects . . . bigness, greatness, largeness" of this new style of painting--which he referred to as "full-length landscapes."<sup>38</sup> Despite his objections, the majority of the public was overwhelmed by the effects achieved by the realistic imitation of nature in these artistic tours de force. To this age, landscape painting presented a view of nature that was not only aesthetic, but also projected powerful moral and social significance. As "priests of the natural church,"<sup>39</sup> landscape painters exemplified the intimate relationship between art and society that existed in the mid-nineteenth century.

In *That Wilder Image*, James Thomas Flexner referred to

landscape painting as "our Native School."<sup>40</sup> He pointed out that, in the mid-nineteenth century, painting was more popular than at any other time in American history; "The interest was not inspired by the importation from abroad of already famous masters. The rage was for the works of living American artists."<sup>41</sup> As proof, Flexner cited the fact that a New York exhibition devoted exclusively to pictures attracted an average attendance equal to 57.50 per cent of the city's population during the period from 1839 to 1851. In contrast, from 1937 to 1951, the attendance at the Metropolitan Museum was 16.25 per cent of the total population of New York City.

Toward the end of the nineteenth century, new painting styles imported from Europe encouraged a reaction against the literal transcription of nature. Consequently, an avant-garde concept of modern art began to emerge in the early twentieth century which developed into a fine arts aesthetic appreciated only by the cultural elite. The qualities that had assured an enthusiastic public response to landscape painting were largely eliminated from this new concept of art; but pictorial spectacles that combined illusionistic virtuosity and documentary realism had not disappeared.

When twentieth century natural history dioramas are compared to mid-nineteenth century landscape painting, it becomes evident that the development of the modern diorama is

the continuation of an integral American convention in art, first established by the early panoramas. A brief analysis of the central qualities that made this style of landscape painting so popular is presented below. The tradition of topographical views, the tendency toward photographic realism and scientific documentation in art, and the attraction of the landscape as a subject for artistic tours de force that combine illusionistic spectacle with reportage are considered as qualities which directly relate to the art of dioramas.

#### The Topographical View

The tradition of topographical views is predominant through the early evolution of American landscape painting. It goes back to the records of the early explorers and continues through the prints and drawings that document the growth of newly established towns and the first paintings that record the scenic views of private estates. Apart from its military value, topography was perceived as important because it satisfied both the pragmatic requirement for art and the public demand for pictorial representations of scenic points of interest. For the first of these artists, landscape painting was an imitative process; to depict specific characteristics of a particular site it was important to make the pictorial space an extension of the viewer's space by the clever use of perspective.<sup>42</sup> Vantage

points were selected which stressed the uninterrupted recession of space and made the picture effective as an imitation of reality. Consequently, because of its emphasis on illusionistic perspective, the panoramic format was adopted as a means of recording more accurately the geographical features of the landscape.

Charles Willson Peale was one of the first American artists whose work reflected a preoccupation with perspective and a desire to portray the natural history and topography of his native landscape. The recession of space and the three-dimensional character of the objects that occupied that space were of paramount importance to Peale's many experiments in art.<sup>43</sup> According to Born, long before the panorama had been officially introduced to America Peale discovered an exhibition technique based on similar principles.<sup>44</sup> To display his zoological specimens, Peale had arranged them in "artificial" landscapes that combined "real" foreground material with painted backgrounds, which he described as showing "a particular view of the country" from which the specimens had originated.<sup>45</sup>

To assist him in the accurate portrayal of topographical views, Peale invented a painter's quadrant--designed to ensure the correct rendering of perspective and spatial continuity.<sup>46</sup> He used this machine while working on his panoramic view of Annapolis (1788-1804), a drawing which was the first of many topographical panoramas to be produced

in the U.S. during the nineteenth century. Oblique views with multiple vanishing points and an extended horizontal format which suggested the lateral expansion of space were compositional devices that characterized this mode of painting.

As a method of dealing with American scenery, the panoramic technique was also applied to the first literary descriptions of the native landscape. According to Howard Mumford Jones, the aesthetic principle of the full panoramic landscape was the creation of Thomas Jefferson in his *Notes on Virginia* (1784).<sup>47</sup> In his description of the "Natural Bridge" ("one of the most stupendous scenes in nature"), Jefferson composed a verbal picture that evoked a panoramic landscape.<sup>48</sup> More important was the precedent that Jefferson set for future representations of American scenery; he gave the wilderness landscape greater credibility by emphasizing its vast and powerful qualities.<sup>49</sup>

The commercial aspect of panoramic views was quickly recognized in America. There was a great demand (especially in Europe) for accurate topographical representations of the new country's famous scenery. In his article on early nineteenth century panoramic exhibitions, Lee Parry contended that, as the first American painter to initiate a full-scale panorama, Colonel John Trumbull (1756-1843) was "just as aware of the visual principles involved as he was of the material rewards to be gained in this special branch

of landscape painting."<sup>50</sup> Upon his return from Niagara Falls in 1807, Trumbull recorded the scene in two panoramic views of the falls which he planned to enlarge into a full-sized picture. A subsequent letter by Trumbull, seeking financial backing for his project, stressed its novel appeal and realistic accuracy--qualities he realized were essential to the popular success of the proposed exhibition:

I shall also bring with me two panoramic views of the Falls of Niagara & surrounding objects-- The scene is magnificent & novel. -- I have copied it with all the fidelity of my power, and am not without a hope that it will at once excite and in the same measure gratify the public curiosity.<sup>51</sup>

Panoramic exhibitions which featured topographical views were often intended to do more than just satisfy public curiosity; as a method of imparting factual information they fulfilled an educational role in society. Such was the case of the moving panorama used to publicize the archaeological discoveries made by Montroville W. Dickeson in the Mississippi Valley. Together with his collection of artifacts, he gave lectures and exhibited the panorama (painted by John J. Egan) across the country.<sup>52</sup>

Although some of Dickeson's archaeological findings were undoubtedly exaggerated by the panorama, Born commented that many of the scenes had a quality seldom found in legitimate American landscape painting. In particular, he referred to one entitled *Distant View of the Rocky Mountains*

(see Figure 15), about which he stated "rarely has the appearance of mountains in America been captured as impressively."<sup>53</sup> When compared to *The Oxbow* by Thomas Cole (see Figure 16), their similarity in composition and style is evident; attention to the topographical detail and atmospheric perspective are dominant considerations in both images. Generally considered to be the first American landscape painting in the panoramic style, *The Oxbow* depicts an expansive view from a high vantage point. Cole's realistic rendering of the topography and his use of multiple vanishing points create a convincing spatial transition which reveals his familiarity with the illusionistic principles of the original panorama.<sup>54</sup> Although Cole advocated direct study from nature, he believed that the cultivation of the artist's mind was "the faculty that has given superiority of the fine art over the mechanical arts."<sup>55</sup> According to Cole, while accurate topographical views could be depicted by a craftsman knowledgeable in the correct formulas for achieving realistic perspective, a true artist employed aesthetic criteria to determine the relationships of form and colour in the composition.<sup>56</sup>

While the earliest topographical views had served a strictly utilitarian function in American society, the imitation of nature for the later generation of artists was only a starting point from which they incorporated added aesthetic and symbolic dimension to the image. This was

due largely to the fact that, as the romantic identification of nature with America's "manifest destiny" increased, landscape painting gained greater aesthetic credibility for its own sake. As a result, American landscape painting adopted, to some extent, the compositional conventions of the late eighteenth century concept of picturesque beauty.

"Picturesque" was a term invented by William Gilpin to define those pictorial qualities present in nature which the paintings of Claude Lorraine and Salvadore Rosa had shown to be worthy of representation. Picturesque form was rough, irregular, broken, and contained a variety of light, texture, colour, and shape. These characteristics could be found in specific natural elements, for example, a tree stump charred by lightning, a gnarled tree covered in moss, sharp, rocky cliffs, or rough water. Gilpin wrote several books in which he laid down the guidelines for landscape composition and provided illustrated prototypes for natural scenery.<sup>57</sup> By isolating the picturesque qualities in nature, Gilpin popularized the aesthetics of landscape painting. His books were an immediate success in America, where the search for picturesque views became so popular that it amounted to a cult.<sup>58</sup> Many of the most famous sites, such as Niagara Falls, were portrayed so often that the scenery itself established conventions for certain types of panoramic views.

The pervasive influence of the picturesque mode of

perceiving nature extended to those artists who thought they were representing nature realistically without resorting to conventional formulas. In many cases, even paintings of specific topographical views were subject to reorganization according to the principles of picturesque beauty. Although Cole's *Oxbow* was based largely on his own observations of the well-known view, he employed several elements from the picturesque convention to ensure a favourable reception for the painting.<sup>59</sup> Among these were the light breaking through heavy clouds in an overcast sky, the gradation of light from a dark foreground to a lighter middle distance and medium-toned far distance, and the storm-ravaged trees.

By adopting many of the principles of panoramic exhibitions into his own art, Frederic Edwin Church did more than any other artist to popularize landscape painting. A student of Thomas Cole, Church went significantly beyond his master in creating a heroic conception of natural history and landscape art. In the words of David C. Huntington, Church "guided American landscape painting to its classic expression."<sup>60</sup>

Church's most famous painting was an oblong view of Niagara Falls with dimensions of 3½ ft x 7½ ft. Like Trumbull's earlier conception of the scene, *Niagara* was intended as a public spectacle; when it was unveiled in 1857, the response was overwhelming. Indeed, *Niagara* was

such a success that it toured the country, receiving outstanding reviews at every showing. Exhibited in this fashion, and popularized by the many colour reproductions, the work became America's best known landscape painting.<sup>61</sup> Even a later art critic, who did not approve of the "sensational landscapists," acknowledged that as a "literal transcript of the scene," *Niagara* was "clever topographical narration in a pictorial form."<sup>62</sup>

Not only did *Niagara* gain world recognition for American art, it was also praised by the mid-nineteenth century arbiter of landscape, John Ruskin. Ruskin was impressed by its realistic detail and life-like effect, qualities he held essential to all art. In fact, the panoramic style can be directly compared to Ruskin's ideal of true representation which evoked the experience of actually being within the landscape. Because his concept was in many ways similar to those conventions already established by topographical views, Ruskin's ideals were easily assimilated into the newly emerging national school of landscape painting.<sup>63</sup>

#### The Imitation of Nature

Ruskin's influential theories on realism and the representation of nature were much repeated by American artists.<sup>64</sup> In the preface to the second edition of *Modern Painters* (1855), Ruskin expressed the philosophy that

defined the aim of landscape painting for the following two decades:

It will be the duty . . . of the landscape painter to descend to the lowest details of undiminished attention . . . . Every herb and flower of the field has its specific, distinct, and perfect beauty; it has a particular habitation, expression and function. The highest art is that which seizes this specific character . . . which assigns to it its proper position in the landscape . . . . Every class of rock, every kind of earth, every form of cloud, must be studied with equal industry, and rendered with equal precision.<sup>65</sup>

Ruskin's equation of high art with scientific realism stimulated the development of the aesthetic of truth-to-nature in American landscape painting.<sup>66</sup> The *Crayon*, an American art journal which first appeared in 1855, was an outspoken advocate of Ruskin's doctrines. It tended to identify art with religion and reinforced the American inclination toward nature worship by linking Ruskin's art criticism with the appreciation of nature.<sup>67</sup> Asher Durand's nationalistic manifesto was issued in the pages of *Crayon*; it stressed the technical proficiency necessary to record the particularities of nature and encouraged the fusion between realism and religious idealism.<sup>68</sup> Durand especially emphasized the "virgin charms" of the native scenery, and asked the question:

. . . why should not the American landscape painter, in accordance with the principle of self-government, boldly originate a high and independent style, based on his native resources?<sup>69</sup>

The panoramic school of landscape painting seemed to emerge in response to Durand's plea for an independent style of art. Artists like Church, Bierstadt, and Moran focussed on the indigenous natural history and geographic features of North and South America. Their aim was to establish a separate iconography and style from the European conventions of landscape painting. Indeed, the emphasis on the wilderness as a subject for art, and the adoption of the panoramic format with its multi-vanishing points, broke many of the ties with more traditional painting styles.

For the painters who worked in the panoramic style, the basis of art became a scientific understanding of natural history; botany, meteorology, geology, and zoology were all subjects about which the artist had to be knowledgeable. Both science and art were seen as means to attain greater understanding of the Divinity in nature; Jarves wrote, "As nature is his art, so science is the progressive disclosure of His soul, or that divine philosophy which . . . must include art as one of its forms."<sup>70</sup>

According to Barbara Novak, the paintings by Church expressed the public concerns of his society: "seeing in the alliance between art and science an opportunity to follow the progressive disclosure of His soul."<sup>71</sup>

Church was the American painter most recognized for substituting "the patient and exclusive study of nature" for that of art.<sup>73</sup> In the words of contemporary art critic

H. T. Tuckerman:

The proof of the scientific interest of such landscapes as have established Church's popularity, may be found in the vivid and authentic illustrations they afford of descriptive physical geography. . . . The minute particularities of sky, atmosphere, trees, rocks, rivers and herbage are pictured with the fidelity of a naturalist.<sup>72</sup>

Church was inspired to express his interest in science through landscape art by the German explorer and naturalist Alexander von Humboldt. Humboldt had called for a painter to travel to South America to document the exotic flora and fauna in landscapes heroic in size and scope. The botanical and geological accuracy of Church's nature studies accorded with the advice given to artists in the section, "Landscape Painting in Its Influence on the Study of Nature" of Humboldt's famous book, *Cosmos*.<sup>73</sup>

Church's paintings were often favourably compared to daguerrotypes, so realistic was their "photographic imitation of natural objects and effects."<sup>74</sup> As art, they exemplified Ruskin's conviction that a particular truth was more important than a general truth: "The whole power, whether of painter or poet, to describe rightly what we might call an ideal thing, depends on its being thus, to him not an ideal, but a real thing."<sup>75</sup> Church routinely studied photographs to recall specific details of the landscape in his large, composite paintings.<sup>76</sup>

In a comprehensive analysis, Huntington pointed out

that the vivid realism Church projected was clearly encouraged by his study of landscapes of the Düsseldorf School, which had just begun to pour into the United States.<sup>77</sup> An example of this German landscape style (see Figure 17) illustrates the emphasis that it placed on scientific accuracy and photographic realism, qualities which were also central to the development of panoramic landscape painting in America. Later in the century, when the excessive realism and stereographic illusionism of the panoramic style had fallen into disfavour, critics often cited the undesirable influence of the Düsseldorf School.<sup>78</sup> During the mid-nineteenth century, however, the large-scale, realistic landscapes by Church, Bierstadt, and Moran not only satisfied the "myth of a newer, bigger America," but also provided the public with easel art that embodied many of the theatrical overtones of the popular spectacle.<sup>79</sup>

### Nature as Spectacle

In *Cosmos*, Humboldt urged landscape painters to use the "characteristic delineation of nature" to create "an enchanting effect":

This is calculated to raise the feeling of admiration for nature; and I am of the opinion that the knowledge of the works of creation, and an appreciation of their exalted grandeur, would be powerfully increased if besides museums, and thrown open like them, to the public, a number of panoramic buildings, containing alternating pictures of landscapes of different geographical

latitudes and from different zones of elevation, should be erected in our large cities.<sup>80</sup>

Humboldt's vision of public buildings which contained exhibitions of panoramic scenery from different geographic locations around the world seems to be a premonition of the great halls of dioramas in twentieth century natural history museums. During Humboldt's own time, however, landscape painting came closest to achieving the "enchanted effect" which he had envisaged.

Two of the most popular paintings of the nineteenth century were Church's *The Heart of the Andes* (1859) and Bierstadt's *The Rocky Mountains* (1863). Their success was due largely to the combination of nature and spectacle; standing before them, one could fantasize oneself not in front of paintings, but surrounded by nature. The observation of a contemporary critic could easily be applied to the "full-length landscapes" by Church and Bierstadt: "We went to see it in the same spirit that we went to ramble through the living forest with a heart open to receive the delightful impressions which the beauty and grandeur of nature never fail to impart."<sup>81</sup>

*The Heart of the Andes* revealed Church's familiarity with Humboldt's belief that:

. . . panoramas are more productive of effect than scenic decorations, since the spectator, enclosed, as it were, within a magical circle, and wholly

removed from all the disturbing influences of reality, may the more easily fancy that he is actually surrounded by a foreign scene.<sup>82</sup>

Church displayed his painting in a dark room dramatically lit by gas jet and surrounded by tropical vegetation taken from the actual South American site. Flanked with black crepe curtains, the scene was viewed as though it were a window looking out on nature. Because its huge size, multiple perspective, and shifting viewpoints made it difficult to focus on one particular view, many spectators brought opera glasses to look at the painting. Indeed, Elizabeth Lindquist-Cock suggested that the public came, "seeking the same thrill, the same illusion, the same sensation of being able to walk right into the landscape" that they had become accustomed to seeing in the stereoscope.<sup>83</sup>

According to Tuckerman, "the American work of art which attracted most attention and afforded greatest promise and pleasure in the spring of 1863" was Bierstadt's *Rocky Mountains* (approximately 8 ft x 10 ft), "one of the most essentially representative and noble illustrations of American landscape art."<sup>84</sup> The national subject of painting was greatly acclaimed by Tuckerman as a "virgin theme," the novelty of which would "attract the student of nature and the lover of art."<sup>85</sup>

A less favourable response came from James Jackson Jarves who did not approve of the popular nature of "the

enterprises of the sensational landscapists,"<sup>86</sup> and rejected any claims on their part to being high art. Jarves described *Rocky Mountains* as "a tableau-like inventory of an extensive view," by an artist who "gives scenic combinations of certain outside facts of nature, generally on a large scale, disenfranchised of sentiment and imagination."<sup>87</sup> Despite his condemnation, however, Jarves admitted that "they do address significantly the majority of Americans."<sup>88</sup> Apart from their popular appeal as illusionistic spectacles, the reportorial role that these landscapes played captured the attention of the public in a way that no other art form had.

#### Landscape Painting as Reportage

The reportorial role of panoramic landscape painting was a continuation of the early topographical tradition in American art. Because landscape painting was considered an essential aid in recording the topography and natural history of newly discovered territories, most exploratory expeditions were accompanied by artists.<sup>89</sup> By the mid-nineteenth century, although the reportorial function of such landscapes had changed from simple topographical documentation to elaborate glorifications of nature, the panoramic format and scientific realism of specific details in the landscape still remained important.

While early landscape painting was intended to

supplement the scientific observations of government-sponsored expeditions, the romantic attraction of unexplored regions and an increasing nationalistic identification with the indigenous natural history encouraged later artists to seek adventure for its own sake. As Tuckerman explained, "Adventure is an element in American artist-life that gives it singular zest and interest."<sup>90</sup> Furthermore, in addition to the personal challenge sought by the artist-explorer, dramatic scenes of the wilderness were assured a favourable reception in the mid-nineteenth century. As a source of pictorial information, such landscapes served the public demand for art that portrayed dramatic vistas of distant locales.

Tuckerman reported that the success of Church and Bierstadt was, in part, due to the fact that, "both have explored distant regions for characteristic and fresh themes."<sup>91</sup> While Church travelled extensively in South America, where he sought the exotic tropical scenery described by Humboldt in *Cosmos*, Bierstadt was the first well-known artist to join an expedition to explore the American West in 1857. His impressions of the wilderness landscape from this and many subsequent trips were recorded in large landscapes which featured unusual light effects. *Storm in the Rocky Mountains* (c. 1866) was typical of the many paintings which Bierstadt created to appeal to the taste and sentiment of the times.<sup>92</sup> An heroic landscape of

mountain grandeur, the painting provided the public with a vision of the West that was also a romantic metaphor for the glories of nature. Paintings such as these ensured that until public taste changed in the late 1880s, Bierstadt remained the most highly paid artist in America,

After the Civil War, the public demand for information about the West increased; the 1870s was the period of great national surveys. In addition to landscape painters, photographers frequently accompanied the expeditions to document the scenery, a situation that forced the artists to compete with the camera in producing realistic images.<sup>93</sup> As a result, landscape painters themselves began increasingly to rely on the use of photographic references to achieve scientifically accurate images. These pictures were in great demand by members of the rapidly growing popular press, all of whom catered to the interest in the far West and required illustrations for articles based on the well-publicized expeditions.

Like Church and Bierstadt, Thomas Moran relied on photography to record specific pictorial information for later reference when painting his landscape compositions.<sup>94</sup> Although he did not believe in the literal transcription of nature in art, Moran recognized the value of photography. In 1871, when he joined the Hayden expedition to explore the Yellowstone region, Moran worked closely with William H. Jackson, who was later to become one of the country's most

outstanding landscape photographers.

The reportorial function of landscape painting during the second half of the century was somewhat contradictory. In publicizing the geographical features of the newly explored territories, landscape painters encouraged Western expansionism and contributed to the exploitation of the natural resources, while at the same time upholding a spiritual identification with the virgin wilderness. Artists like Bierstadt and Moran believed they had a mission to reveal the scenic attractions of the Western frontier to the American public.<sup>99</sup> Moreover, they left an indelible mark behind them: "Between the 'Bierstadt Moraine' in the north and 'Moran Point' in the Grand Canyon, dozens of peaks, chasms, lakes and lookout points were named after the artists, their patrons, their wives and friends."<sup>100</sup>

In their art, both Bierstadt and Moran emphasized the most unique and spectacular features of the Western landscape. Widely distributed chromoliths of their paintings created a romantic vision of the West that the average American longed to see. These images were so popular they induced public support for the idea of scenic reservations and, in so doing, gave considerable impetus to the future National Parks system. According to Mary Haverstock, Bierstadt and Moran not only influenced the character, but, "in many cases the chosen location of nearly all the major National Parks."<sup>101</sup>

When Moran unveiled his 7 ft x 12 ft panoramic painting (reproduced in Figure 22), *The Grand Canyon of Yellowstone*, in 1872, it was greeted with great public fanfare. Not only did the painting succeed in establishing Moran's reputation, it also aided in spreading the fame of Yellowstone, and furthering the movement to appropriate it for public use.<sup>95</sup> On 1 March 1872, Yellowstone became the first National Park to be protected by the U.S. government "as a public or pleasuring ground for the benefit and enjoyment of the people."<sup>96</sup>

Because of the expansiveness of the Grand Canyon view, Moran sacrificed absolute pictorial fidelity in the illusionistic impression of the scene. As he explained:

The idealization of the scene consists in the combination and arrangement of the various objects in it. At the same time, the combination is based upon the characteristics of the place. My purpose was to convey a true impression of the region--not its strict topography.<sup>97</sup>

Although Moran believed that the artist's role was to "produce for the spectator of his pictures the impression produced by nature on himself,"<sup>98</sup> his paintings reflect the conflict between the ideals of painting and the ideals of photography. When Moran began his career in the 1850s, the landscape painter's craft of producing art that was the imitation of truth-in-nature was still flourishing. As advances in photography enabled the camera to record

American scenery more efficiently, it became clear that the goal of fine art as a transcription of nature had to change.

Moran was the last of the fine artists whose work attempted to satisfy the tremendous popular demand for pictorial information about American scenery. Although his paintings reveal a strong reliance on photographic documentation, the underlying associations of wild nature with the sublime is a continuation of a theme fundamental to all nineteenth century landscape painting. Artists like Bierstadt and Moran explored the Western landscape in search of a primal vision that would embody the divine attributes of the Creator. As Walt Whitman put it,

. . . a typical Rocky Mountain canyon, or a limitless sealike stretch of the great Kansas or Colorado plains, under favouring circumstances, tallies, perhaps expresses, certainly awakes, those grandest and subtlest element[all] emotions in the human soul . . . .<sup>102</sup>

Landscape Scenery in Natural History  
Museums: A Comparison

One seems to be looking through a window  
on nature itself.<sup>103</sup>

Natural history dioramas are commonly perceived in much the same way that nineteenth century panoramic landscape paintings were viewed as magical artistic tours de force. The subject of both art forms is the wilderness landscape,

seen in its primordial state with an abundance of indigenous flora and fauna. Whether the landscape scene is from this continent or elsewhere in the world, the concept of a picturesque wilderness undisturbed by civilization appeals to the romantic yearnings of modern man.

The "sentimental romanticism" that characterizes the dioramas in North American natural history museums has been observed by A. E. Parr.<sup>104</sup> Because of the integral historic role nature played in forming the national identity of America, this nostalgic attitude toward the wilderness landscape is less prevalent in Europe. Moreover, natural history dioramas in North American museums have a direct precedent for the romantic interpretation of nature in the nineteenth century U.S. tradition of landscape painting.

In 1835, Thomas Cole first emphasized the fact that, "the most distinctive, and perhaps the most impressive characteristic of American scenery is its wildness."<sup>105</sup> In addition to having no equivalent in European scenery, Cole believed that the study of the wilderness landscape was "conducive to our happiness and well-being," and would lead to a greater appreciation of the fine arts.<sup>106</sup> Cole's nationalistic attitude toward the aesthetic and inspirational qualities of the wilderness was quickly adopted by his contemporaries. Roderick Nash reported that, "by the middle decades of the nineteenth century, wilderness was recognized as a cultural and moral resource and a basis for

national self-esteem."<sup>107</sup>

Cole also had the insight to warn of the imminent destruction of America's wild scenery:

Yet I cannot but express my sorrow that the beauty of such landscapes are quickly passing away--the ravages of the axe are daily increasing--the most noble scenes are made desolate, and often times with a wantonness and barbarism scarcely creditable in a civilized nation.<sup>108</sup>

By 1847, the fundamental opposition of nature to civilization had become a well-established convention in landscape painting.<sup>109</sup> In his analysis of "Nature and the National Ego," Perry Miller described how the materialistic expansionism of early nineteenth century America had somehow to be viewed as an immense exertion of the spirit, rather than as the most utilitarian conquest of nature known to history:

The more rapidly, the more voraciously the primordial forest was felled, the more desperately poets and painters--and also preachers--strove to identify the unique personality of this republic with the virtues of pristine and untarnished, of "romantic" Nature.<sup>110</sup>

Because the unity of God and nature was a central tenet of American landscape painting, the destruction of the wilderness created a dilemma for those later artists who strove to reconcile the impending loss of identity. As Barbara Novak pointed out:

Such intense reverence for nature came only with the realization that nature could be lost. Given the indissoluble union of God and nature at this moment, the fate of both God and nature is obvious. A future mourning the loss of faith and consumed with ecological nostalgia was not far away.<sup>111</sup>

The paintings of Church, Bierstadt, and Moran reflected this underlying dilemma and anticipated the development of the back-to-nature movement at the end of the century.

According to Nash, several circumstances of late nineteenth century America combined to give the familiar romantic rhetoric of the wilderness new urgency and unprecedented public appeal:

As the antipode of civilization, of cities, and of machines, wilderness could be associated with the virtues these entities lacked. In the primitive, specifically, many Americans detected the qualities of innocence, purity, cleanliness, and morality which seemed on the verge of succumbing to utilitarianism and the surge of progress. And at a time when the force of religion seemed vitiated by the new scientism on the one hand and social conflict on the other, wilderness acquired special significance as a resuscitator of faith.<sup>112</sup>

These circumstances contributed to the back-to-nature movement which became a part of the wilderness cult that characterized American society at the beginning of the twentieth century.

As mentioned in Chapter 3, the early influence of the wilderness cult resulted in greater public support for wildlife conservation. Ironically, by 1942 it was

commonly believed that natural history dioramas were a means by which man could "preserve for posterity accurate pictures of species which may possibly become extinct, and whose haunts may be swallowed up by the march of civilization."<sup>113</sup>

Although dioramas are intended to be didactic expositions of the natural history of a specific geographic area, the premise of such exhibits is based on a nostalgia for the virgin wilderness. Like panoramic landscape painting, natural history dioramas can be considered as a romantic (and often idealized) expression of primordial nature.

According to David Huntington, *Twilight in the Wilderness* (see Figure 18), painted by Frederic Church in 1860, is the "ultimate wilderness landscape--high art rooted in the depth of American experience."<sup>114</sup> Intended as an apocalyptic vision of America's manifest destiny and as a symbol of the unblemished purity of a new world, the painting can also be interpreted as an ominous forecast of the future. As national progress surged onward, the axe of civilization threatened to destroy what was left of the nation's wild scenery.

In the twentieth century, natural history dioramas are the last vestiges of the utopian American dream of a virgin wilderness and limitless Western frontier. For example, consider the "Silver-Tipped Grizzly Bear Diorama" (see

Figure 19) at the Denver Museum of Natural History. Like Church's painting, the diorama is a recreation of a realistic wilderness scene. Despite the common aim of both art forms to produce a veritable transcript from nature, the two scenes also function as metaphors for the vanquished sublimity of the wilderness. As an endangered species, the grizzly bear--like Church's sinking sun--can be interpreted as a symbol of the end of an era in American history.

The luminous and portentous sky in the painting by Church seems more to suggest nature's transcendent moments than to document the actual atmospheric conditions. Yet it was a pictorial device often used in older museum dioramas to increase the dramatic effect of the exhibit. For example, the "African Lion Diorama" (c. 1930) at the California Academy of Sciences in San Francisco depicts a regal-looking group of lions at dusk. The sky is livid with colour; in fact, a red, back-lit transparency was added to the background painting to create the effect of the last intense rays of the setting sun.

Nash contended that the wilderness cult of early twentieth century America resulted in "an increasing number of Americans [who] invested wild places with aesthetic and ethical values, emphasizing the opportunity they afforded for contemplation and worship."<sup>115</sup> The growing perception that the frontier era was over, and that the need for conservation of the natural resources was imminent, created

a favourable climate for the development of natural history dioramas. Intended for urban dwellers who had little opportunity of experiencing the real thing, such dioramas were often sentimental reflections of the virtues of wild nature. The concept that the wilderness scenery of natural history dioramas provided a place where "man could find refuge" and "lose himself in a communion with Nature" is essential to understanding the rapid proliferation of this type of exhibition in the twentieth century.<sup>116</sup>

The widespread appeal of wilderness scenery has a pictorial precedent in the Western paintings by Albert Bierstadt. Extremely popular images in their time, they captivated the attention of an urban audience who had romantic visions of life in the frontier. *The Last of the Buffalo* (see Figure 20), painted by Bierstadt in 1888, represents the closing of the American frontier and the almost complete extermination of a wildlife species that had become synonymous with the wilderness. When compared with the background for "The Buffalo Hunt Diorama" (see Figure 21) at the Manitoba Museum of Man and Nature, painted by Clarence Tillenius, the similarities in technique and concept are evident. Despite their documentary intention, both works present an idealized picture of the wilderness frontier which suggests that ruthless hunting by Indians was the cause of the buffalo's demise.

Like the panoramic style of landscape painting, the

imaginative interpretation of nature that so often characterizes museum dioramas cannot be separated from the life-like appearance of the scene. In his article, "Realism and Romanticism in Museum Exhibits," A. E. Parr has suggested that the purpose of museum exhibits should *not* be to recreate a total recall of a particular scene from nature, but, rather, to communicate the excitement of the learning experience through "the romanticism of style that spurs the imagination."<sup>117</sup> Certainly this concept was also central to Bierstadt's reportorial style of sensational landscape painting.

Nineteenth century landscape painters made frequent use of wildlife imagery as a sentimental reference to the disappearing wilderness. Church and Bierstadt even maintained large collections of wildlife specimens as models for their art. Bierstadt's numerous drawings and paintings of the moose reflect his admiration for an animal he considered the king of the forest. As a big-game hunter and active member of the Boone and Crockett Club, Bierstadt typified the close association between "nature-lovers" and sportsmen prevalent at the end of the nineteenth century. As was frequently the case, because the antlers from a moose shot by Bierstadt were of trophy dimension, they were displayed in a diorama at the Boston Museum of Science.<sup>118</sup>

The reportorial role of panoramic landscape painting as "vivid and authentic illustrations . . . of descriptive

physical geography"<sup>119</sup> has a visual counterpart in the art of dioramas. At the Denver Museum of Natural History, the diorama backgrounds feature "a specific well-known landmark," and are described as "panoramic geographic paintings."<sup>120</sup> These exhibits show the association of plants and animals with their natural environment, a theme which is especially evident in the Ecological Hall, where each diorama represents a specific geographic "life zone."

Although the majority of paintings by Bierstadt and Moran were intended to record the topographic scenery of Western expeditions, they were never exact copies of specific views. Rather, they were composites assimilated by the artist to create the impression of the overall character of the landscape. *The Grand Canyon of Yellowstone* (see Figure 22), painted by Thomas Moran in 1872, represents this style of painting; it has no fixed vantage point and is a synthesis of panoramic views. As he explained it:

Every form introduced into the picture is within view from a given point, but the relations of the separate parts to one another are not always preserved . . . . My aim was to bring before the public the character of that region. The rocks in the foreground are so carefully drawn that a geologist could determine their precise nature.<sup>121</sup>

A similar approach is evident in the "Mountain Lion Diorama" (see Figure 23) at the Denver Museum of Natural History. Like Moran's painting, the panoramic vista is not a literal transcription of the actual view. Rather, it is

intended to make the viewer feel the grandeur of the scene while at the same time carefully reproducing scientifically accurate details such as the geological structure of the rock formations.

To a large extent, landscape scenery in natural history dioramas probably evolved as a consequence of the search for natural scenery that had characterized the nineteenth century. Despite their utilitarian function, such dioramas often reflected a preconceived concept of scenic beauty that was similar to the convention of the picturesque that influenced much of that era's landscape painting. The wilderness cult at the turn of the century increased public desire for natural scenery and pushed the government into a more active role in nature conservation. By 1900, John Muir had noted that "the scenery habit, even in its most artificial forms, mixed with spectacles, silliness and kodaks" was an essential part of the American lifestyle.<sup>122</sup> However, as Peter Schmitt pointed out in *Back to Nature*, the appreciation of natural scenery was a preconditioned experience:

The most ardent tourists were not impressed by the wilderness itself. They looked instead for the unique, the spectacular or the sublime, drawing their standards from stereoscopic views, picture postcards, railroad advertising, magazine illustrations, Romantic literature and landscape art.<sup>123</sup>

These same standards formed the basis for the popular notion of picturesque beauty which so often appears

in museum dioramas. For example, panoramic vistas such as the Grand Canyon (the setting for the "Mountain Lion Diorama") not only increase their public appeal but also reinforce the popular expectations of natural scenic beauty in wilderness landscapes.

Diorama painters employ an approach similar to landscape painters of the nineteenth century, artists who were advised by the critic, H. T. Tuckerman, to:

. . . imitate nature in detail, as well as in general effects, to obtain a mastery of perspective, -- to elaborate correctly the flower and leaf, and, at the same time, be equally expert in the management of distance and light.<sup>124</sup>

While it was Ruskin's ideal of truth-to-nature that motivated nineteenth century landscape painters, in recent years the renewed emphasis on photographic realism in the fine arts has rejuvenated a similar approach to painting diorama backgrounds. For example, a close-up section of the background for the 1981 "Barkerville Diorama" (see Figure 25) at the British Columbia Provincial Museum, painted by Jan Vriesen, reveals a dedication to verisimilitude which can be compared to the meticulous realism evident in Church's *Study of a Forest Pool*, c. 1860 (see Figure 24).

The long months of careful research that go into making a diorama involve many of the same procedures that nineteenth century panoramic landscape painters used to ensure their work was an authentic replication of nature.

Thorough documentation of the actual site requires collecting samples of the vegetation, taking photographic references, making sketches, and constructing models. Although the actual painting technique may vary from one diorama artist to another, the end result is always judged on the realism of the scene and the success of the illusion.

The many affinities in style and subject matter between nineteenth century panoramic landscape painting and natural history dioramas suggest that dioramas can be considered a popular continuation of a uniquely American tradition in the fine arts. This tradition is based on the utilitarian function of the topographical view, the veristic aesthetic of truth-to-nature, the illusionistic portrayal of nature as spectacle, and landscape painting as reportage. In addition, the underlying theme of the disappearing wilderness is essential to understanding the popular appeal that the romantic interpretation of nature has enjoyed in North America.

The following chapter discusses the art of dioramas as it has developed in the twentieth century. The diorama's design and storyline are examined together with an overview of the various processes involved in its preparation. To elucidate more fully the aesthetic demands of the diorama, the careers and views of specific background painters are presented.

Chapter 4 Footnotes

<sup>1</sup>Gordon Reekie, "Expositions, Exhibits, and Today's Museums," *Natural History* (June-July 1964), p. 27.

<sup>2</sup>Frank M. Chapman, *A Guide to the Study of Our Common Birds* (New York: Appleton, 1906), p. iv. Chapman's belief in the popular interpretation of natural history was an affirmation of the museum's founding mandate to provide popular education for the community.

<sup>3</sup>Albert E. Parr, "On Museums of Art and Nature," *Museum News* (October 1980), p. 41.

<sup>4</sup>Frank M. Chapman, "The Bird-life and the Scenery of a Continent in One Corridor," *World's Worker*, 17 (November 1908-April 1909), 11372.

<sup>5</sup>*Ibid.*, p. 11374.

<sup>6</sup>In Elizabeth Lindquist-Cock, *The Influence of Photography on American Landscape Painting, 1839-1880* (New York: Garland, 1977), p. 62. From Joseph Earl Arrington, "John Banvard's Moving Panorama of the Mississippi, Missouri, and Ohio Rivers," *Filson Club Historical Quarterly*, 32(3) (July 1958), 219.

<sup>7</sup>Dolf Sternberger, *Panorama of the Nineteenth Century*, translated by Joachim Neugroschel (New York: Urizon Books, 1977), p. 13.

<sup>8</sup>*Ibid.*, p. 8.

<sup>9</sup>*Ibid.*, p. 11. No source cited.

<sup>10</sup>*Ibid.*

<sup>11</sup>In Lee Parry, "Landscape Theatre in America," *Art in America*, 59 (November-December 1971), 52. Unless cited otherwise, the information on panoramas is from this article.

<sup>12</sup>In Helmut and Alison Gernsheim, *L. J. M. Daguerre*, 2nd ed. (1956; rpt. New York: Dover Press, 1968), p. 18. From *Journal de Paris*, 22 July 1822.

<sup>13</sup>*Ibid.*, p. 31.

<sup>14</sup>In Richard Altick, *The Shows of London* (Cambridge, MA: Belknap Press, 1978), p. 166. From *John Constable's Correspondence*, ed. R. B. Beckett, 6 (Suffolk Records Society, 12, 1968), p. 134.

<sup>15</sup>In Altick, p. 197. From the *Examiner*, 30 September 1832.

<sup>16</sup>In Gernsheim, p. 18. From *La Quotidienne*, 4 August 1822.

<sup>17</sup>In Gernsheim, p. 7. From Daly, *Revue générale de l'Architecture*, Vol. 2 (Paris, 1841).

<sup>18</sup>In Altick, p. 188. From the *Times*, 7 April 1827.

<sup>19</sup>Ibid., p. 174. From John Ruskin, "On the Present State of Modern Art," *Works of Ruskin*, ed. E. T. Cook and A. D. D. Wetterburn (London, 1902-1912), Vol. 14, p. 218.

<sup>20</sup>See Altick, and Barbara Novak, *Nature and Culture: American Landscape Painting 1825-1875* (New York: Oxford University Press, 1980).

<sup>21</sup>Werner Neite, "The Cologne Diorama," *History of Photography*, 3 (April 1977), 105-109.

<sup>22</sup>In Altick, p. 196. From "Praterita," *Works of Ruskin*, 35, pp. 117-118.

<sup>23</sup>Novak, p. 23. According to Novak, "The panorama, with its geologic and scientific certitudes and overtones of documentary edification was a careful visual encyclopedia of travel fact. It made little pretense at being anything but a kind of theatricalized *National Geographic*."

<sup>24</sup>"What Comes Naturally," *Newsweek* (24 March 1969).

<sup>25</sup>Frederick A. Lucas, "The Story of Museum Groups," *Guide Leaflet Series*, No. 53, American Museum of Natural History, 1921, p. 27.

<sup>26</sup>John Jellico, "William Traher: Giant in the Museum," *American Artist*, 38 (May 1974), 63.

<sup>27</sup>"Vital Museums of the New Era," *New York Times Magazine*, (20 March 1932), pp. 12-13.

<sup>28</sup>Ibid.

<sup>29</sup>In William Dunlap, *A History of the Rise and Progress of the Arts of Design in the United States*, Vol. 2 (1834; rpt., New York: Dover Press, 1969), pp. 133, 134. From an anonymous memoir.

<sup>30</sup>Wolfgang Born, "The Panoramic Landscape as an American Art Form," *Art in America*, 36 (January 1948), 4.

<sup>31</sup>John Wilmerding, "Fire and Ice in American Art," in Kynaston McShine, ed., *The Natural Paradise: Painting in America, 1800-1950* (New York: Museum of Modern Art, 1976), p. 42.

<sup>32</sup>In John F. McDermott, *The Lost Panoramas of the Mississippi* (Chicago: University of Chicago Press, 1958), p. 23. No source cited.

<sup>33</sup>*Ibid.*, p. 68. From the *St. Louis Reveille* (October 1849).

<sup>34</sup>Born, p. 4.

<sup>35</sup>Born, *American Landscape Painting: An Interpretation* (New Haven, CT: Yale University Press, 1948), p. 81.

<sup>36</sup>Novak, p. 20. Novak stated that Cole was responsible for the transfer of the rhetoric and aims of history painting to landscape art. She pointed out that Cole's cyclical extravaganzas (*The Course of Empire* and *Voyage of Life*) had a popular counterpart in the panorama: "The overlap between Cole's serious cycles, which represented, for him at least, his most profound philosophical thought, and the popular art of the panorama is an important juncture of the high art of history painting, appreciated by an intellectual elite, and public or popular art."

<sup>37</sup>*Ibid.*

<sup>38</sup>James Jackson Jarves, *The Art Idea* (New York: Hurd & Houghton, 1864, rpt., ed. Benjamin Rowland, Jr., Cambridge, MA: Harvard University Press, 1960), p. 190.

<sup>39</sup>Novak, p. 152. Novak referred to the panoramic style of landscape painting as large-scale popular art which resulted, in part, from the ambition of the artist-explorers to act as "priests of the natural church": "They were rehearsing and reliving Genesis through the landscape, just as the geologists were attempting to do." Unless cited otherwise, the material on nineteenth century panoramic landscape painting is based on information from Novak's book.

<sup>40</sup>James Thomas Flexner, *That Wilder Image: The Painting of America's Native School From Thomas Cole to Winslow Homer* (New York: Little, Brown, 1962), p. xi.

<sup>41</sup>Ibid.

<sup>42</sup>See Lisa Fellows Andrus, *Measure and Design in American Landscape Painting, 1760-1860* (New York: Garland, 1977).

<sup>43</sup>One such experiment was a landscape show-box that was said to be an imitation of de Louthembourg's Eidophusikon. Among the shows produced by Peale were views of romantic scenery with changing light effects. See James Thomas Flexner, *America's Old Masters: First Artists of the New World* (New York: Viking, 1958), pp. 208-209.

<sup>44</sup>Born, *American Landscape Painting*, p. 75.

<sup>45</sup>In Charles C. Sellers, *Mr. Peale's Museum* (New York: W. W. Norton, 1980), p. 28. From Charles Willson Peale, *Autobiography*, typescript, Peale Papers, American Philosophical Society, p. 318.

<sup>46</sup>See Andrus, pp. 288-298. Andrus explained that the drawing machine invented by Peale was probably based on the principle of the "velo," or transparent plane, onto which the artist traced the landscape scene directly. The "velo" could also be a simple grid through which the artist looked, providing a ready-made system for transfer.

<sup>47</sup>Howard Mumford Jones, *O Strange New World: American Culture--The Formative Years* (New York: Viking, 1964), pp. 358-360.

<sup>48</sup>The entire description is quoted in Jones, pp. 358-359.

<sup>49</sup>According to Jones, the Hudson River School of landscape painting (which included Church, Bierstadt, and Moran) was based on the Jefferson principle of the panorama.

<sup>50</sup>Parry, p. 55.

<sup>51</sup>In Parry, p. 55. From Theodore Sizer, ed., *The Autobiography of Colonel John Trumbull* (New Haven, CT: n.n., 1953), p. 358.

<sup>52</sup>Born, *American Landscape Painting*, p. 96.

<sup>53</sup>Ibid.

<sup>54</sup>Parry, p. 58. Parry also stated that the dramatic movement of the thunderstorm toward the left of the painting suggests the influence of the moving panorama.

<sup>55</sup>Louis L. Noble, *The Life and Works of Thomas Cole* (1853 New York; rpt. Cambridge, MA: Harvard University Press, 1964), p. 63. From a letter by Cole, 25 December 1826.

<sup>56</sup>Ibid.

<sup>57</sup>Gilpin's principles are found throughout his many books, but in particular see: *Three Essays on Picturesque Beauty; on Picturesque Travel; and on Sketching Landscape; with a Landscape Poem and Two Essays*, 3rd ed. (London: n.p., 1808).

<sup>58</sup>Andrus, p. 238. Among the best known books published were: Joshua Shaw's *Picturesque Views of American Scenery* (1828); William Guy Wall's *Hudson River Portfolio* (1828); and *American Scenery*, illustrated by William Bartlette (1840).

<sup>59</sup>Ibid., p. 241.

<sup>60</sup>David C. Huntington, *The Landscapes of Frederic Edwin Church: Vision of an American Era* (New York: Braziller, 1966), p. x. Unless cited otherwise, the material on Church is from this book.

<sup>61</sup>Ibid., p. 3.

<sup>62</sup>James Jackson Jarves, *Art-Thoughts: The Experiences and Observations of an American Amateur in Europe* (New York: Hurd and Houghton, 1969), p. 298.

<sup>63</sup>See Roger B. Stein, *John Ruskin and Aesthetic Thought in America, 1840-1900* (Cambridge, MA: Harvard University Press, 1967). As Stein has pointed out, the reason for Ruskin's enormous popularity in America probably lay in the fact that he was expressing ideas already current.

<sup>64</sup>See Stein, pp. 263-265 for an historical review of Ruskin's publications in the U.S.

<sup>65</sup>In Elizabeth Lindquist-Cock, p. 18. From Ruskin, *Modern Painters*, p. xxxiii.

<sup>66</sup>Novak, p. 299. In agreement with Stein, Novak reported that, although Ruskin may have acted as an intellectual spokesman for some important ideas, "The concern for the real as a vehicle for the ideal, the reverence for nature as God, the respect for a scientism of observation, were all part of the developing American landscape aesthetic when *Modern Painters* arrived on the scene."

<sup>67</sup>See Stein, pp. 186-220.

<sup>68</sup>See Asher B. Durand, "Letters on Landscape Painting, 1855," in *American Art 1700-1960*, ed. John McCoubrey (Englewood Cliffs, NJ: Prentice-Hall, 1965), pp. 110-115.

<sup>69</sup>Ibid., p. 113.

<sup>70</sup>Jarves, *The Art Idea*, p. 40.

<sup>71</sup>Novak, p. 77.

<sup>72</sup>Henry T. Tuckerman, *Book of the Artists* (1867; rpt. New York: James F. Carr, 1966), p. 371.

<sup>73</sup>See Novak, pp. 66-71.

<sup>74</sup>Tuckerman, p. 380.

<sup>75</sup>In Andrus, p. 266. From John Ruskin, *Modern Painters*, 5 vols. (Boston: Dana Estes, n.d.), Vol. 3, p. 115.

<sup>76</sup>See Elizabeth Lindquist-Cock, "Frederick Church's Stereoscopic Vision," *Art in America* (September-October 1973), pp. 70-75.

<sup>77</sup>Huntington, p. 35.

<sup>78</sup>See Gordon Hendricks, *Albert Bierstadt: Painter of the American West* (New York: Harry Abrams, 1973), p. 165. Even as early as March 1860, a review of Bierstadt's *The Base of the Rocky Mountains* printed in the *Crayon* reported, "we should like to see less of the stereotyped Düsseldorf system of coloring." Unless cited otherwise, the material on Bierstadt is from Hendrick's biography.

<sup>79</sup>Novak, p. 18.

<sup>80</sup>Alexander von Humboldt, *Cosmos*, trans. E. C. Otté, 2 vols. (New York: Harper & Bros., 1850), Vol. 2, p. 98.

<sup>81</sup>In Hans Huth, *Nature and the American: Three Centuries of Changing Attitudes* (Berkeley, CA: University of California Press, 1957), p. 138. From H. Lewis, *Das Illustrierte*

*Mississippithal* (Düsseldorf, 1854-1858; rpt. ed. J. Bay, Leipzig, 1923), p. vii.

<sup>82</sup>Humboldt, Vol. 2, p. 98.

<sup>83</sup>Lindquist-Cock, *The Influence of Photography on American Landscape Painting, 1839-1880*, p. 121. The author made the point that, by conditioning the public to expect the same three-dimensional effects from painting that they received from photographs, the stereographic rage exerted a tremendous influence on moulding the artistic taste of Americans.

<sup>84</sup>Tuckerman, p. 389.

<sup>85</sup>*Ibid.*, p. 395.

<sup>86</sup>Jarves, *Art Thoughts*, p. 298.

<sup>87</sup>*Ibid.*

<sup>88</sup>*Ibid.*

<sup>89</sup>See William Goetzmann, *Exploration and Empire* (New York: Alfred Knopf, 1966).

<sup>90</sup>Tuckerman, p. 389.

<sup>91</sup>*Ibid.*, p. 289.

<sup>92</sup>See Patricia Trenton and Peter H. Hassrick, *The Rocky Mountains: A Vision for Artists in the Nineteenth Century* (Norman, OK: University of Oklahoma Press, 1983), pp. 116-147.

<sup>93</sup>Lindquist-Cock, *The Influence of Photography on American Landscape Painting, 1839-1880*, p. 127.

<sup>94</sup>*Ibid.*, p. 130.

<sup>95</sup>Hans Huth, p. 152.

<sup>96</sup>*Ibid.* Original source not cited.

<sup>97</sup>In Lindquist-Cock, *The Influence of Photography on American Landscape Painting, 1839-1880*, p. 150. From Thurman Wilkins, *Thomas Moran: Artist of the Mountains* (Norman, OK: University of Oklahoma Press, 1966), p. 99.

<sup>98</sup>*Ibid.*, p. 142. From Wallace Stegner, *Beyond the Hundredth Meridian* (Boston: Houghton Mifflin, 1962), p. 182.

<sup>99</sup>See Lindquist-Cock, *The Influence of Photography on American Landscape Painting, 1839-1880*, p. 141. Lindquist-Cock cited an article entitled, "Pioneer of the Palette," *Magazine of Art* (February 1882), which described the artist's "mission" in full.

<sup>100</sup>Mary S. Haverstock, "Can Nature Imitate Art?" *Art in America* (January-February 1966), p. 74.

<sup>101</sup>Ibid.

<sup>102</sup>In Novak, p. 154. From Walt Whitman, *Specimen Days* (1882; rpt. Boston: David R. Godine, 1971), p. 91.

<sup>103</sup>In Irene Cypher, "The Development of the Diorama in the Museums of the United States," Diss. New York University, 1942, p. 31. From Frank M. Chapman, *Autobiography of a Bird-lover* (New York: D. Appleton, 1933), p. 166.

<sup>104</sup>Albert E. Parr, "Realism and Romanticism in Museum Exhibits," *Curator*, 6(2) (1963), 174.

<sup>105</sup>Thomas Cole, "Essay on American Scenery" (1835), in *American Art 1700-1960*, ed. John McCoubrey (Englewood Cliffs, NJ: Prentice-Hall, 1965), p. 104.

<sup>106</sup>Ibid.

<sup>107</sup>Roderick Nash, *Wilderness and the American Mind* (New Haven, CT: Yale University Press, 1967), p. 67.

<sup>108</sup>Cole, p. 109.

<sup>109</sup>See Perry Miller, *Errand Into the Wilderness* (Cambridge, MA: Belknap, 1956), p. 205. Miller cited a review of an art exhibition at the National Academy (published in *The Literary World*, 8 May 1847) as proof of this statement.

<sup>110</sup>Ibid., p. 107.

<sup>111</sup>Novak, p. 5.

<sup>112</sup>Nash, p. 157.

<sup>113</sup>Cypher, p. 143.

<sup>114</sup>Huntington, p. 80.

<sup>115</sup>Nash, p. 145.

<sup>116</sup>These comments were made in an article on the opening of the new Hall of North American Mammals at the A.M.N.H. in New York. Harold E. Anthony, "A Grand Tour of North America," *Natural History* (April 1942), p. 190.

<sup>117</sup>Parr, "Realism and Romanticism in Museum Exhibits," p. 184.

<sup>118</sup>A photograph of this diorama appears in Hendricks, p. 282.

<sup>119</sup>Tuckerman, p. 371.

<sup>120</sup>Helen Moenke, *Ecology of Colorado Mountains to Arizona Deserts* (Denver, CO: Denver Museum of Natural History, 1971), p. 6.

<sup>121</sup>In Thurman Wilkins, *Thomas Moran, Artist of the Mountains*, pp. 64-69. From George W. Sheldon, *American Painters* (New York: Appleton and Co., 1867), p. 27.

<sup>122</sup>In Peter Schmitt, *Back to Nature: The Arcadian Myth in Urban America* (New York: Oxford University Press, 1969), p. 155. From John Muir, *Our National Parks* (Boston: Houghton Mifflin, 1901), p. 2. According to Schmitt, in 1908, 60,000 travellers visited the 11 U.S. National Parks in search of scenic beauty. By 1928, the number had increased to more than 3 million people.

<sup>123</sup>Ibid.

<sup>124</sup>Tuckerman, p. 372.

## Chapter 5

### THE ART OF DIORAMAS

#### Introduction

The essential role that art has played in making natural history exhibits accessible to the public is generally not acknowledged. Yet the development of a specialized exhibit technique that combined both art and science revolutionized museological philosophy and was a prime consideration in the design and construction of early natural history museums in North America.

Dioramas are unusual in that they transcend the limitations of being an exclusively didactic vehicle for conveying scientific facts about nature. An article entitled "Where Science Joins Hands with Art" (1917) described the dioramas in the newly opened Hall of North American Mammals at the California Academy of Sciences as "scenes of artistic beauty" which only "unconsciously instruct the spectator."<sup>1</sup> The theatrical and aesthetic appeal of dioramas, and their continued use as a popular display technique in natural history museums, make them worthy of study as a unique art idiom.

In *The Sacred Grove: Essays on Museums* (1969), Dillon Ripley wrote:

Our museums should not be encouraged to compound the errors of their founding fathers--that great art deserves only worship and the refinements of higher custodianship, and that science on the other hand is somehow separate, different and removed.<sup>2</sup>

Ripley conceded however, that, in this century, the "mythical chasm" between these two institutions has widened; the art museum has become an elite status symbol for the community, while the natural history museum is seen as an institution devoted primarily to public education.<sup>3</sup> An explanation for this development was offered by Kenneth Hudson; he suggested that because there was no agreed standard of taste or connoisseurship relating to stuffed birds, "Potentially, at least, the non-art museums were more democratic, a fact which is of great importance in understanding the traditions of the American museum."<sup>4</sup>

Natural history dioramas were an integral part of the new educational force that developed in public museums at the turn of the century. In the words of Henry F. Osborn, president of the A.M.N.H. from 1914 to 1939, "The new definition of the purpose of a museum is 'To bring a vision of the world to those who otherwise can never see it.'<sup>5</sup> Osborn's definition was clearly embodied in the comprehensive program of dioramas that was undertaken at the A.M.N.H. during those years. The widespread public interest and support for

dioramas heralded "a new era for natural history museums,"<sup>6</sup> in which the democratization of knowledge was considered a fundamental responsibility of the museum. As early as 1916, it was noted that "Such exhibits, combining with accurate, scientific information the best that there is in art, will reach not only the student, but the layman as well."<sup>7</sup>

The degree of craftsmanship and amount of time required to produce a diorama are considerable. Even by 1930 it had been noted that the preparatory work for such exhibits "usually costs as much as the expedition which collected the material in some remote quarter of the world, and often takes much more time."<sup>8</sup> This cost was high because the procedure for creating a diorama had become an intricate process in itself, involving the skills of many individuals. The success of the exhibit depended on the ability of these artisans to recreate a life-like scene from nature, an aim which is one of the most traditional functions of art. Indeed, in 1937, when it was charged that the A.M.N.H. employed many more people than did the Metropolitan Museum of Art, the director of the A.M.N.H. was reported to have replied, "They buy their art, we must *make* ours."<sup>9</sup>

Although A. E. Parr has acknowledged that, in certain circumstances, the diorama "is more important for the esthetic pleasure it gives, than for the amount and significance of the information it adds to the display of the species,"<sup>10</sup> his view is not commonly shared by other museum

professionals. For them, an aesthetic experience has no place in a natural history museum. As illusionistic spectacles, however, dioramas often evoke such a response from the public; entranced not only by their realistic effect, the viewer is also captivated by the beauty of the wilderness scenery.

This chapter examines natural history dioramas as an art form which, though it has a specific pragmatic function, demonstrates considerable historical and stylistic diversity. Much of the following material is derived from "The Art of Dioramas Survey," conducted by the writer. A brief summary of the survey appears in Appendix B.

#### Design and Storyline

Both the design and storyline of the diorama have been subject to many changes during its development. Despite innovative advances toward greater realism in format and content, dioramas have retained their identity as a distinct display technique which transformed the face of museum exhibition. Favoured as the display method most in keeping with the early twentieth century movement for greater public education, the success of the diorama played a major role in precipitating the reappraisal of all methods of museum presentation. Because plans for future dioramas became a prime consideration in the construction of new exhibition halls, Parr concluded that, "the liberation of exhibition

from its subservience to architecture [was] won by the diorama."<sup>11</sup>

The Hall of North American Birds at the A.M.N.H. (c. 1902) was the earliest example of a complete hall devoted entirely to the diorama technique.<sup>12</sup> Largely determined by either the existing structural space, or by the spatial requirements of the particular species to be exhibited, these dioramas were evidence of the initial lack of concern toward the displays. Parr referred to such exhibits as "three-dimensional illustrations," because, "the creators of the earliest habitat groups worked in the spirit of representational artists and not as practitioners of the arts of illusion."<sup>13</sup> Although the exhibits had curved background landscapes, they lacked the upper half-dome necessary to create the illusion of an open sky. To overcome this problem, many of the early dioramas were of vertical rather than horizontal dimensions. By restricting the window to a low opening which ended at the adult eye level, the viewer's gaze was confined within the desired area.

The first American museum to be constructed solely for the display of natural history dioramas was the California Academy of Sciences in San Francisco. Designed by John Rowley, a pioneer in methods of mounting and displaying wildlife specimens, the North American Hall was opened to the public in 1916.<sup>14</sup> Divided into two main exhibit areas, the Hall of Mammals and the Hall of Birds, the building

contained a total of 24 large habitat groups and 26 smaller ones. Illuminated by skylights, the large groups measured 25 ft long and 12½ ft deep, with plate glass (15 ft x 10 ft) covering the viewing windows.<sup>15</sup>

Rowley also designed a similar hall for the exhibition of African mammals. Two drawings from his book, *Taxidermy and Museum Exhibition* (1925) illustrated the general layout of the hall and the design of individual displays (see Figure 26).<sup>16</sup> A large panoramic group (40 ft x 100 ft) occupied the entire end wall of the hall. Based on Rowley's design, two halls of African mammals were built, one at the Los Angeles County Museum of Natural History (1925) and one at the California Academy of Sciences (1934). Among other museums which also had great halls constructed specifically for dioramas were the A.M.N.H., the James Ford Bell Museum of Natural History in Minneapolis, and the Denver Museum of Natural History (D.M.N.H.).

As the effort to create more dramatic and life-like dioramas increased, the dimensions of the exhibits changed to allow the viewer a greater panoramic sweep of the landscape. This effect was achieved mainly through the design of the exhibit itself, and by the skill of the background painter. The size of the window looking out on the scene was expanded horizontally, and the background painting incorporated features that accentuated the scene's atmospheric perspective.

Parr's analysis of the evolution of the diorama is based on the "reorientation of artistic emphasis on the various elements that make up the whole of each display."<sup>17</sup> In the first stage, the specimens and foreground take precedence over the background painting, while in the final stage the painting has become the most dominant feature, with specimens and foreground secondary in visual importance. Parr asserted that, with the increased emphasis on the visual impact of the painted landscape,

. . . the background ceases to be a mere extension of the foreground. It is no longer part of the ecological niche of the species that are the primary subjects of the exhibit and may, indeed, have nothing at all to do with the conditions of life in the foreground.<sup>18</sup>

By becoming a semi-independent geographic tableau, the background painting served a dual purpose. It increased the educational value of the exhibit by providing a greater understanding of the larger environment of the species, and instilled a sense of the integrity and beauty of nature by emphasizing the aesthetic qualities of the landscape. Dioramas that incorporate far-off vistas also add to the viewer's sense of distance, making the scene more intriguing as an illusionistic spectacle.

Although a large, open-hall arrangement of dioramas is an impressive visual experience, the varying horizon lines, light levels, and multiple reflections can be disconcerting. According to Parr, the history of dioramas in Scandinavian museums has followed a different course:

Instead of being arranged around an open, central space in a large hall, the exhibits were generally placed in the relative intimacy of corridor-like areas, or in lateral alcoves of quite limited width.<sup>19</sup>

An example he cited was the Biologiska Museet in Uppsala, Sweden. As can be seen in the floor plan for this museum, the visitor can see only one diorama at a time (see Figure 27). This type of arrangement also occurs in Canadian museums; the dioramas at the National Museum of Natural Sciences, the Alberta Provincial Museum, and the Saskatchewan Museum of Natural History are all designed according to similar principles.

The desire to provide a more immediate sense of reality led the Milwaukee Public Museum to pioneer the open diorama in the 1960s. In this type of exhibit, no glass separates the viewer from the three-dimensional scene. A recent diorama at the British Columbia Provincial Museum takes this concept even further by completely surrounding the viewer in a 360-degree circular diorama (19 ft high) that depicts over 500 miles of B.C. coastline. An interesting comparison can be made between it and a unique historical diorama, built almost 100 years earlier in 1893, in Stockholm, Sweden. A taxidermist by the name of Gustaf Kolthoff had conceived of the diorama as an entire biological museum, for which he collected the wildlife specimens and constructed the foreground scenery.<sup>20</sup>

The inside of the Biologiska Museet in Stockholm was designed as a circular landscape. Painted by Bruno Liljefors, a well-known Swedish wildlife artist, the background (approximately 60 ft x 110 ft) surrounds a central observation tower from which the museum visitor can observe the display from two levels.<sup>21</sup> Several thousand stuffed birds and animals are arranged in foregrounds which simulate their native Swedish habitats. Parr classified this exhibit as a "composite faunistic habitat group" because it does not attempt to provide a panoramic vista of a particular landscape, but rather combines a variety of species and environments in a continuous display.<sup>22</sup>

There also exist two early American circular natural history dioramas which are based on principles similar to the Swedish prototype. The first, located in the Museum of Natural History at the University of Kansas, displays indigenous animals from the mountain to plain regions of North America, and from the arctic to temperate climatic zones. According to Irene Cypher, it was prepared by L. L. Dyche and represents the culmination of ideas which he originally used in an exhibit in the Kansas Building at the 1893 World's Fair.<sup>23</sup> The second is the "Laysan Island Group" at the Iowa State University Museum. Prepared by Homer R. Dill in 1914, the diorama presents the native wildlife of an island in the South Pacific.<sup>24</sup>

During the early part of this century, when big-game

hunting was considered a prestigious activity, mounted animals were displayed more like trophies than museum specimens. Portrayed as magnificent, almost mythic beasts, they were often placed in commanding poses as if lording over their native kingdom. This attitude toward nature is particularly evident in the African Halls at the Los Angeles County Museum of Natural History, the California Academy of Sciences, and the A.M.N.H. As the art of dioramas developed, however, greater effort was made to make the displays more animated and less staged. Instead of static, regal poses, taxidermists began to arrange the animals in life-like gestures; often they were positioned as though caught unaware by the instant eye of a camera. The D.M.N.H., for example, has a diorama which features a cheetah positioned high in a tree while devouring his freshly caught prey at dawn.

As dioramas became increasingly liberated from their function as a showcase for specific specimens, ecological relationships within the scene began to dominate their storyline. Often an interaction between two or more species was depicted. An example is a diorama at the Milwaukee Public Museum which features a hungry puma stalking an unsuspecting mule deer. In exhibits such as these, the storyline develops a dramatic and narrative emphasis. Because the viewer readily identifies with the wildlife on display, nature is personified in a way which compares to

the once popular nature lore style of writing by authors such as John Burroughs and Ernest Thompson Seton. Perceived in this way, nature appeals to the viewer's sentimental responses.

Parr observed that, unlike the dioramas in European museums which typically depict unrelenting realism, "a lighter spirit of sentimental romanticism" pervades the exhibits in North American museums.<sup>25</sup> He concluded, however, that a romantic interpretation of nature which inspires the imagination has a special value that complete realism destroys, and, furthermore, that the purpose of museum exhibits is to appeal to the viewer. As has been mentioned in previous chapters, the tendency toward nature worship and a romantic identification with the wilderness landscape have strong traditions in the history of North America. It is hardly surprising, therefore, that this attitude should prevail in natural history dioramas.

### Preparation

During the heyday of natural history museums, the exhibits staff performed an important and essential role in the educational function of the institution. Major museums competed to produce the most impressive displays; the new emphasis was on the creative presentation of the collection, rather than its scientific use as a research resource. As the most popular technique for the display of wildlife specimens, the diorama was in great demand. Consequently,

museums maintained a specialized exhibits team of taxidermists, foreground preparators, and background painters who were capable of producing dioramas "in-house."<sup>26</sup> Today, most museums have severely reduced their exhibits staff and tend to contract specific jobs out to free-lance individuals or commercial display firms.

The development of the natural history diorama was closely associated with the emergence of a new class of specially trained technicians whose job it was to recreate life-like scenes from nature. Only the taxidermist had a previous tradition from which to draw experience; the foreground preparators and background painters were exploring new techniques and media. As a unique creative endeavour, the exhibit depended for its success on the ingenuity and skill of those involved in its preparation. Exhibits were intended primarily as didactic display techniques, and the scientific staff of the museum had little impact on the communicative effectiveness of the diorama. Parr contended that, as dioramas developed into a specialized art form, the exhibits staff gained greater emancipation from the curatorial staff:

As the subtleties of the art of the diorama evolved, the need for the artist to be his own guide and observer evolved with it. The preparation of exhibits became an increasingly autonomous function with the curators acting more and more in the capacities of customers and critics of the product, rather than directors and daily supervisors of the work.<sup>27</sup>

Although the curatorial staff may have determined the basic subject matter of the diorama and advised on its scientific content, the exhibits team was usually responsible for the storyline and execution.<sup>28</sup> Each new exhibit presented a different challenge and required research about the natural history of the portrayed scene. Zoology, botany, geography, and ecology were among the subjects with which the team had to be well-acquainted. Methods of documentation included field observation, photography, sketches, and the collection of foreground specimens.

As new preparatory techniques were discovered, the actual specimens or natural constituents of the exhibit became a smaller portion of its total contents.<sup>29</sup> The only genuine objects in a diorama are usually the mounted animals or birds; everything else has been simulated to appear life-like. From the sunlight, to the dewdrops on delicate flowers, to the distant horizon--all have been artificially created. As a result, the amount of time and meticulous labour required to produce the foreground in a typical scene is considerable. For example, "The Prairie Group" diorama at the Denver Museum of Natural History contains 43,935 leaves, 2069 flowers, and 157 buds--all of which were made individually for the exhibit in the 1930s.<sup>30</sup> In more recent times, new synthetic materials and casting techniques are frequently used, but the separate parts still must be assembled carefully and painted by hand.

When wildlife specimens were the star attractions of the exhibit, taxidermists played a central role in its preparation. In fact, the diorama's early development was spurred on by the technical advances of several museum professionals originally trained as taxidermists. (The contributions of William Hornaday, Carl Akeley, and Frederick Lucas were discussed in Chapter 3.) John Rowley was another well-known museum taxidermist who acted on his belief that the diorama was the best display technique for wildlife specimens. His apprentice, Jesse Figgins, later became the director of the D.M.N.H. (1910-1935),<sup>31</sup> where he initiated an ambitious program of dioramas. In those days, museums still sent out large expeditions to collect specimens from remote corners of the world, and the taxidermist was an essential member of the exhibits team. Today, with so many restrictions on the killing of endangered species, museums frequently either recycle specimens which were mounted years ago, or use animals donated by the local zoo.<sup>32</sup> As a result, most taxidermists are hired by the museum on a contractual arrangement.

During the years when museums maintained a large exhibits staff, the effort that went into the preparation of the dioramas was usually acknowledged. Small plaques in front of the exhibit identified the wildlife species and geographic location of the exhibit, as well as naming the taxidermist, foreground preparators, and background painter.

Other museums either omitted credit to the artisans who created the exhibits, or neglected to replace original acknowledgements during recent renovations. Furthermore, most natural history museums do not keep archival records of their exhibition department. These factors make it almost impossible to conduct an historical survey of the names and techniques of individual members of the exhibits staff. Background painters are somewhat of an exception, mainly because they often had separate careers as professional artists outside of the museum world.

A compilation of diorama painters appears in Appendix C. The artists are divided into three groups, each indicating the general time period during which the artist painted the majority of his diorama backgrounds: historical (1900-1950); modern (1950-1970); and contemporary (1970-1985).<sup>33</sup>

### Background Painters

Although the taxidermist and foreground preparators form an essential part of the exhibits team, the illusionistic success of the diorama depends largely on the skill of the background painter, who must make an invisible transition between the three-dimensional foreground and the two-dimensional painting. Because of its large size and unusual shape, the aesthetic demands of the background painting require the artist to be both a consummate technician and an innovative creator. To satisfy the scientific demands of

the exhibit, the background painter must also acquire a thorough understanding of the natural history of each scene he creates.

From the time of their first appearance, the background landscapes in natural history dioramas attracted public attention. Frank Chapman, the ornithologist who initiated the first wildlife group with a panoramic background in 1901 at the A.M.N.H., did not hesitate to declare that the most immediate function of the background was as an artistic expression:

It is the beauty of the background that makes a universal appeal. Attracted primarily by its color, its atmosphere, the scene it represents, the aimless visitor involuntarily pauses. His imagination is stirred, his interest aroused, and the way is opened for him to receive the facts the exhibit is designed to convey.<sup>34</sup>

Although Chapman's first group was initially considered too informal by other museum professionals who thought that "the painted background verged on the sensational," the president of the museum "proclaimed it to be beautiful."<sup>35</sup> As a result, the A.M.N.H. led the way in producing the first hall to be constructed entirely of dioramas.

The artist who painted most of the backgrounds in the 1902 Hall of North American Birds was Bruce Horsfall, a well-known bird illustrator.<sup>36</sup> Carlos Hittell is another artist whose name is associated with these early dioramas at the A.M.N.H. Both men were trained as professional artists: Horsfall at the Cincinnati Academy of Art (1886-1889) and

Hittell at the San Francisco School of Design (1881-1883).<sup>37</sup> In addition, both had attended art academies in Munich and Paris. The fact that both had exhibited professionally and had respectable credentials as artists suggests that their employment as background painters had been carefully considered by the A.M.N.H.

Charles Abel Corwin (1857-?) was probably the first artist to specialize in painting diorama backgrounds. He began his career at the Field Museum in Chicago, where he painted the backgrounds for Carl Akeley's famous "Virginia Deer Group." Installed in 1901 (the same year as Chapman's first bird group), the exhibit was an experimental effort at combining a three-dimensional foreground with a representational background landscape.<sup>38</sup> In 1914 Corwin painted the background of the "Laysan Island Group," a circular diorama at the Iowa State University. He was also responsible for the majority of backgrounds in the North American Hall of Mammals (1916) at the California Academy of Sciences, and painted the background of the first diorama at the Los Angeles County Museum of Natural History.

Later in his career, Corwin returned to Chicago, where he painted approximately 40 backgrounds in the South American and Asiatic Halls at the Field Museum during the late 1920s. Although his soft, pastel landscapes look rather dated today, they are an apt reflection of his time. As an expression of the popular romantic interpretation of nature,

they complement the impressive, but staged-looking wildlife specimens which were secured during an era when museum expeditions resembled big-game safaris. Despite the fact that these early dioramas lacked an upper half-dome necessary to simulate an open sky, Corwin's mastery of perspective is evident in the composition and three-dimensional effect of his landscape imagery.

William R. Leigh (1866-1955) was a professional artist of Corwin's generation who specialized in western painting.<sup>39</sup> Between 1926 and 1936 he also painted the backgrounds for six dioramas in the African Hall at the A.M.N.H. Described as a "romantic realist"<sup>40</sup> in 1918, Leigh's style was largely determined by his European training. Beginning in 1883, he spent five years at the Munich Art Academy, a school known for its realistic style of painting. After graduating, Leigh worked in a panorama studio in Munich for seven years before returning home to the United States.

According to his biographer, Leigh expressed concern early in his career "over the wholesale plundering of natural resources and the need for the establishment and supervision of more national parks and reserves."<sup>41</sup> In the tradition of Thomas Moran, Leigh painted five large landscapes of the Grand Canyon (between 1908 and 1913), which he later sold to the Santa Fe Railway Company.<sup>42</sup> His first contact with a natural history museum was probably in 1912, when he accompanied an expedition to collect grizzly bear

specimens for the D.M.N.H. Leigh's despair that much of the frontier had vanished, and his concern that even the wilderness and western customs that still remained would soon disappear forever, were the underlying convictions of his documentary style of painting. Although his paintings were popular with the public, the art critics demeaned his photographic accuracy and illustrative style. Modern art, which Leigh despised, was currently in vogue and a representational artist like himself had no hope of gaining critical recognition.

In 1926 Leigh agreed to accompany the African safari sponsored by George Eastman and Daniel Pomeroy to collect wildlife specimens for the A.M.N.H. As D. Cummins pointed out:

There was a certain incongruity about an artist accompanying a scientific expedition. Science and art are generally not linked, and the fact that Leigh accepted such an assignment offered further evidence, in the views of his critics, that his art was photographic, illustrative and unimaginative.<sup>43</sup>

Similar criticisms have constantly plagued diorama painters and are the principal reasons why their background paintings have not been acknowledged as creative achievements. Instead of being compared to modern art, however, dioramas should be judged as a separate art form that employs a very different set of criteria. Leigh described his dedication to the African Hall project as "a record of

something which can never be again--a document of inestimable value."<sup>44</sup> He believed:

Not only must the backgrounds be correct, but they must be as typical of the continent as were the beasts they accompanied; in fauna and flora, in geology and geography, we must give as comprehensive a sense of the essence of Africa as possible within our limitations. We must produce complete pictures, faultless history, perfect science.<sup>45</sup>

Because they combined topographical and scientific information with the aesthetic of truth-to-nature, the realistic backgrounds of natural history dioramas have been called "great examples of purposeful art."<sup>46</sup> Their utilitarian function can be compared to the pragmatic foundation of the craft tradition, in which art was based on the rational process of making an object for a clearly perceived function. Charles Willson Peale's backgrounds for his wildlife exhibits had belonged to this same tradition.<sup>47</sup> To Peale, these landscapes, or topographical "views" as he called them, performed a necessary function that could not be separated from either the aesthetic or scientific value of the exhibit. He believed that art was a democratic and practical activity that had to have a broad base of public acceptance; thus, he did not hesitate to use his talents as an artist to increase the visual effect of his wildlife exhibits.

Although Leigh proclaimed that a diorama background "calls for the utmost measure of truth; there is in it no

place for individuality,"<sup>48</sup> he added that:

. . . in subtlety of tone, color and line, the massing of light and shade, the catching of character in forms, the rendering of textures, the achievement of the illusion of realism and forgetfulness of paint, there exists a challenge. . . .<sup>49</sup>

By describing the artistic challenge that exists in painting a diorama background, Leigh contradicted his opinion that its documentary function eliminates the artist's individual style.

Francis Lee Jaques (1887-1969) is probably the most admired of all background painters.<sup>50</sup> Roger Tory Peterson commented that, as an excellent field ornithologist and bird artist, Jaques had his own unique style:

Even in his museum backgrounds, which were intended to deceive the eye, he was not slavishly photographic; he introduced a decorative touch, and one can always spot a Jaques habitat group from those of other artists by the pattern of a cloud or the twist of a branch. In fact, through his exhibits he left far greater a visual stamp on the museum than any other single person. His distinctive trademark is everywhere.<sup>51</sup>

While stationed in San Francisco during the first World War, Jaques discovered an engaging display at the California Academy of Sciences, about which he said later, "The mule deer exhibit by Charles Abel Corwin probably did more to start me on my natural history career than anything else," calling it "the finest of all time."<sup>52</sup> Jaques's drawings later came to the attention of Frank Chapman, who offered him a position as a background painter at the A.M.N.H.

During the 18 years he worked at the museum, from 1924 to 1942, Jaques accompanied many expeditions around the world and painted the backgrounds of approximately 60 dioramas. Some of his finest work appears in the Whitney Memorial Hall of Océanic Birds, where in addition to 12 backgrounds, he painted the 2700 foot ceiling. To provide the viewer with a sense of continuous visual sweep of the hall, Jaques insisted that the horizon line of each diorama be the same.

After leaving the A.M.N.H., Jaques free-lanced as a diorama painter at numerous museums, including the James Ford Bell Museum of Natural History, the Peabody Museum, and Boston's Museum of Science. Although primarily known as a portrayor of birds, Jaques was particularly adept at situating birds or other wildlife in paintings of their natural habitats, a skill which made his diorama backgrounds exceptional in their like-like accuracy. He also attempted to increase the illusionistic effect of background landscapes by solving some of the inherent structural problems of the diorama, such as uneven lighting, window reflections, and distorted perspective.<sup>53</sup>

Despite his technical understanding of visual projection on a curved surface, however, Jaques believed that the most reliable source by which to determine the accuracy of the background was the artist's own eye. According to his apprentice, Robert Larson, Jaques continually advised, "You must paint until the effect is pleasing or correct."<sup>54</sup> In

Larson's opinion, "Jaques' success in this approach to habitat backgrounds is among his greatest contributions to the profession."<sup>55</sup> Jaques himself realized that a background painter does not receive the recognition he should for his ability to create a life-like illusion:

In painting backgrounds, you have many problems, and if you solve them they are no longer visible and you get no credit. Only the failures are visible!<sup>56</sup>

James Perry Wilson (1889-1976) was another background painter whose work remains in several major museums, including the A.M.N.H., the National Museum of Natural History in Washington, Boston's Museum of Science, the Peabody Museum, and the National Museum of Natural Sciences in Ottawa. He began his career as a museum artist in 1934 at the A.M.N.H., where he worked as an apprentice under William R. Leigh. During the next eight years Wilson completed 30 backgrounds for dioramas in the Hall of North American Mammals, after which time he became a free-lance artist.<sup>57</sup>

Wilson's early training had been as a draftsman. After graduating from Columbia University in 1914, he worked for two architectural firms in New York for nearly 20 years. This experience proved useful in calculating the mathematical formulae he found necessary to compensate for the curved background of the diorama. Wilson's commitment to landscape painting was also valuable to his career as a background painter. He took every opportunity to work outdoors

and developed an impressionistic style of painting that marked both his easel art and his diorama backgrounds. In the opinion of one writer, "had he not devoted his talents to the special demands of museum background painting, he [Wilson] might well be ranked among America's foremost landscape artists."<sup>58</sup>

Parr, however, expressed a different opinion in an introduction he wrote to a catalogue of Wilson's work. Rather than overlooking the inherent artistic qualities of the diorama landscape, Parr believed that Wilson's backgrounds should receive equal recognition to his easel art, and stated that "the 3-dimensional artform of the habitat group ought to have a place in the art museum. . . ."<sup>59</sup> The problem, of course, is that not only are dioramas physically impossible to exhibit within the confines of an art museum, but, more importantly, they are not recognized as an art form.

Because dioramas were a fairly recent development in this century, few opportunities existed for artists to train as background painters; there were no formal programs of instruction, and apprenticeships were rare. As a result, most background painters were self-taught, a fact which remains true for most contemporary artists who specialize in this field. Although many of the early background painters had formal educations in art, others did not. Often they began to work on museum exhibits as foreground preparators

or taxidermists before they were given the opportunity to paint diorama backgrounds. Frank Tose (California Academy of Sciences), Arthur Ruekert (Field Museum), Ottmar von Fuehrer (Carnegie Museum), and Jesse Figgins (D.M.N.H.) were all background painters who began their museum careers as taxidermists.<sup>60</sup>

Other museum artists began their careers as Works Progress Administration employees during the 1930s. Charles Waldo Love had been a W.P.A. employee at the Colorado Historical Museum prior to becoming a staff artist at the D.M.N.H. in 1936, a position he held until his retirement in 1954.<sup>61</sup> Respected as a talented and productive artist, Love painted 33 backgrounds at the museum. His "panoramic geographic scenes,"<sup>62</sup> as they were called, illustrate both the close affinity he had with nature and his ability as a landscape painter. Love's background for the "Mule Deer Group," for example, depicts a flowering foothills scene with the Mount of the Holy Cross in the distant Colorado landscape. That this same mountain was also the subject of a famous painting by Thomas Moran suggests that both art forms share a common bond as popular illustrations of picturesque wilderness scenery.

The A.M.N.H. typically hired background painters who, like Horsfall and Jaques, had established themselves as wildlife artists. Belmore Browne (1880-1954) and Carl Rungius (1869-1959) were two other well-known wildlife

artists whom the museum commissioned to paint background scenery.

Among contemporary diorama painters, Clarence Tillenius has probably developed the greatest reputation as a wildlife artist. An avid naturalist, Tillenius has spent most of his life travelling and studying wild animals in their native habitat. His intimate familiarity with nature has marked both his own painting and his diorama backgrounds, which appear in major museums across Canada. Although the museum curators usually decide on the basic subject of these exhibits, Tillenius chooses the actual location of the scene and determines the positions and attitudes of the wildlife specimens. Before beginning the diorama, weeks of careful field research are necessary to ensure its scientific accuracy. Yet the most immediate effect of a background by Tillenius is not its life-like realism; as an unconventional landscape colourist, he paints with brilliant purples, oranges and greens. Such an approach produces background scenes unusual for their visual vibrancy and pure optical effect.

Most background painters maintain an active interest in nature; apart from their museum work, many of them paint wildlife subjects for their own personal enjoyment. According to Jerome Connolly, a free-lance museum artist and bird illustrator, learning the mechanics of painting a background is not enough: "You have to be an artist in love with nature

and an understanding of how she works."<sup>63</sup> Robert Larson, staff artist at the Illinois State Museum, suggested that despite the scientific emphasis of diorama backgrounds, there exists "a lingering hint of romanticism which is subtly implanted . . . by the artist's deep personal conviction for the subject."<sup>64</sup> To Clarence Tillenius, "painting wilderness is a way of saying that nature must be understood and protected by people if man is to survive in a civilized world."<sup>65</sup> As mentioned in the preceding chapter, this desire to document the disappearing wilderness has its roots in the romantic identification with nature that characterized nineteenth century American landscape painting.

Ray de Lucia, a retired museum artist who worked at the A.M.N.H. for 40 years, described himself as an "ardent conservationist."<sup>66</sup> Yet he pointed out that "in the early days of the museum, people didn't think too much about conservation. It seemed like wildlife was inexhaustible."<sup>67</sup> de Lucia joined the staff at the A.M.N.H. after graduating with a B.F.A. from Yale University in 1938. As an assistant to Francis Lee Jaques and James Perry Wilson, he was initially responsible for the collection and reproduction of the foreground materials.

Granted the title of Preparator Emeritus in 1981, de Lucia returned to the A.M.N.H. as a special consultant on a four-year project to restore the 32 dioramas in the Hall of North American Mammals. No new dioramas are planned at the

museum due to the lack of physical space, and the prohibitive costs involved in producing such painstaking and time-consuming exhibits. The days when the A.M.N.H. was at the forefront of high-quality and innovative dioramas are over, a situation which led de Lucia to comment, "This is a dying art."<sup>68</sup>

The actual process of painting a diorama background varies widely from one artist to the next. William Traher, one of the masters of this art form, remarked that "Compared to the trial-and-error system by which an easel painting can be made, background painting is a highly engineered and organized process."<sup>69</sup> As staff artist at the D.M.N.H. from 1956 to 1976, Traher's backgrounds are renowned for their remarkable illusionistic effect.<sup>70</sup> Although he received his early art training at the National Academy of Design in New York and the Yale School of Fine Arts, Traher had no previous experience in painting backgrounds and was largely self-taught. Because each background takes him from eight months to three years to complete, he cautioned that, "It takes Vermeer-like devotion rather than brief Van Gogh passion to stay wedded to one painting as long as a diorama artist must."<sup>71</sup>

In his assessment of the many problems which face diorama painters, Traher said:

One of the most difficult adjustments is learning how to make a painting carry at its precise

viewing distance. . . . The 'joining', the point at which painted and real merge at life-size in a diorama, is critical to the illusion and a decisive test of an artist's skill.<sup>72</sup>

Unlike many contemporary background painters, Traher does not strive to produce photo-realism in his work, but rather attempts to recreate the optical experience that the eye registers outdoors. For example, because there are no confining lines around objects when viewed out-of-doors, he deliberately obscures the edges of painted objects, "so that the painting process becomes more and more like the shaping process by which its real outlines were worn by wind and water."<sup>73</sup> To achieve this effect, Traher developed a pointillistic technique of paint application, at times using up to 17 layers of acrylic paint. He also uses a variety of tools (splatter guns, sponges, rags, steel wool, and sand paper) to create a textured effect over every square inch of the background painting.

Another unique quality about Traher's work is the illusion of continuous movement suggested by the composition of the painting. As he described it:

If I can keep the eyes of the spectator sweeping from the long line of a cloud to the thrust of the sea against the headland and up in an unending curve to the deliberately dipped wing of a flying bird, then wind and rolling rain have entered the viewer's mind as *action*.<sup>74</sup>

Most background painters, like Traher, assimilate a number of different views of an actual geographic location

into one representative scene. "The composition chosen," said de Lucia, "should accentuate the lines that cause the eye to push out the curvature on the sides [of the diorama]." <sup>75</sup> Ralph Carson, staff artist at the Alberta Provincial Museum, pointed out that, together with the background landscape, the three-dimensional effect of the exhibit depends on "the positioning of the animals and objects in the foreground in relation to the landscape." <sup>76</sup>

One of the most difficult problems that confronts the background painter is the distortion caused by the curved surface of the diorama wall. A number of different approaches are employed to ensure that the scene works visually. Most artists use models and compositional drawings as routine preliminary steps. Traher has employed up to ten slide projectors to compose a scene directly on the wall, taking time to make the necessary adjustments to minimize the distortion. Other artists use slides only as an aid to their memory and do not project them. de Lucia, Tillenius, and Carson all use grid transfer systems, while Connolly maintains that because a grid does not compensate for the curved wall, correct perspective cannot be achieved by its use.

Paint media and methods of application also vary according to individual artists. Due to their versatility and fast drying time, acrylics are the most popular, while oil is favoured for its luminosity and durability.

Background painters also differ in their views regarding the signing of the diorama painting. de Lucia expressed a common opinion when he said, "The whole purpose of the painting is to visually eliminate the flat wall surface. The signature destroys this illusion and calls attention to the wall."<sup>77</sup> Tillenius added that a signature is inappropriate because a background should not reflect the artist's individual style of painting.

According to John Boone, a free-lance museum artist who does not sign his work, "A successful background is not a painting, it is more like a window."<sup>78</sup> Likewise, Terry Shortt, a retired artist at the Royal Ontario Museum, remarked that "A signature would be like graffiti on the walls of the Grand Canyon."<sup>79</sup> Other artists like Larson and Connolly believe that there is no reason why the background cannot be signed in a discreet place. In some cases, however, museum regulations forbid the artist to sign his work.

Museum visitors are seldom aware of the artistic challenge that confronts a background painter in a natural history diorama. As John Boone remarked, "the public enjoys the skill without any real understanding of what goes into it. It is magic."<sup>80</sup> He blames the shift away from dioramas as being part economical and part philosophical, "the failure to appreciate the real strength and meaning of a

well-executed diorama."<sup>81</sup> In the concluding section a brief evaluation of the museum's position on the art of dioramas is presented.

### An Evaluation

The educational value of natural history dioramas has long been an issue of considerable debate. A point of major contention in this debate is whether dioramas should be evaluated primarily as a scientific exposition, or as a unique art form. On the other hand, perhaps it is senseless to try to isolate the special qualities that define the diorama's conflicting interests; according to one writer, "A realistic habitat group is the perfect mating of science and art--which the Greeks regarded as the true purpose of the museum."<sup>82</sup>

At the October 1984 ICOM Natural History Museum Committee Meeting in New York City, Karl Otto Meyer raised a question about museum dioramas that has concerned scientists for some time. Pointing out that it is "a curious thing that there are a lot of scientists at our museums who employ illusionistic sceneries in order to represent facts and natural laws," he asked, "Are these contrary ways of thinking and acting compatible with each other?"<sup>83</sup> Although Meyer admitted that illusionistic sceneries were popular with the public, he concluded that they were unnecessary and not advisable as an explanatory medium for the "reproduction

of situations that can still be experienced nowadays."<sup>84</sup>  
In other words, dioramas are more useful as a medium for recreating historic events than for simulating the natural history of geographic scenes.

In assuming that the didactic function of museum dioramas predominates over their illusionistic appeal, Meyer commits a major oversight. Dioramas were never intended to be viewed solely for their merit as an explanatory medium for natural history. Rather, their artistic qualities were recognized early by museum professionals as being essential to both the visual and communicative success of the exhibit. In fact, these qualities are probably the reason why dioramas have endured as a popular exhibit technique. Instead of being discarded as an old-fashioned technique which presented out-of-date scientific information, dioramas have continued to intrigue the public as three-dimensional landscapes.

The scenic value of dioramas was acknowledged as early as 1908 by the curator who first initiated their use at the A.M.N.H. He explained that, apart from the bird specimens,

. . . the country which they inhabit has been taken into consideration; it being desired to have this series of great panoramic backgrounds . . . portray not only the haunts of certain American birds, but America as well.<sup>85</sup>

As the art of dioramas developed, a new educational ideal was aspired through the "realistic portrayal of

wildlife in scenes of artistic beauty."<sup>86</sup> In addition to their illusionistic success, the following qualities were cited as the reason why the dioramas in the 1942 Hall of North American Mammals at the A.M.N.H. were so important:

The splendid animals that are native to our continent, the scenic wonders that form their natural background in the wild, and the valuable lessons that can be learned from Nature, particularly in the conservation of our natural resources. . . .<sup>87</sup>

These qualities are central to the uniquely American tradition of which natural history dioramas are part. The "splendid animals" and "scenic wonders" were among the first indigenous features to be praised in the newly discovered continent. They became an integral part of the historical development of America's national identity, and are inseparable links to the popular concept of the primordial wilderness. Interpreted from this viewpoint, perhaps dioramas should be evaluated as a special art idiom which, like nineteenth century landscape painting, expresses a fundamental American attitude toward nature.

In an article entitled, "Museums: Enriching the Urban Milieu," Parr pointed out that in many dioramas, "the presumptive stars of the spectacle register as obstructions of the beautiful view behind them, rather than as the featured attractions."<sup>88</sup> He suggested, therefore, that these "scenes from nature" should be valued primarily for their ability to provide an aesthetic appreciation of the

wilderness landscape to the urban public.<sup>89</sup>

If they are evaluated as a strictly didactic exhibit technique, however, dioramas do not elicit much enthusiasm for their artistic qualities. Even by 1930 one writer had observed that:

. . . the modern habitat group has the somewhat strange effect of defeating in many ways the very object for which it exists. Its reactions from spectators is usually "What a pretty group," or "What a charming scene," the attention being focused more on the surroundings than on the specimens.<sup>90</sup>

Some museum professionals, like Lawrence Coleman (*The Museum in America: A Critical Study*, 1939) believed dioramas to be the "dinosaurs" of museum exhibition.<sup>91</sup> In agreement with Coleman is a more recent critic, A. S. Wittlin, who emphatically denied the educational value of such exhibits:

Who is to benefit from the sight of another static elephant or zebra, and what can a costly exhibit of this kind communicate that could not be more dynamically conveyed by a film taken in the natural habitat of the animal and shown on a television screen. The presumed realism of large habitat groups has a kinship with a Victorian drawing room; both represent canned life.<sup>92</sup>

Yet despite Wittlin's negative assessment of dioramas, the majority of museums do not consider them outdated as an effective technique for educating the public about natural history.<sup>93</sup> In fact, the recent survey conducted by the writer indicated that many new dioramas have been installed in museums during the past 15 years.<sup>94</sup> Only one museum

cited insufficient interest and support as the reason why no new dioramas were planned; in older museums the lack of physical space was said to be the greatest obstacle. Another problem is the enormous expense involved in producing high-quality dioramas. Although shortcuts--such as replacing the painted background with a photograph--can be taken to reduce the labour and material costs of the exhibit, efforts like these are generally not successful at creating a convincing illusionistic effect.

Largely due to their high production costs, dioramas are considered by most museums to be permanent exhibits.<sup>95</sup> Because many of them are impossible to replace, dioramas had been restored by about half of the surveyed museums. Some institutions, like the A.M.N.H., insisted that the restoration work duplicate the original display entirely, while others used restoration as an opportunity to modernize the exhibit. The California Academy of Sciences, for example, recently removed the glass from the 1934 "African Waterhole Group." The foreground of the exhibit was then extended into the hall so that the visitor could actually walk through the scene instead of being separated from it. To increase the kinetic effect, displays of living insects were incorporated into the scene. The British Columbia Provincial Museum has also incorporated living material into its exhibits. Featured in the "Living Land/Living Sea" diorama is a tidal pool containing marine life, and a forest

area of growing plants.

The static nature of natural history dioramas is troublesome to those educators who believe that an active participation with the exhibit is necessary to attract the attention of the public. Boston's Museum of Science reports that modern multimedia processes are being used to enhance the dioramas, and in some cases take their place.<sup>96</sup> According to Charles Gruchy, acting director of the National Museum of Natural Sciences in Ottawa, by employing more innovative technology, "much more is possible to enhance viewer awareness, participation, interaction, and appreciation of the prime elements of dioramas."<sup>97</sup> At the Smithsonian Institution, animation and holography are two of the new techniques being experimented with to increase the visual effect and educational value of dioramas.

Parr, however, said that the stillness of life in dioramas is "actually a great advantage,"<sup>98</sup> offering a unique educational opportunity to experience the totality of nature. Furthermore, he pointed out that it is:

. . . impossible to create a complete and realistic reconstruction of a distant landscape with the use of living materials. . . . Successful illusion requires rigid control of shadows and of forced perspectives.<sup>99</sup>

According to Parr, two-dimensional multimedia technology decreases the viewer's freedom of choice in the pace and content of the learning experience, whereas, "The great

virtue of the genuine third dimension of museum exhibits is that the observer's choice and control of perspective remain unabridged by the translation of images through mechanical devices."<sup>100</sup>

Both the inherent beauty of wilderness landscapes, and the viewers' freedom of choice to enjoy the scenery at their own pace are central to the diorama's success in North American natural history museums. A recent survey conducted at the A.M.N.H. revealed that more adults were going to that museum for their own pleasure; their primary reason for attending was "to relax in a pleasant atmosphere."<sup>101</sup> According to one writer, who described the effects of the dioramas at the A.M.N.H.:

Visitors looking at the famous gorilla group in the museum's Akeley African Hall do not first count the number of leaves, wonder how the vines are made, or ponder the perspective of the background painting. They receive an aesthetic and emotional experience.<sup>102</sup>

The question of whether or not the viewer actually receives an aesthetic experience is irrelevant to the aim of dioramas; as popular art their illusionistic virtuosity is the artistic quality most admired by the viewer. Although few museums acknowledge the creativity of the artisans engaged in the preparation of their natural history dioramas, there is a growing awareness that these exhibits are more important as three-dimensional landscapes which evoke the beauty of nature, than as didactic media for

imparting scientific information about wildlife specimens.

In 1968, after a decade of writing about dioramas, Parr concluded that:

Perhaps the habitat group has been gaining a new and valuable, permanent role, more akin to the functions of art than to the traditional didactics of science.<sup>103</sup>

Chapter 5 Footnotes

<sup>1</sup>"Where Science Joins Hands with Art," *Scientific American* (10 February 1917), p. 155.

<sup>2</sup>Dillon Ripley, *The Sacred Grove: Essays on Museums* (New York: Simon and Schuster, 1969), p. 80.

<sup>3</sup>Ibid.

<sup>4</sup>Kenneth Hudson, *Museums for the 1980s: A Survey of World Trends* (London: Macmillan, 1977), p. 8.

<sup>5</sup>In Irene Cypher, "The Development of the Diorama in the Museums of the United States," Diss. New York University, 1942, p. 13. From H. F. Osborn, "The Museum as a New Force in Public School Development," National Educational Association, *Proceedings*, 1916, p. 739.

<sup>6</sup>O. C. Farrington, "The Rise of Natural History Museums," *Science* (13 August 1915), p. 204.

<sup>7</sup>Homer R. Dill, "Correlation of Art and Science in the Museum," American Association of Museums, *Proceedings*, 1916, p. 127.

<sup>8</sup>James L. Clark, "Science, Art and Adventure Behind Museum Exhibits," *Natural History*, 30 (September-October 1930), 484.

<sup>9</sup>Robert C. Murphy, "Natural History Exhibits and Modern Education," *Scientific Monthly* (July 1937), p. 77.

<sup>10</sup>Albert E. Parr, "The Habitat Group," *Curator*, 2(2) (1959), 108.

<sup>11</sup>Albert E. Parr, "Patterns of Progress in Exhibition," *Curator*, 5(4) (1962), 341.

<sup>12</sup>Albert E. Parr, "Dimensions, Backgrounds, and Uses of Habitat Groups," *Curator*, 4(3) (1961), 201.

<sup>13</sup>Ibid., p. 199.

<sup>14</sup>See Michael R. Waiczis, "John Rowley, Museum Pioneer," *Pacific Discovery* (July-August 1980), pp. 1-8. Rowley (1866-1928), began his career as a museum professional in 1889 at

the A.M.N.H., joining the staff in the department of taxidermy. Here, together with Jenuss Richardson, Rowley worked on some of the early museum groups. In 1901, under the direction of Frank Chapman, he prepared the birds and foreground for the first museum group to incorporate a panoramic background painting into the scene. Rowley later moved to San Francisco, where he was asked to oversee the design and construction of the new California Academy of Sciences. As curator of mammology, Rowley remained in this position until 1917 when he became director of the proposed Oakland Public Museum. Frustrated in his efforts to secure a collection of African mammals, he resigned to continue his work as a taxidermist at the Los Angeles County Museum of Natural History, where he remained chief of exhibits until 1928.

<sup>15</sup>Ibid., p. 6.

<sup>16</sup>John Rowley, *Taxidermy and Museum Exhibition* (New York: Appleton-Century, 1935).

<sup>17</sup>Parr, "The Habitat Group," p. 114.

<sup>18</sup>Parr, "Dimensions, Backgrounds, and Uses of Habitat Groups," p. 204.

<sup>19</sup>Ibid., pp. 212-214.

<sup>20</sup>See A. Biörnstad and P. O. Palm, *The Biological Museum* (Jonköping: A. B. Smaland, 1978), trans. by N. Marshall-Lundén. The Biological Museet was included in the 1897 Stockholm Exhibition of Art and Industry. Although the authors state that the museum later became the model for similar exhibits all over the world (including those at the A.M.N.H.), there is no evidence to support this claim.

<sup>21</sup>See Gösta Vogel-Rödin, ed., *Bruno Liljefors* (Stockholm: n.n., 1982).

<sup>22</sup>Parr, "The Habitat Group," p. 119.

<sup>23</sup>Cypher, p. 35.

<sup>24</sup>Ibid.

<sup>25</sup>Albert E. Parr, "Realism and Romanticism in Museum Exhibits," *Curator*, 6(2) (1963), 174.

<sup>26</sup>According to "The Art of Dioramas Survey 1," question 9.

<sup>27</sup>Parr, "Patterns of Progress in Exhibition," p. 331.

<sup>28</sup>According to "The Art of Dioramas Survey 2," question 10.

<sup>29</sup>Albert E. Parr, "The Functions of Museums: Research Centers or Show Places," *Curator*, 6(1) (1963), 23.

<sup>30</sup>This information is from a plaque on front of the exhibit.

<sup>31</sup>This information is from a panel at the D.M.N.H.

<sup>32</sup>This information was derived from personal interviews with museum professionals.

<sup>33</sup>Appendix C is not intended as a comprehensive or conclusive reference. Selective data have been compiled from various sources (including personal visits to natural history museums, interviews with museum professionals, and "The Art of Dioramas Survey") and are reliable only insofar as the writer's subjective memory and notes.

<sup>34</sup>In Cypher, p. 30. From Frank Chapman, *Autobiography of a Bird-lover* (New York: Appleton-Century, 1933), p. 165.

<sup>35</sup>In Geoffrey Hellman, *Bankers, Bones, and Beetles: The First Century of the American Museum of Natural History* (New York: Natural History Press, 1968), p. 150. From a *New Yorker* Profile, 1939.

<sup>36</sup>See Appendix C.

<sup>37</sup>See *Dictionary of American Painters, Sculptors, and Engravers: From Colonial Times through 1926*. Compiled by Mantle Fielding. First published in 1926. (New York: Paul A. Stook, 1945).

<sup>38</sup>An earlier group by Akeley (still in existence at the Milwaukee Public Museum) displays a stuffed muskrat in front of a painted landscape. According to the museum's archival records, the group was completed in 1890, and the artist who painted the background was John A. Jeske. Personal communication from Robert Frankowiak, Head of Exhibition and Graphics, Milwaukee Public Museum, (19 February 1985).

<sup>39</sup>The majority of the material on Leigh is from June DuBois, *W. R. Leigh: The Definitive Illustrated Biography* (Kansas City: Lowell Press, 1977), and D. Duane Cummins, *William Robinson Leigh: Western Artist* (Norman, OK: University of Oklahoma Press, 1980).

<sup>40</sup>In DuBois, p. 32. From *Artnews* (January 1918).

<sup>41</sup>Ibid., p. 103.

<sup>42</sup>According to DuBois, Leigh had met and admired Thomas Moran.

<sup>43</sup>Cummins, p. 112.

<sup>44</sup>W. R. Leigh, "Painting the Backgrounds for the African Hall Groups," *Natural History*, 30 (1930), 575.

<sup>45</sup>Ibid.

<sup>46</sup>Alden Stevens, "The Art of Exhibition," *Natural History* (April 1959), p. 197.

<sup>47</sup>Peale's backgrounds for his wildlife displays, and his approach to museum exhibition were discussed in Chapter 2.

<sup>48</sup>Leigh, p. 575.

<sup>49</sup>Ibid.

<sup>50</sup>According to "The Art of Dioramas Survey 2," question 24.

<sup>51</sup>In F. R. Jaques, *Francis Lee Jaques: Artist of the Wilderness World* (New York: Doubleday, 1973), p. xixii.

<sup>52</sup>Dennis A. Johnson, "The Shape of Things," *Audubon* (January 1983), p. 76.

<sup>53</sup>See F. L. Jaques, "The Artist and the Museum Group," *Museum News* (1 April; 15 April 1931), pp. 10-12; 9-12.

<sup>54</sup>In Martha Karatz, "Nature Art: A Conversation With Robert Larson," *The Living Museum*, 42(4) (n.d.), 60.

<sup>55</sup>In F. R. Jaques, p. 256.

<sup>56</sup>In Johnson, p. 76.

<sup>57</sup>The majority of material on James Perry Wilson is from Charles B. Ferguson, *James Perry Wilson: Master Dioramist and Landscape Painter* (New Britain, CT: New Britain Museum of American Art, 1978), and Dorcas MacClintock, "James Perry Wilson and the Art of Background Painting," *Discovery*, 12(1) (1976), n.p.

<sup>58</sup>MacClintock, n.p.

<sup>59</sup>In Ferguson,<sup>2</sup> n.p.

<sup>60</sup>See Appendix C.

<sup>61</sup>Information on Love is from the Denver Museum of Natural History *Annual Report*, 1967, pp. 6-8.

<sup>62</sup>Ibid.

<sup>63</sup>Response to "The Art of Dioramas Survey 2," question 5.

<sup>64</sup>Personal communication from Robert Larson (15 May 1984).

<sup>65</sup>In Eric Mitchell, "Clarence Tillenius," *Canadian Artist Series* (n.d.), p. 17.

<sup>66</sup>In "de Lucia: Man of Many Dimensions," *Reporter Dispatch* (8 March 1981), n.p.

<sup>67</sup>Ibid.

<sup>68</sup>Ibid.

<sup>69</sup>In John Jellico, "William Traher: Giant in the Museum," *American Artist*, 38 (May 1974), 32.

<sup>70</sup>According to Jellico, "A distinguished group of 19 directors from abroad on a UNESCO-sponsored tour of the United States voted the background murals of William Traher the high point of their trip, their spokesman adding, 'There is nothing else like them in all the world; In him you have a giant!' Ibid., p. 3.

<sup>71</sup>Ibid, p. 34.

<sup>72</sup>Ibid.

<sup>73</sup>Ibid., p. 63.

<sup>74</sup>Ibid.

<sup>75</sup>Response to "The Art of Dioramas Survey 2," question 13.

<sup>76</sup>Ibid.

<sup>77</sup>Ibid., question 22.

<sup>78</sup>Ibid.

<sup>79</sup>Ibid.

<sup>80</sup>Ibid., question 25.

<sup>81</sup>Personal communication from John Boone (19 July 1983).

<sup>82</sup>Stevens, p. 197.

<sup>83</sup>Dr. Karl Otto Meyer is Director of the Staatliches Museum für Naturkunde und Vorgeschichte Oldenburg. A copy of his unedited paper was sent to the writer by Dr. Ridgely Williams, Assistant Director of Public Programmes, National Museum of Natural Sciences, Ottawa.

<sup>84</sup>Ibid.

<sup>85</sup>Frank Chapman, *Camps and Cruises of an Ornithologist* (New York: Appleton-Century, 1908), n.p.

<sup>86</sup>Harold E. Anthony, "A Grand Tour of North America," *Natural History* (April 1942), p. 189.

<sup>87</sup>Ibid.

<sup>88</sup>Albert E. Parr, "Museums: Enriching the Urban Milieu," *Museum News*, 56(4) (March-April 1978), n.p.

<sup>89</sup>Ibid.

<sup>90</sup>R. K. Perry, "Atmosphere and Color in Simple Habitat Groups," *Museums Journal*, 37 (March 1938), 537.

<sup>91</sup>Lawrence Vail Coleman, *The Museum in America: A Critical Study*. 3 vols. (Washington, DC: American Association of Museums, 1939), p. 261.

<sup>92</sup>Alma S. Wittlin, *Museums: In Search of a Usable Future* (Cambridge, MA: M.I.T. Press, 1970), p. 137.

<sup>93</sup>Results from "The Art of Dioramas Survey 1," question 15.

<sup>94</sup>Ibid.

<sup>95</sup>In recent years many museums have accepted private donations to finance the production or restoration of dioramas, the specific donor usually being acknowledged on a plaque in front of the exhibit.

<sup>96</sup>Response to "The Art of Dioramas Survey 1," question 15.

<sup>97</sup>Ibid.

<sup>98</sup>Albert E. Parr, "Mass Medium of Individualism," *Curator*, 4(1) (1961), 41.

<sup>99</sup>Ibid.

<sup>100</sup>Ibid., p. 43.

<sup>101</sup>In "At Natural History, Adults Find More To Do," *New York Times* (8 June 1983), n.p.

<sup>102</sup>Stevens, p, 27.

<sup>103</sup>Albert E. Parr, "Brawn, Brains and Heart," *Museum News*, 47(4) (December 1968), n.p.

## Chapter 6

### CONCLUSION

. . . public exhibits in a good natural history museum are in some ways the modern counterparts of the nautilus and ostrich-egg goblets of the Renaissance, constructed of both natural objects and a highly skilled kind of applied art. Yet they are far more important, because they are made to contain not divine . . . but scientific truths, made plain by the art with which the self-theorizing properties of the specimens are exhibited. If the whole aspect of the work of a natural history museum is considered in this light, a taxonomically arranged set of diatom slides or drawer of insects, no less than a habitat group or some magnificent fulgurite . . . are seen to have some of the properties of works of art.<sup>1</sup>

In *The Ecological Theatre and the Evolutionary Play* (1965), G. E. Hutchinson made an unusual observation for a scientist.<sup>2</sup> By observing the importance of art in effective public exhibits in natural history museums, he implied that, apart from their scientific value, such displays might be considered for their aesthetic properties. In concurrence with Hutchinson, this study examined the habitat group, or diorama, as an exhibit technique which requires "a highly skilled kind of applied art."<sup>3</sup>

An investigation of natural history dioramas, however, must reach beyond a mere documentation of the skill and creativity necessary to produce these realistic wildlife tableaux. Research into the historical origins and

development of the diorama indicates that neither the concept for creating an illusionistic scene from nature, nor the theatrical display of natural history specimens occurred first in government-supported museums. Rather, it was the pictorial spectacles and public exhibitions of the nineteenth century that were the early precursors of twentieth century museum dioramas. In other words, although dioramas are commonly believed to have derived from scientific and educational sources, their true origin lies in public exhibits which were valued primarily as popular entertainment.

A comparison between natural history dioramas and nineteenth century panoramic landscape painting in America suggests that, not only are dioramas a popular continuation of a fine arts tradition but, more importantly, they are an expression of the national identification with nature that is fundamental to the history of America.

From the very beginning, museological development on this continent was dependent on the exhibition of natural history specimens. Unlike European museums, which had generations of cultural artifacts to draw upon, the first museums in North America had little else to display apart from the indigenous natural history. Wildlife specimens formed the primary basis of many museological collections, from the museum founded by the Charleston Library Society in 1743, to the provincial museum of British Columbia

established in 1886.<sup>4</sup> That this situation existed for a surprising length of time indicates that public support for such exhibitions did not diminish.

In fact, it could be argued that popular interest in natural history stimulated the major reform in museological philosophy that occurred at the beginning of this century. Certainly, natural history museums were at the forefront of the new democratic principles of public education. Viewed in this context, the diorama's early evolution was inextricably linked to the hitherto disregarded theory that public museums should be responsible for providing popular education for the masses. Because theatrical displays of wildlife specimens posed in illusionistic scenes from nature had a widespread appeal to the North American public, dioramas quickly became the most prevalent exhibit technique to be used in natural history museums. This phenomenon was a direct result of the changes initiated by the reform in museological policies.

In conclusion, natural history dioramas made a substantial contribution toward the development of public museums in North America. This fact, together with their intrinsic value as a unique art idiom, has yet to be acknowledged. Rather than evaluating the diorama as an outdated exhibit technique which has limited application in today's age of science and technology, dioramas should

be appreciated for their historical value and artistic qualities.

Despite the current museological indifference toward natural history dioramas, they still remain a popular favourite among the public. Many people who have grown up with particular exhibits return to see them years later. Like Holden in *The Catcher in the Rye*, they are entranced by the illusionistic scenes precisely because nothing ever changes in them; "The only thing that would be different would be *you*."<sup>5</sup>

Chapter 6 Footnotes

<sup>1</sup>G. E. Hutchinson, *The Ecological Theatre and the Evolutionary Play* (New Haven, CT: Yale University Press, 1965), p. 107.

<sup>2</sup>Ibid.

<sup>3</sup>Ibid.

<sup>4</sup>See Harlan I. Smith, "The Natural History Museums of British Columbia," *Science* (4 November 1898), pp. 619-620. According to this article, "In proportion to the population and total number of educational institutions, British Columbia has an unusual number of natural history museums." At the provincial museum, it was noted that, "special attention is being given to the building of groups of birds and mammals being represented in their natural environments."

<sup>5</sup>J. D. Salinger, *The Catcher in the Rye* (Boston: Little, Brown & Co., 1945), p. 121.

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## APPENDICES

- A. FIGURES
- B. THE ART OF DIORAMAS SURVEY
  - 1. A Questionnaire for Museums
  - 2. A Questionnaire for Diorama Painters
- C. COMPILATION OF DIORAMA PAINTINGS
  - 1. Historical
  - 2. Modern
  - 3. Contemporary
- D. PARTICIPANTS IN SURVEY
  - 1. Museums
  - 2. Diorama Painters

APPENDIX A

FIGURES

## FIGURE CAPTIONS

Figure	Page
1. "The Eidophusikon." Watercolour by Edward Francis Burney, n.d.; reproduced from Altick, <i>The Shows of London</i> , 1978 . . . . .	280
2. "Burford's Panorama," Leicester Square. Cross-section. Aquatint from Robert Mitchell's <i>Plans and Views in Perspective of Buildings Erected in England and Scotland</i> , 1801; reproduced from Altick, <i>The Shows of London</i> , 1978 . . . . .	280
3. "The Diorama." (a) Ground plan of the Diorama building, London, by A. Pugin and J. Morgan, 1823; (b) Cross-section of the auditorium and picture placement of the Diorama, London. From Daguerre, <i>The Daguerreotype and the Diorama</i> , 1839 . . . . .	281
4. "The Museum of Ole Worm," Copenhagen. Frontispiece of <i>Musaeum Wormianum</i> , 1655; reproduced from Wittlin, <i>Museums</i> , 1970 . . . . .	281
5. "Rotunda of the Levarian Museum," Blackfriars Road. Engraving by Miss Stone and C. Ryley, n.d.; reproduced from Altick, <i>Shows of London</i> , 1978 . . . . .	282
6. C. W. Peale, <i>Self-portrait in his Museum</i> , 1822. Pennsylvania Academy of the Fine Arts; reproduced from Sellers, <i>Mr. Peale's Museum</i> , 1980 . . . . .	282
7. "Bullock's Museum." Aquatint in <i>Ackerman's Repository of Arts</i> , 1810; reproduced from Altick, <i>The Shows of London</i> , 1978 . . . . .	283
8. C. W. Peale, "The National Bird," n.d. Taxidermy. Museum of Comparative Zoology, Harvard University; reproduced from Sellers, <i>Mr. Peale's Museum</i> , 1980 . . . . .	284
9. Alexander Wilson, <i>White-headed Eagle</i> , c. 1811. Hand-coloured etching and engraving. Academy of Natural Sciences, Philadelphia; reproduced from Norelli, <i>American Wildlife Painting</i> , 1975 . . . . .	284

Figure	Page
10. William Bullock, "The Royal Tiger," c. 1814. Taxidermy. Rossendale Museum, Rawtenstall, England; reproduced from Hancock, <i>Museums Journal</i> , June, 1979 . . . . .	285
11. Jules Verreaux, "Arab Courier Attacked by Lions," c. 1867. Taxidermy. The Carnegie Museum, Pittsburg; reproduced from Reekie, <i>Natural History</i> , June, 1964 . . . . .	285
12. "American Robin Group," c. 1887. A.M.N.H., New York; reproduced from Reekie, <i>Natural History</i> , June, 1964 . . . . .	286
13. "Pelican Island Group," c. 1902. A.M.N.H., New York; reproduced from Chapman, <i>Camps and Cruises</i> , 1908 . . . . .	286
14. "Akeley Memorial Hall of African Mammals." 1936. A.M.N.H., New York; courtesy of the Photographic Collection, A.M.N.H. . . . .	287
15. John J. Egan, <i>Distant View of the Rocky Mountains</i> (section of a panorama), c. 1850. Oil on canvas, 96 in. high. University Museum, Philadelphia; reproduced from Born, <i>American Landscape Painting</i> , 1948 . . . . .	288
16. Thomas Cole, <i>The Oxbow</i> , 1836. Oil on canvas, 51½ in. x 76 in. The Metropolitan Museum of Art, New York; reproduced from Born, <i>American Landscape Painting</i> , 1948 . . . . .	288
17. Hans F. Gude, <i>Norwegian Scenery</i> . Published in "Gems from the Dusseldorf Gallery," New York, c. 1863; reproduced from Huntington, <i>Landscapes</i> , 1966 . . . . .	289
18. Frederic Edwin Church, <i>Twilight of the Wilderness</i> , 1860. Oil on canvas, 40 in. x 64 in. The Cleveland Museum of Art; reproduced from Novak, <i>Nature and Culture</i> , 1980 . . . . .	290
19. "Silver-tipped Grizzly Bear Diorama." Denver Museum of Natural History, photographed by Vincent Varga, 1983 . . . . .	290

Figure	Page
20. Albert Bierstadt, <i>The Last of the Buffalo</i> , 1888. Oil on canvas, 71½ in. x 119½ in. The Corcoran Gallery of Art, Washington, DC; reproduced from Hendricks, <i>Albert Bierstadt</i> , 1973 . . . . .	291
21. "The Buffalo Hunt Diorama" (detail of background painting by Clarence Tillenius), c. 1975. Manitoba Museum of Man and Nature, Winnipeg; courtesy of the artist . . . . .	291
22. Thomas Moran, <i>The Grand Canyon of Yellowstone</i> , 1872. Oil on canvas, 84 in. x 144½ in. National Museum of American Art, Washington, DC; reproduced from Trenton, <i>The Rocky Mountains</i> , 1983 . . . . .	292
23. "Mountain Lion Diorama." Denver Museum of Natural History; photographed by Vincent Varga, 1983 . . . . .	292
24. Frederick Edwin Church, <i>Study of a Forest Pool</i> , c. 1860. Olana, Hudson, NY; reproduced from Hawes, <i>The American Scene</i> , 1970 . . . . .	293
25. "The Barkerville Diorama" (detail of background painting by Jan Vriesen), 1981. British Columbia Provincial Museum, Victoria; photographed by Vincent Varga, 1982 . . . . .	293
26. (a) "Museum Hall for Dioramas," designed by John Rowley. Published in <i>Taxidermy and Museum Exhibition</i> , 1935; reproduced from Waiczis, "John Rowley, Museum Pioneer," 1980 . . . . .	294
(b) "Diorama Cross-section," designed by John Rowley. Published in <i>Taxidermy and Museum Exhibition</i> , 1935; reproduced from Waiczis, "John Rowley, Museum Pioneer," 1980 . . . . .	294
27. "Ground Plan of the Biologiska Museet." Uppsala, Sweden; reproduced from Parr, "Dimensions, Backgrounds, and Uses of Habitat Groups," 1961 . . . . .	294

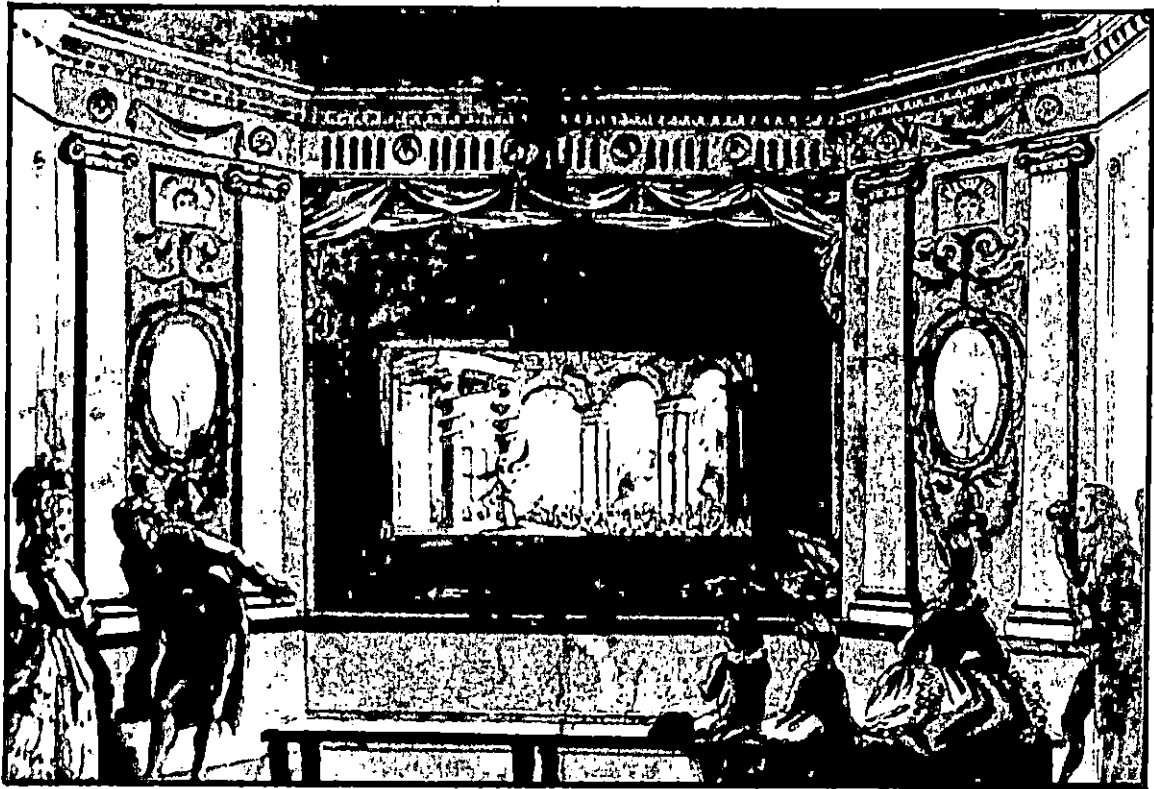


Figure 1

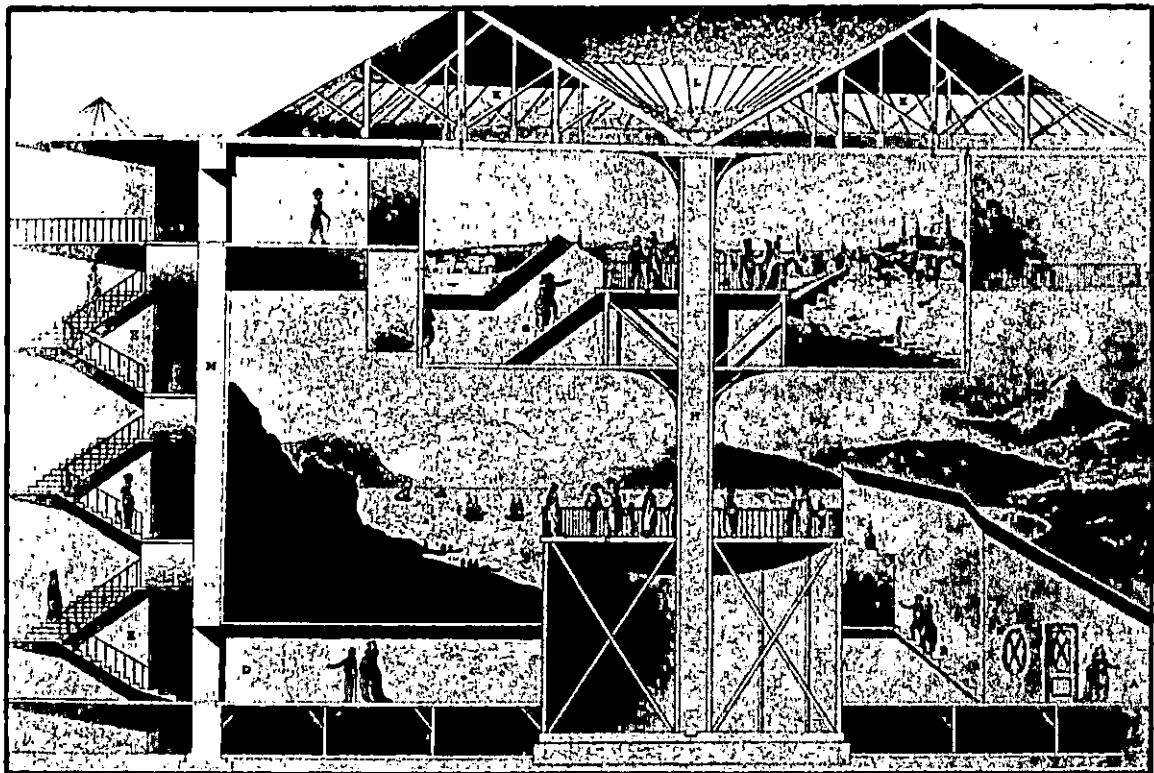


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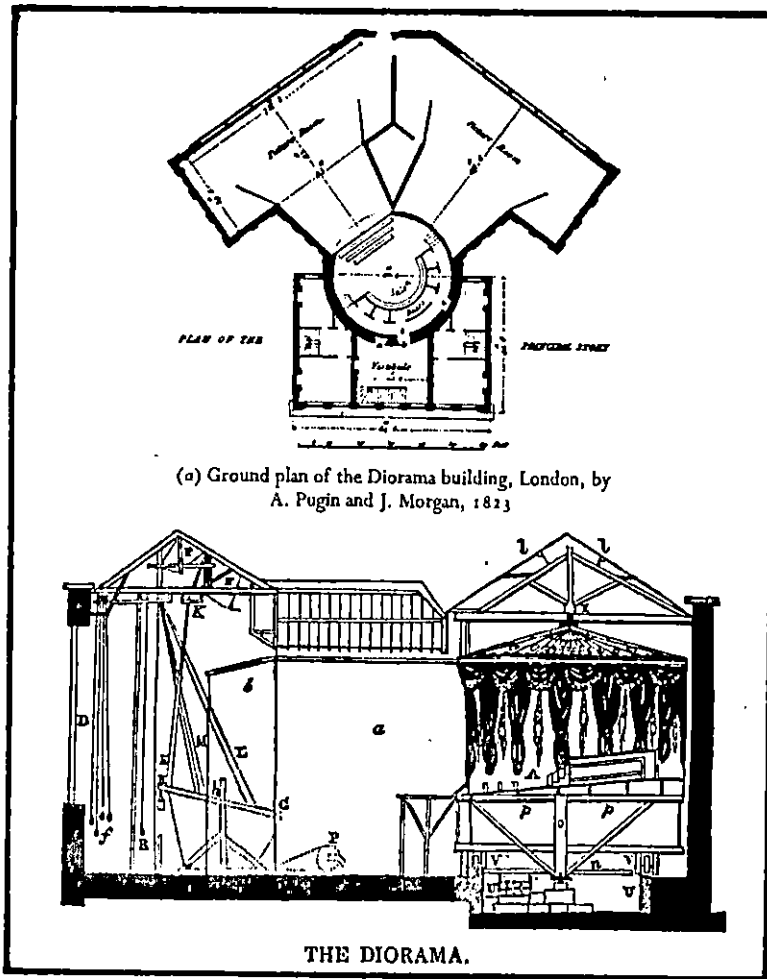


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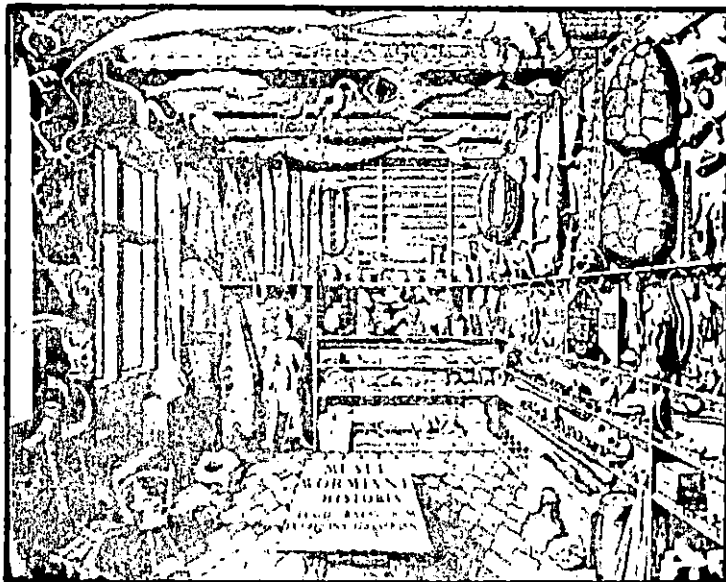


Figure 4



Figure 5



Figure 6

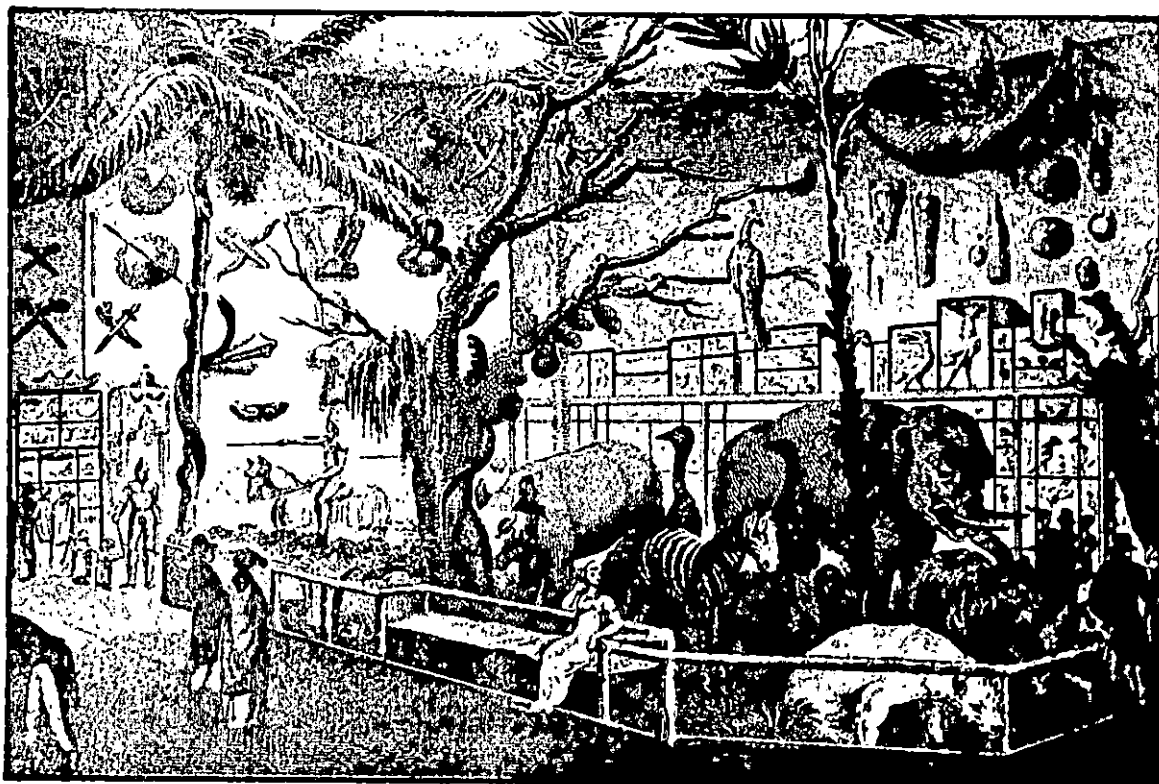


Figure 7



Figure 8

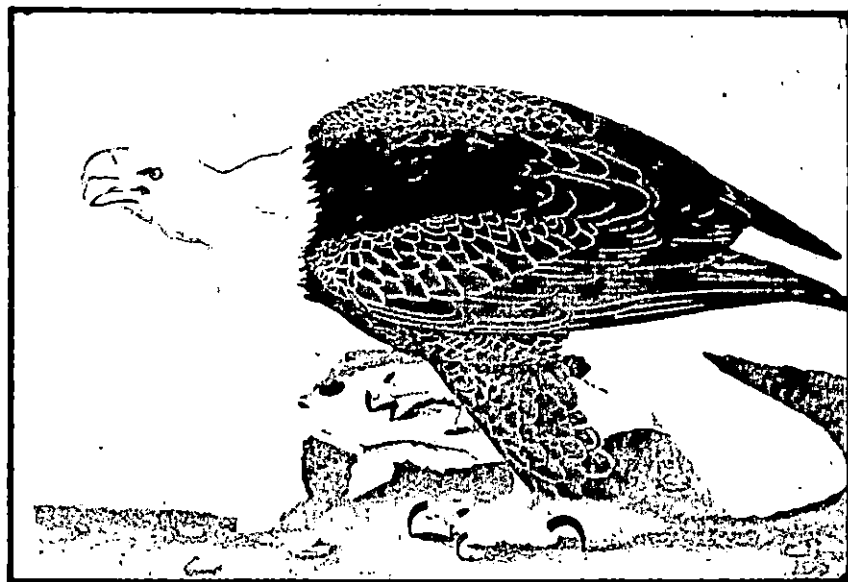


Figure 9



Figure 10



Figure 11



Figure 12



Figure 13



Figure 14



Figure 15

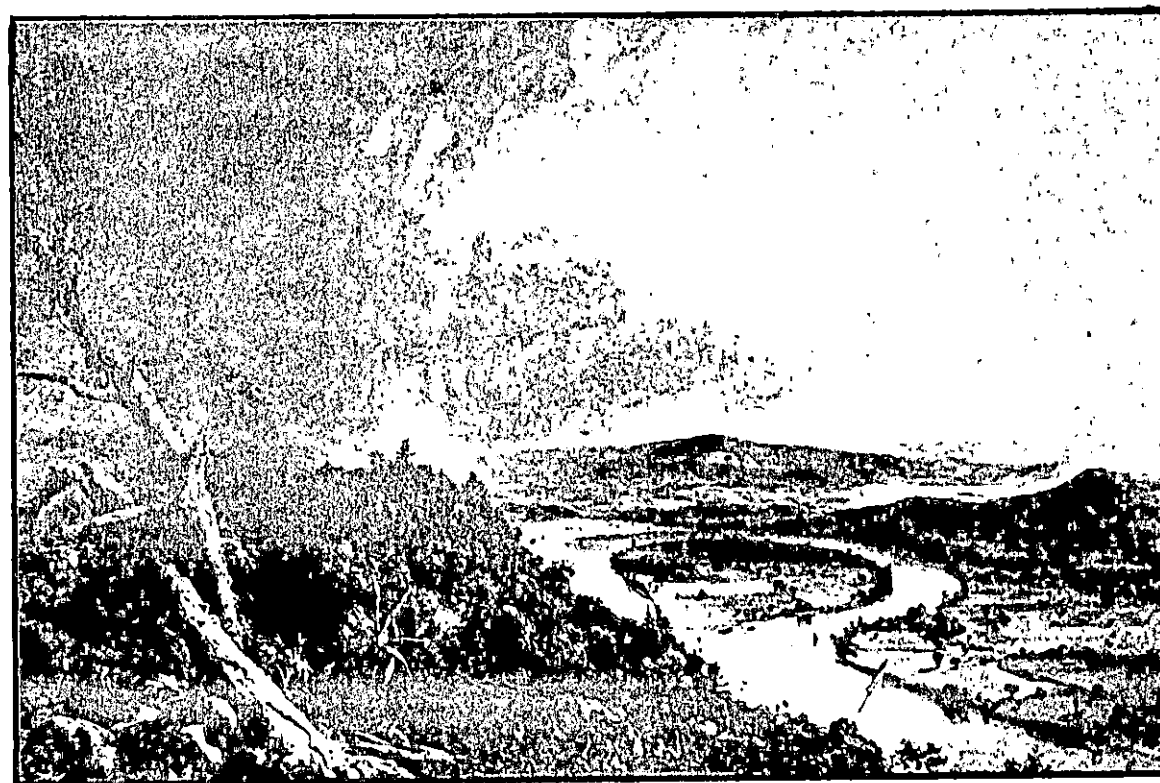


Figure 16



Figure 17



Figure 18



Figure 19



Figure 20



Figure 21

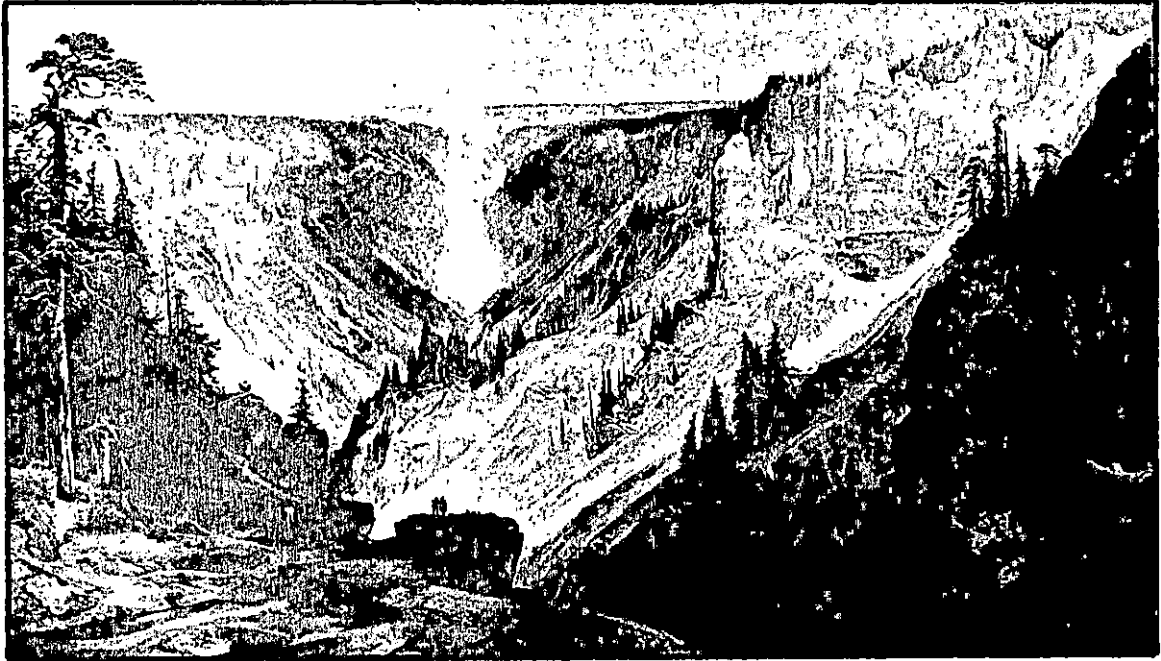


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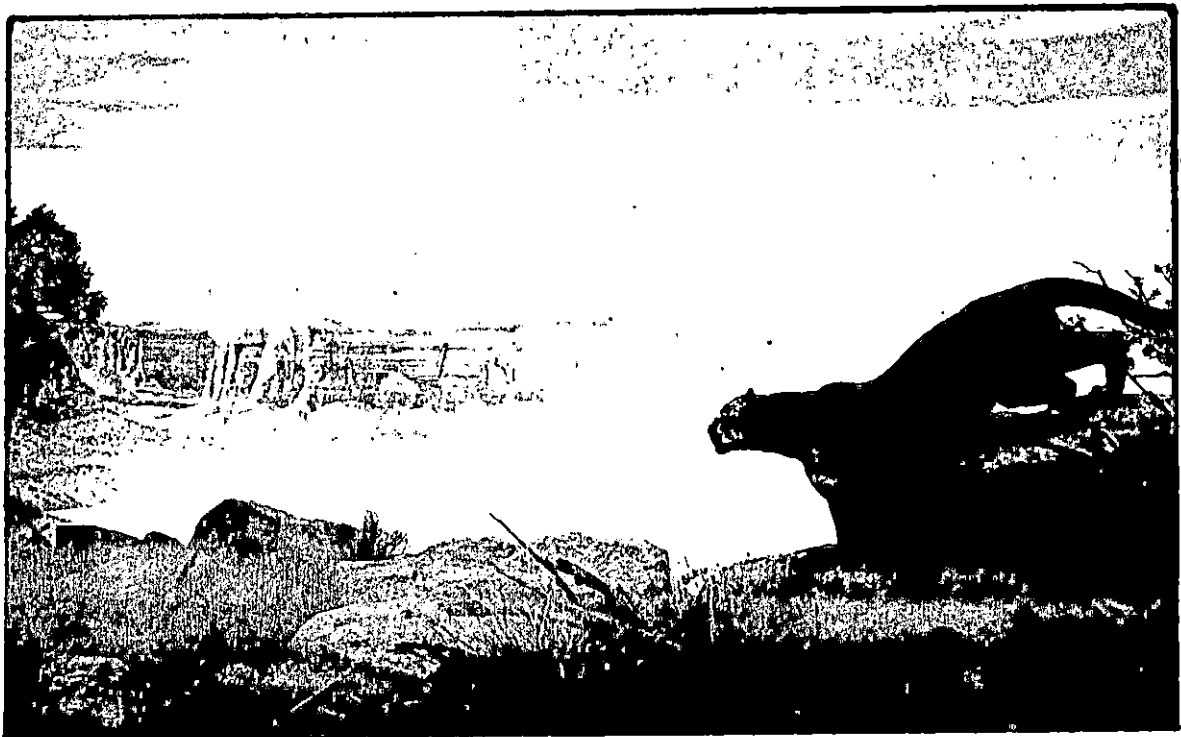


Figure 23



Figure 24



Figure 25

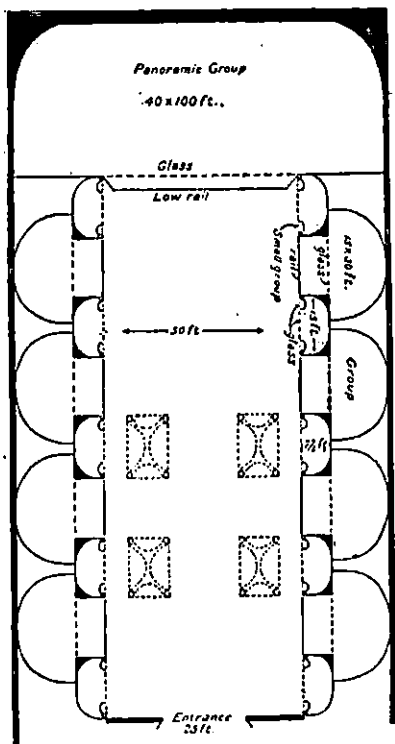


Figure 26 (a)

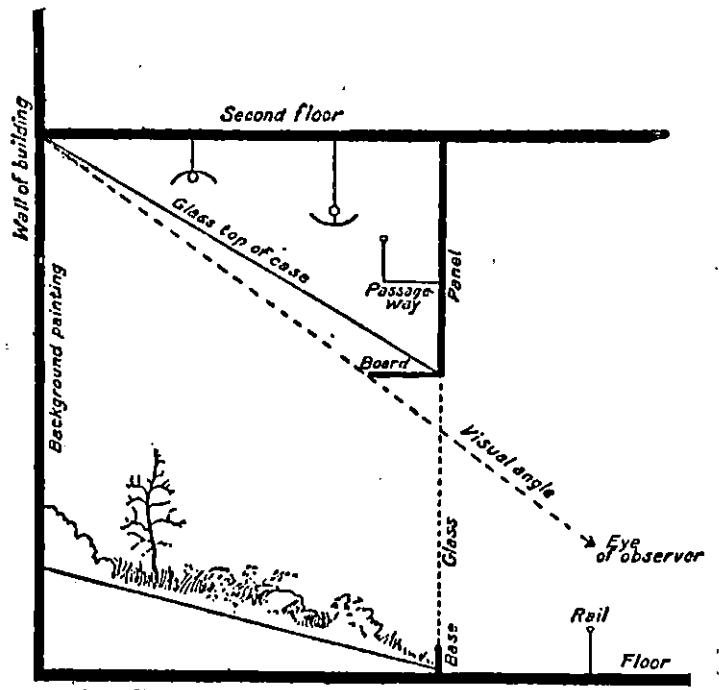


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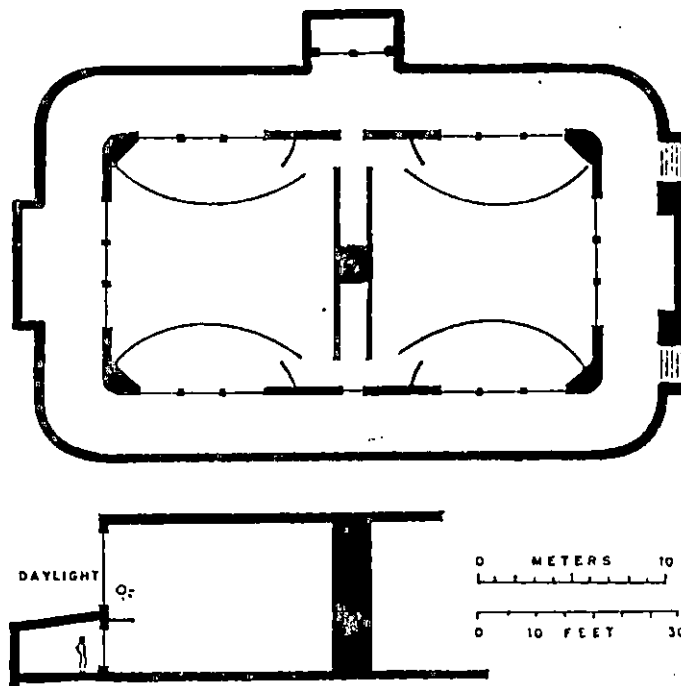


Figure 27

## APPENDIX B

### THE ART OF DIORAMAS SURVEY

#### Remarks:

This survey was not intended to be a definitive compilation of information, but rather to facilitate early research on the subject. Therefore, only a general summation of the responses to the two questionnaires is presented here.

1. The first questionnaire was sent to 43 natural history museums in the United States and Canada and was returned by a total of 32 museums. Following each question is the number of museums which agreed with the given responses.

2. The second questionnaire was sent to 18 diorama painters in the United States and Canada and was returned by a total of 15 artists. Following each question is the number of artists who agreed with the given responses.

### 1. A Questionnaire for Museums

For purposes of this questionnaire, a diorama is defined as a life-sized exhibit of 3-dimensional objects (usually wildlife specimens) mounted in the midst of realistically reproduced natural surroundings which merge into a painted background.

1. If you do not agree with the above definition, please indicate why;

- the term "diorama" refers to miniature, historical groups 4
- "habitat group" would be a more appropriate term 6
- some dioramas have photographic, not painted backgrounds 3
- some dioramas do not recreate naturalistic, landscape scenes 4
- other 3

2. Approximately how many dioramas are there at your museum?

- 1 to 10 9
- 10 to 50 13
- 50 to 100 7

3. Are your dioramas grouped according to subject matter?

- geographic natural history 18
- taxonomic natural history 6
- both 5

4. During what time period were the majority of your dioramas produced?

- 1900 to 1950 11
- 1950 to 1970 11
- 1970 to 1985 10

5. Have you restored any of the dioramas at your museum?

- yes 17
- no 13

6. Are the dioramas considered to be temporary or permanent exhibits?

- temporary 3
- permanent 23

7. Do you have archival records or documentation of the production of the diorama exhibits?

- yes 17
- no 7

Page 2

8. Can you name some of the artists who painted the diorama backgrounds at your museum?
- yes 12
  - no 5
9. Who produced the majority of your dioramas?
- "in-house" museum technicians 21
  - free-lance museum professionals 3
  - both 8
10. Who was usually responsible for the content and subject matter of your dioramas?
- the director and curators 10
  - the curators and artists 9
  - the curators 6
  - the artists 4
11. Do your dioramas always recreate a life-like situation with respect to an actual geographic location?
- yes 19
  - no 7
12. What type of documentation was used to ensure the scientific accuracy of your dioramas?
- photographs
  - sketches or paintings
  - observation in the field
  - collection of specimens
  - all of the above                     30
13. Are you planning new diorama exhibits at your museum?
- yes 19
  - no 13
14. If no new dioramas are planned, please explain.
- a change in exhibits policy                     3
  - lack of physical space in the museum                     9
  - too expensive; budget cutbacks                     8
  - insufficient interest and support                     1

Page 3

15. Are dioramas outdated as an effective technique for educating the public about natural history?

- yes 5
- no 26

16. What is the average annual budget for the exhibits department at your museum in 1983-1984?

- \$5,000 to \$25,000 6
- \$25,000 to \$100,000 6
- over \$100,000 11

17. Is your museum funded from private or public sources?

- public 13
- private 7
- both 10

18. What is the average annual attendance at your museum during 1983-1984?

- 25,000 to 100,000 6
- 100,000 to 300,000 13
- 300,000 to 500,000 5
- 500,000 to 1,000,000 7

## 2. A Questionnaire for Diorama Painters

For purposes of this questionnaire, a diorama is defined as a life-sized exhibit of 3-dimensional objects (usually wildlife specimens) mounted in the midst of realistically reproduced natural surroundings which merge into a painted background.

1. Please indicate how many diorama backgrounds you have painted.
  - fewer than 5 1
  - 5 to 15 6
  - more than 15 7
  
2. Are you working as a free-lance artist, or are you on staff at a museum?
  - free-lance artist 7
  - staff artist 5
  - retired staff artist 3
  
3. What part of the diorama exhibit were you responsible for?
  - design and production of the entire exhibit 10
  - background painting alone 4
  
4. Who made the decisions about the content (subject matter and story-line) of the diorama?
  - the artist 3
  - the artist and curatorial staff 7
  - the curatorial staff 4
  
5. How did you learn to paint dioramas?
  - self-taught 8
  - apprenticeship 3
  - both 3
  
6. Have you worked on any dioramas that were not life-sized, did not contain wildlife specimens, or were not painted on a curved surface?
  - yes 7
  - no 8
  
7. Was the diorama scene usually taken from an actual geographic location?
  - yes 15
  - no 0

8. What research methods do you use to ensure an accurate and realistic representation?

- observation in the field \_\_\_\_\_
- colour slides and photographs \_\_\_\_\_
- sketches and paintings \_\_\_\_\_
- collection of specimens and samples \_\_\_\_\_
- all of the above \_\_\_\_\_ 13

9. Do you work closely with the foreground preparators?

- yes \_\_\_\_\_ 15
- no \_\_\_\_\_

10. When is the background of the diorama painted?

- before the foreground has been installed \_\_\_\_\_ 10
- after the foreground has been installed \_\_\_\_\_ 4
- at the same time as the foreground is installed \_\_\_\_\_ 1

11. What method do you use to transfer the image to the background?

- free-hand drawings \_\_\_\_\_ 2
- slide projections \_\_\_\_\_ 7
- grid systems \_\_\_\_\_ 5

12. What medium do you use?

- oil paint \_\_\_\_\_ 4
- acrylic paint \_\_\_\_\_ 6
- both \_\_\_\_\_ 4

13. Does the effectiveness of the diorama depend on the colour and composition of the background painting?

- yes \_\_\_\_\_ 13
- no \_\_\_\_\_ 0

14. What is the most difficult problem to solve in painting dioramas?

- the area where the foreground merges into the painted wall \_\_\_\_\_ 5
- the distortion caused by the curved surface \_\_\_\_\_ 3
- the light sources and shadow effects \_\_\_\_\_ 3
- the atmospheric perspective \_\_\_\_\_ 1
- all of the above \_\_\_\_\_ 3

15. Have you had any formal art training?

- yes 11

- no 4

16. Are you interested in art history?

- yes 11

- no 4

17. Who are your favourite artists?

- Carl Rungius 1st

- Bruno Liljefors 2nd

- Wilhelm Kuhnert 3rd

- Francis Lee Jaques 4th

18. Do you paint for your own, personal enjoyment?

- yes 15

- no 0

19. What is the subject of these paintings?

- wildlife 9

- nature 4

- landscapes 2

- abstract 1

20. Have you exhibited your paintings professionally?

- yes 13

- no 2

21. Is diorama painting part of your life as an artist?

- yes 15

- no 0

22. Do you sign the diorama painting?

- yes 8

- no 7

23. Diorama painting is most similar to the following:

- naturalist or landscape painting 7

- stage-set or scenery painting 3

- mural painting 3

- all of the above 1

Page 4

24. Are you aware of any dioramas that are not based on scientific accuracy, or a realistic presentation of the subject matter?

- yes 7

- no 8

25. Do you think the museum public appreciates the skill of the background painting in diorama exhibits?

- yes 15

- no 0

26. Which museums have the best natural history dioramas?

- American Museum of Natural History 1st

- Denver Museum of Natural History 2nd

- James Ford Bell Museum of Natural History 3rd

27. Which diorama painter do you most admire?

- Francis Lee Jaques 1st

- James Perry Wilson 2nd

- William Traher 3rd

APPENDIX C

COMPILATION OF DIORAMA PAINTERS:

1. Historical
2. Modern
3. Contemporary

1. HISTORICAL DIORAMA PAINTERS (1900 - 1950)

\*\* major artist

NAME	MUSEUMS WHERE WORK IS REPRESENTED	DATES	MANTLE FIELDING'S <u>DICTIONARY</u>
Bauer, Otto	Academy of Natural Sciences	-----	-----
Betts, Grace and Vera	California Academy of Sciences	c. 1934	-----
Briggs, Shirley A.	National Museum of Natural History	-----	-----
Browne, Belmore ** (1880 - 1954)	California Academy of Sciences American Museum of Natural History Boston's Museum of Science	----- ----- -----	p. 46
Browne, George	California Academy of Sciences	-----	-----
Chapman, Charles (b. 1879)	American Museum of Natural History	c. 1942	p. 61
Clark, Robert C. (retired 1962)	Los Angeles County Museum of Natural History	-----	-----
Corwin, Charles Abel ** (b. 1857)	Field Museum of Natural History Academy of Natural Sciences Los Angeles County Museum of Natural History	----- ----- -----	p. 78

NAME	MUSEUMS WHERE WORK IS REPRESENTED	DATES	<u>MANTLE FIELDING'S DICTIONARY</u>
Corwin, Charles Abel** (cont'd.)	University of Iowa Natural History Museum	1914	
Figgins, J.D.	Denver Museum of Natural History	1910 - 1935	-----
Gray, Mary Chilton	Denver Museum of Natural History	1943 - 1959	p. 144
Grunsky, Dr. C.E.	California Academy of Sciences	c. 1934	-----
Guerry, Joseph M.	American Museum of Natural History	c. 1942	-----
Hittell, Charles J. (b. 1861)	American Museum of Natural History	-----	p. 171
Hoque, Robert E.	National Museum of Natural History	-----	-----
Horsefall, Bruce R. (b. 1869)	American Museum of Natural History James Ford Bell Museum of Natural History	1907 - 1915 -----	p. 176
Hudson, Charles Bradford **	California Academy of Sciences	1917 - 1934	-----
Jaques, Francis Lee ** (1887 - 1969)	American Museum of Natural History University of Nebraska Museum Peabody Museum of Natural History Boston's Museum of Science	1924 - 1934 ----- ----- -----	-----

NAME	MUSEUMS WHERE WORK IS REPRESENTED	DATES	MANTLE FIELDING'S DICTIONARY
Jaques, Francis Lee** (cont'd.)	University of Iowa Natural History Museum Academy of Natural Sciences Sinton Wildlife Sanctuary, TX	----- ----- -----	
Jansson, Authur A. ** (b. 1863)	American Museum of Natural History Academy of Natural Sciences National Museum of Natural History	----- ----- -----	p. 186
Kalmenoff, Matthew	American Museum of Natural History Springfield Science Museum, MA	----- -----	-----
Latta, Larry	Los Angeles County Museum of Natural History	-----	-----
Leigh, William R. ** (1866 - 1955)	American Museum of Natural History	1926 - 1936	p. 213
Lilleywhite, Raphael (1891 - 1958)	Denver Museum of Natural History	-----	-----
Logan, Maurice G.	California Academy of Sciences American Museum of Natural History	c. 1917 -----	-----
Love, Charles Waldo ** (1881 - 1967)	Denver Museum of Natural History	1936 - 1967	-----

NAME	MUSEUMS WHERE WORK IS REPRESENTED	DATES	MANTLE FIELDING'S <u>DICTIONARY</u>
MacKenzie, Frank J.	Los Angeles County Museum of Natural History California Academy of Sciences Springfield Science Museum, MA	----- ----- -----	-----
Operti, Albert (1852 - 1927)	American Museum of Natural History	-----	p. 264
Puthuff, Hanson (b. 1875)	Los Angeles County Museum of Natural History	-----	p. 267
Rosenkranz, Clarence C.	Academy of Natural Sciences	-----	p. 304
Rueckert, Arthur C.	Field Museum of Natural History	-----	-----
Rungius, Carl (1869 - 1959)	American Museum of Natural History	c. 1942	p. 311
Ryder, Worth (b. 1884)	California Academy of Sciences	c. 1917	p. 313
Sewell, J. Robert	Los Angeles County Museum of Natural History	-----	-----
Sherer, Fred	American Museum of Natural History	c. 1942	-----
Tose, Frank **	California Academy of Sciences	c. 1930	-----
von Fuehrer, Ottmar F.	Carnegie Museum, PA	1922 - 1949	-----

NAME	MUSEUMS WHERE WORK IS REPRESENTED	DATES	MANTLE FIELDING'S <u>DICTIONARY</u>
Wells, Virgil L.	Denver Museum of Natural History	c. 1940	-----
Wilson, James Perry ** (1889 - 1976)	American Museum of Natural History National Museum of Natural History Peabody Museum of Natural History National Museum of Natural Sciences Boston's Museum of Science	1934 - 1957 ----- 1944 - 1946  1970  1965 - 1975	-----

2. MODERN DIORAMA PAINTERS (1950 - 1970)

NAME	PRESENT POSITION	MUSEUMS WHERE WORK IS REPRESENTED	DATES	CURRENT ADDRESS
Boone, John F.	free-lance artist	Denver Museum of Natural History Witte Museum, San Antonio, TX Oakland Museum Utah Museum of Natural History James Ford Bell Museum of Natural History	1963-1967 1973-1976 1967 1968 1968-1969 1972	740 Popular St. Denver, CO 80220
Bruce, Granville	free-lance artist	Dallas Museum of Natural History	-----	3021 McCarthy Irving, TX
Clemens, Joseph	free-lance artist	Milwaukee Public Museum	1965-1970	14875 Allisonville Rd. Noblesville, ID 46080
Connolly, Jerome Connolly, Elma	free-lance artists	Illinois State Museum James Ford Bell Museum of Natural History William Penn. Museum, Harrisburg, PA Carnegie Museum, PA British Columbia Provincial Museum Springfield Science Museum	1956-1959 1966 1966, 70, 71 1973 1979 1980-1983	105 Sunset Drive Nokimis, FL 33555

NAME	PRESENT POSITION	MUSEUMS WHERE WORK IS REPRESENTED	DATES	CURRENT ADDRESS
de Lucia, Raymond	staff artist (retired 1978)	American Museum of Natural History	1938-1978	217 Bainbridge Ave. Thornwood, NY 10594
Frankowiak, Robert	staff artist	Milwaukee Public Museum	1964-pres.	Milwaukee Public Museum 800 Wells St. Milwaukee, WI 53233
Haldorson, Pat	staff artist (retired)	National Museum of Natural Sciences	-----	2 Thornton St. Ottawa, Ontario
Harty, Stephen	free-lance artist	Academy of Natural Sciences	1957-1967	450 Timberline Dr. Raneocas, Mt. Hovy NJ 08060
Kane, Robert	free-lance artist (deceased 1981)	American Museum of Natural History	-----	-----
Larson, Robert G.	staff artist	Illinois State Museum	1963-pres.	Illinois State Museum Springfield, IL 62706
Matternes, Jay H.	free-lance artist	National Museum of Natural History	-----	724 S. Asath St. A-313 Alexandria, VI
Provins, Clark	free-lance artist (retired 1980)	Los Angeles County Museum of Natural History	-----	unknown
Reid, Robert	free-lance artist	Los Angeles County Museum of Natural History  Neville Public Museum, Green Bay, WI	-----  -----	unknown

NAME	PRESENT POSITION	MUSEUMS WHERE WORK IS REPRESENTED	DATES	CURRENT ADDRESS
Reid, Robert (cont'd.)		Denver Museum of Natural History	-----	
Schultz, William	staff artist (deceased 1983)	Milwaukee Public Museum	1964-1972	-----
Shortt, Terence M.	staff artist (retired 1976)	Royal Ontario Museum	1930-1976	127 Glencairn Ave. Toronto, ON M4R 1N1
Spencer, Duncan A.	free-lance artist (retired 1977)	Los Angeles County Museum of Natural History	-----	unknown
Strong, Ray	free-lance artist	California Academy of Sciences  Santa Barbara Museum of Natural History	c. 1950s  1960-1964	unknown
Swearington, Thomas	staff artist	University of Kansas Museum of Natural History	1959-pres.	Museum of Natural History University of Kansas Lawrence, KS 66045-2454
Tillenius, Clarence	free-lance artist	National Museum of Natural Sciences  British Columbia Provincial Museum  Manitoba Museum of Man and Nature  Provincial Museum of Alberta	1962-1971  1965-1968  1965-1980  1974	441 Dominion St. Winnipeg, MB R3G 2M8
Traher, William	staff artist (retired 1976)	Denver Museum of Natural History	1956-1976	2331 Niagara Denver, CO 80207

3. CONTEMPORARY DIORAMA PAINTERS (1970 - PRESENT)

NAME	PRESENT POSITION	MUSEUMS WHERE WORK IS REPRESENTED	CURRENT ADDRESS
Bezaire, Bruce	free-lance artist	National Museum of Natural Sciences	19 Selkirk Leamington, ON N8H 1G2
Bogaert, Ludo	staff artist	Provincial Museum of Alberta	Provincial Museum of Alberta 12845 - 102 Ave. Edmonton, AB T5N 0M6
Butsch, Robert S.	staff artist	University of Michigan Exhibit Museum	University of Michigan Exhibit Museum 1109 Geddes Ave. Ann Arbor, MI 88109
Carson, Ralph	staff artist	Provincial Museum of Alberta	Provincial Museum of Alberta 12845 - 102 Ave. Edmonton, AB T5N 0M6
Chessar, Ron	staff artist	Florida State Museum	Florida State Museum University of Florida Gainsville, FL 32611
Cook, Richard	free-lance artist	California Academy of Sciences	283 Ney St. San Francisco, CA 94112
Cummings, Ben	staff artist	Codding Museum	Codding Museum 557 Summerfield Rd. Santa Rosa, CA 94504
Deaton, Neal	free-lance artist	National Museum of Natural History	1203 Monroe Dr. Newton, IA 50208

NAME	PRESENT POSITION	MUSEUMS WHERE WORK IS REPRESENTED	CURRENT ADDRESS
Granville, Bruce	free-lance artist	Dallas Museum of Natural History	3021 McCarthy Irving, TX
Gulley, P.R.	free-lance artist	Field Museum of Natural History	6 High St. Williamsport, IN 47993
Kratz, Kenneth	free-lance artist	Milwaukee Public Museum	Milwaukee Public Museum 800 Wells St. Milwaukee, WI 53233
Lahrman, Fred	staff artist	Saskatchewan Museum of Natural History	Saskatchewan Museum of Natural History Wascana Park Regina, SK S4P 3V7
Malik, Donald C.	free-lance artist	Denver Museum of Natural History	11, 1160 Birch St. Denver, CO 80220
Misencik, Steve	staff artist	Cleveland Museum of Natural History	3, 2259 Noble Rd. Cleveland, OH
Pendleton, Kent	free-lance artist	Denver Museum of Natural History	3036 North Ponderosa Franktown, CO 80116
Prutzer, Tim	free-lance artist	Denver Museum of Natural History	Box 792 Palmer Lake, CO 80133
Rishell, Robert	free-lance artist	Oakland Museum	unknown
Vienneau, Azor	free-lance artist	Nova Scotia Museum	Nova Scotia Museum 1447 Summer St. Halifax, NS E3H 3A6
Vriesen, Jan	free-lance artist	British Columbia Provincial Museum	2, 1715 Rockland Ave. Victoria, BC V8S 1W6

APPENDIX D

PARTICIPANTS IN SURVEY

1. Museums
2. Diorama Painters

## 1. MUSEUMS

Academy of Natural Sciences, Philadelphia, PA  
American Museum of Natural History, New York, NY  
Bishop Museum, Honolulu, HI  
Boston's Museum of Science, Boston, MA  
British Columbia Provincial Museum, Victoria, BC  
California Academy of Sciences, San Francisco, CA  
Cleveland Museum of Natural History, Cleveland, OH  
Coddling Museum of Natural History, Santa Rosa, CA  
Dallas Museum of Natural History, Dallas, TX  
Fairbanks Museum and Planetarium, St. Johnsbury, VT  
Florida State Museum, Gainesville, FL  
Fort Worth Museum of Science and History, Fort Worth, TX  
Illinois State Museum, Springfield, IL  
James Ford Bell Museum of Natural History, Minneapolis, MN  
Los Angeles County Museum of Natural History, Los Angeles, CA  
Manitoba Museum of Man and Nature, Winnipeg, MB  
Milwaukee Public Museum, Milwaukee, WI  
Museum of Northern Arizona, Flagstaff, AZ  
National Museum of Natural History, Washington, DC  
National Museum of Natural Sciences, Ottawa, ON  
Neville Museum of Brown County, Green Bay, WI  
North Carolina State Museum of Natural History, Raleigh, NC  
Nova Scotia Museum, Halifax, NS  
Peabody Museum of Natural History, New Haven, CT  
Provincial Museum of Alberta, Edmonton, AB  
Roger Williams Park Museum, Providence, RI  
Royal Ontario Museum, Toronto, ON  
Saskatchewan Museum of Natural History, Regina, SK  
Springfield Science Museum, Springfield, MA  
University of Iowa Natural History Museum, Iowa City, IA  
University of Kansas Natural History Museum, Lawrence, KS  
University of Michigan Exhibit Museum, Ann Arbor, MI

## 2. DIORAMA PAINTERS

Ludo Bogaert

John P. Boone

Ralph Carson

Jerome Connolly

Elma Connolly

Richard Cook

Ben Cummings

John Dawson

Raymond de Lucia

Robert G. Frankowiak

Robert G. Larson

Kent Pendleton

Terence M. Shortt

Clarence Tillenius

William H. Traher

Jan Vriesen

VITA

Surname: WONDERS Given Names: Karen Elizabeth

Place of Birth: Edmonton, Alberta Date of Birth: 7 March 1955

Educational institutions attended, with dates of entering and leaving:

College of Marin, Marin County, CA 1974 to 1976

University of Alberta, Edmonton, AB 1976 to 1979

University of Victoria, Victoria, BC 1982 to 1984

Degrees, diplomas, etc., awarded, with dates and names of institutions:

Associate of Arts 1976 College of Marin, Marin County, CA

B.F.A. (Painting) 1979 University of Alberta, Edmonton, AB

M.A. (Art History) 1985 University of Victoria, Victoria, BC

Honours and awards:

Scholarship (tuition) Award 1974 College of Marin, Marin County, CA

President's Scholarship Award 1981 University of Victoria, BC

Fellowship Award (\$7000) 1982 University of Victoria, BC

G.S.A. Travel Grant, New York 1982 University of Victoria, BC

Graduate Student Grant 1984 University of Victoria, BC

G.S.A. Travel Grant, Toronto 1984 University of Victoria, BC

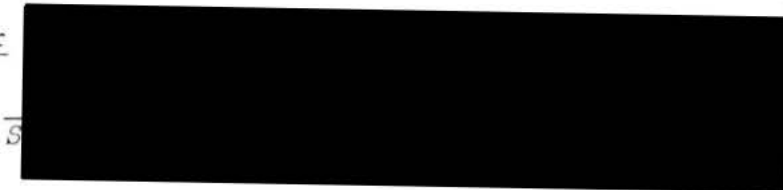
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Title of Thesis

"Natural History Dioramas: A Popular Art Idiom in the Museum Context"

Author



Karen Elizabeth Wonders

*Name*

1 July 1985

*Date*