# Educational Work in Museums of the United States

*Development, Methods and Trends*

By

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This Book is Dedicated to
My Sister
and
My Museum Friends

# PREFACE

The "Handbook of American Museums," published in 1931, listed over one thousand museums in the United States. Two hundred and ten of these were reported as conducting educational work, ranging from occasional lectures to a well organized program. Other museums founded since this time have made their educational service one of the chief features of their work. With twenty to thirty millions of people visiting these museums annually and as many as forty million contacts a year made through the educational work of a single large museum, the conclusion may well be drawn that museums in the United States are a definite educational force, contributing to the economic and cultural life of their communities.

No study previous to this has been made concerning the educational work of museums in the United States from its beginning to the present, the methods used and the trends it has followed. In 1913-1916 Paul M. Rea made a report to the United States Commissioner of Education on the educational work of American Museums up to that time. The number of museums established in the last quarter of a century, however, has been approximately doubled and many different phases of the work have developed. The main part of this publication has been based upon careful studies by the author and a thesis accepted by New York University in partial fulfillment of the requirements for the degree of doctor of philosophy. Grateful acknowledgement is made to the University for permission to use this material.

With many misgivings the author has undertaken the task of describing the educational work of museums. Nineteen years' experience in assisting with the development of the educational program of the American Museum of Natural History has brought the realization that no one volume can give an adequate

description of the various phases of the educational work of all the museums in the country. Nevertheless, it was felt that a concise account might prove useful to students of educational problems as well as to museum workers. The author's experience and contacts in working and conferring with noted scientists, artists, and educators have given definite advantages which have proved most valuable. Many data have been used which were gathered from the accumulated experiences of the years. To these facts have been added information secured through interviews and discussions of the work with museum directors and persons immediately in charge of the educational work in more than one hundred and forty museums visited during 1936 to 1938. Other useful data were secured from volumes of annual reports, both printed and typed, the *Proceedings of the American Association of Museums, Museum Work,* and *The Museum News.*

The author is deeply grateful to all of her museum colleagues who have assisted in this work by giving their time in conference and otherwise. Among those to whom a special debt of gratitude is felt are: Clinton G. Abbott, director, San Diego Museum of Natural History, California, Laura M. Bragg, director, Berkshire Museum, Pittsfield, Mass., Katherine Coffey, curator, Newark Museum, Louise Dunn, associate curator, Cleveland Museum of Art, Ralph Dury, director, Cincinnati Museum of Natural History, Huger Elliott, director of education, Metropolitan Museum of Art, Martha Flauhaut, assistant curator, Washington State Museum, Seattle, Philip Fox, director, Museum of Science and Industry, Chicago, Edward J. Foyles, director, Museum of Natural History, University of Rochester, Richard C. Fuller, director, Seattle Art Museum, Steven Fuller, assistant, H. C. Henry Art Gallery, Seattle, Anna Billings Gallup, formerly director, Children's Museum, Brooklyn, E. W. Gifford, curator, Museum of Anthropology, University of California, Berkeley, California, Gertrude Gilmore, director, Children's Museum, Detroit, Blake-More Godwin, director, Toledo Museum of Art, William M. Gregory, director, Cleveland Educational Museum, Delia Griffin,

director, Children's Museum, Hartford, Elizabeth Golterman, assistant curator, Educational Museum, St. Louis, Mark Raymond Harrington, assistant curator, Southwest Museum, Los Angeles, Sarah Harper, in charge of educational activities, Albany Institute of History and Art, Albany, Mrs. Heath, curator of education, Detroit Institute of Arts, Detroit, George H. Himes, curator, Oregon Historical Society, Portland, Mrs. Grace Pettis Johnson, director, Springfield Museum of Natural History, Massachusetts, A. L. Kroeber, director, Museum of Anthropology, Berkeley, California, Ilo C. Liston, secretary to the director, Seattle Art Museum, F. M. MacFarland, president, California Academy of Sciences, San Francisco, Harold L. Madison, director, Cleveland Museum of Natural History, Mildred E. Manter, director, Children's Museum, Boston, Charles W. Mason, formerly Psychologist, Buffalo Museum of Science, Matilda J. McComas, curator of education, Baltimore Museum of Art, Amelia Meissner, director, Educational Museum of St. Louis Public Schools, Grace L. McCann Morley, director, San Francisco Art Museum, Susie W. Mott, director, Oakland Public Museum, Josephine Moyer, instructor, Reading Museum and Art Gallery, Michelle Murphy, instructor, Brooklyn Museum, Anna Wetherill Olmsted, director, Syracuse Museum of Fine Arts, Arthur C. Parker, director, Rochester Museum of Arts and Sciences, Mildred Peake, assistant curator, Rochester Museum of Arts and Sciences, Mildred C. B. Porter, in charge, Children's Museum, Peabody Museum of Natural History, New Haven, Francis W. Robinson, assistant to the director, Cincinnati Art Museum, Paul J. Sachs, director, Fogg Art Museum, Cambridge, Edward J. Smith, curator, Junior Museum Section, Los Angeles Museum of History, Science and Art, W. Stephen Thomas, director of education, Philadelphia Academy of Sciences, Charles R. Toothaker, curator, Commercial Museum, Philadelphia, Dorothy Treat, assistant, Cleveland Museum of Natural History, J. R. Van Pelt, vice-director, Museum of Science and Industry, Chicago, Ruth V. Weierheiser, assistant curator,

Buffalo Society of Natural Sciences, Katharine Gibbs Wicks, instructor in charge, Cleveland Museum of Art, Etha Wulff, educational director, M. H. de Young Memorial Museum, San Francisco, and many others. Special thanks are also given to Professors Alonzo F. Myers, Beryl Parker, and Robert K. Speer of New York University and to the author's sister, Ethel L. Fisher, whose assistance was most valuable in this study throughout the past six years.

Many errors of omission will no doubt be noticed but the author trusts that the reader may have in this brief account, a fairly comprehensive view of the various phases of educational work in the museums of the United States.

GRACE FISHER RAMSEY

The American Museum of Natural History
New York, N.Y.
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CHAPTER I

# EARLY DEVELOPMENT

## *Genesis of Museums in the United States*

More than three years before the Declaration of Independence was proclaimed the first museum was founded on the continent of North America. This was the museum in Charleston, South Carolina, organized in March 1773, under the auspices of the Charles-Town Library Society, and designed to represent the natural resources of the Province and their relation to commerce and industry.[1] The second oldest museum now in existence was organized in 1799 by the East India Marine Society. It is now known as the Peabody Museum at Salem, Massachusetts. This was to be a repository for the curious and natural objects gathered by ship captains of Salem from lands of the South Pacific, Indian, and South Atlantic Oceans. Just after the turn of the century, in 1805, the first art museum in the United States, the Pennsylvania Academy of Fine Arts, was founded in Independence Hall, Philadelphia.

During the first half of the nineteenth century a few museums were founded in connection with colleges and learned societies, as the Academy of Natural Sciences of Philadelphia (1812) and the Boston Society of Natural History (1830). In 1813 Rembrandt Peale established in Baltimore a private museum of natural history and fine arts which had to be discontinued for lack of funds in 1831. In the succeeding half century the interest in descriptive natural history waned and was displaced by the laboratory studies which did not necessitate general systematic collections and thus resulted in a gradual neglect of the college museum

[1] Paul Marshall Rea, One Hundred and Fifty Years of Museum History, *Science*, Vol. LVII (June 15, 1923), p. 677-8.

of natural science. The society museums also restricted their efforts to very technical work. By 1873, the close of the first century of American museums, these conditions had created the stereotype that a scientific museum was a musty, dusty storehouse of stuffed animals and bugs with no popular interest. The art museum was also considered a rather gloomy tomb of treasures.

At about this time and up to the close of the century a new type of museum originated in America. Among these museums were those founded and supported in whole or in part by municipal funds and private endowments, thus becoming public or semi-public institutions. Some of these have become the greatest museums of America today: The American Museum of Natural History (1869); Metropolitan Museum of Art (1870); Museum of Fine Arts, Boston (1870); Art Institute of Chicago (1879); Cincinnati Art Museum (1881); Milwaukee Public Museum (1883); Brooklyn Institute of Arts and Sciences (1890); Field Museum of Natural History (1896); John Herron Art Institute (1896).

## *Purpose of Founding Museums*

The purpose of founding such museums is expressed in some of the charters of the institutions as a desire to assist in the education of American youth and the American public. This is indicated by the motto of the American Museum of Natural History: "For the people, for education, for science." It is emphasized in section 1 of the "Act to Incorporate The American Museum of Natural History" passed by the New York State legislature on April 6, 1869: "for the purpose of establishing and maintaining in said city a Museum and Library of Natural History; of encouraging and developing the study of Natural Science; of advancing the general knowledge of kindred subjects, and to that end of furnishing popular instruction and recreation." [2]

[2] The American Museum of Natural History, New York, *First Annual Report*, January 1870, p. 10.

That education was considered a primary function of the museum is also shown in the contract concluded between the trustees of this institution and the Department of Public Parks of New York City on December 22, 1877, which contains the following statement:

> But all professors and teachers of public schools of the City of New York, or other institutions of learning in said city, in which instruction is given free of charge, shall be admitted to all the advantages afforded by the said party of the second part, through its Museum, Library, apparatus, and collections, or otherwise, for study, research and investigation, free of any charge therefor, and to the same extent and on the same terms and advantages, as aforesaid.[3]

Education was likewise of prime importance in the work of the Metropolitan Museum of Art, New York. In the Fifth Annual Report of this institution the president wrote:

> The educational importance of the institute receives the constant consideration of the Trustees. They have every desire to extend its usefulness, and to make its collections available for scholars and students. . . . It has for a long time past been a subject of remark and regret, that the principles and the history of art formed no part of the ordinary systems of education in schools and colleges in this country. . . . the Trustees have been gratified by the evidence that the Museum has had its effect for good. Several schools have introduced the history and principles of the fine arts into their courses of education. Teachers, accompanied by scholars, frequently visit the Museum to examine illustrations of the immediate subjects of their study and large numbers of young persons, especially young ladies, are among the most frequent visitors and the most careful students of works of art.[4]

In the Sixth Annual Report of the same institution for 1876 the president stated: "The object of the institution, kept constantly in mind by the Trustees, is the education of the public, and the cultivation in our country of a high standard of artistic taste. Our schools and academies of learning have within the past year given sensible indications of a new appreciation of the

[3] The American Museum of Natural History, New York, *Eighth and Ninth Reports*, January 1, 1878, p. 23.

[4] The Metropolitan Museum of Art, New York, *Fifth Annual Report*, May 1875, p. 63-4.

importance of art education." [5] This museum, in its first public announcement of the purposes of its foundation, stated that one was "to provide opportunities and means of instruction in drawing and designing with their industrial application." [6] This was quite in keeping with the act passed in 1642 by the Massachusetts Colony for technical instruction in textiles which resulted in the arts of weaving, dyeing, and printing rising to be among the chief industries of the State. The first expenditure of this Museum's funds for works of art was in 1876 for the "advancement of artistic design in the industries of Massachusetts." [7]

In the charter granted in 1863 to the Buffalo Society of Natural Sciences, the purpose is stated as: "The promotion and study of the natural sciences through the formation of a museum and library, the procurement of lectures, and by such other means as shall be desirable and efficient for that purpose." [8]

## *Early Attempts in Promoting an Educational Program*

Since education was considered one of the main purposes for the founding of many museums and was made a matter of first importance to the trustees directing the policies of the institutions, early attempts were made to promote some organized work. In most cases this work was original with the personnel in the particular museum where it was tried and was planned independently of any other museum.

### Buffalo Society of Natural Sciences

The first efforts of a museum to inaugurate educational work for the benefit of the public were made by the Buffalo Society of Natural Sciences in 1876 when a popular lecture course was

[5] The Metropolitan Museum of Art, New York, *Sixth Annual Report,* May 1876, p. 77-8.
[6] Museum of Fine Arts, Boston, Massachusetts, *Twenty-Second Annual Report,* 1897, p. 10.
[7] Ibid., p. 10.
[8] Buffalo Museum of Science, *Sixty-eighth Annual Report,* June 1929.

opened in January to interest the public and, as stated by Henry R. Howland, "especially to awaken the enthusiasm of our high school pupils and those of the upper grades in our grammar schools." [9] Although since 1872 this Society had organized a Field Club and under the leadership of Charles Linden, custodian of the museum, had conducted weekly excursions composed largely of high school pupils, regularly organized work with the public schools was not inaugurated until 1878. At this time elementary science work was introduced into the grammar schools of Buffalo and the Society at once took steps to encourage the science teachers to bring their classes to the museum and use the collections there in their instruction. This offer of assistance was favorably received and for many years these teachers brought their classes to the museum where the various collections of rocks and minerals, of native birds and animals, were displayed for their convenience. Later a projection lantern was used to illustrate special lectures upon nature study topics given by school principals or class teachers. Beginning in 1879, travelling collections were prepared for loans to schools at the beginning of each school year.

"Finally," as Henry R. Howland stated, "in 1905, by arrangement with the Superintendent of Schools, the Society's rooms were placed at the disposal of the Superintendent of Education for the establishment of regular hours of daily instruction in elementary science by illustrated lectures and familiar talks to the grammar school children. These lectures became an integral part of the school requirements, the attendance of the grammar grades being made compulsory." [10] These lectures were given by Carlos E. Cummings, who was paid by the Society. This at-

[9] Henry R. Howland, Historical Sketch, *Bulletin of the Buffalo Society of Natural Sciences,* Vol. VIII, 1907, Number 6.

[10] Henry R. Howland, The Educational Work of the Buffalo Society of Natural Sciences in Cooperation with the Public Schools, *Proceedings of the American Association of Museums,* Vol. 3, 1909, p. 75.

tendance of all the grade pupils from the fifth year to the ninth is still in force and now the classes are taken in school busses to the Museum.

### Davenport Academy of Natural Sciences

Out in Iowa, meanwhile, the curator of the Davenport Academy of Natural Sciences began in 1877 to establish a definite connection between the museum and the public schools. Teachers from the Davenport city and country schools brought classes to the museum for lectures and demonstrations. S. S. Hunting, president of the Academy, stated in an address made March 6, 1877:

> By aiding science, you are putting another stone into the foundation of our public school system. With the products of nature and art before the pupil his mind is naturally stimulated to earnest inquiry as to the nature and meaning of these things, and he is no longer contented to rest in words, but seeks the knowledge of things, of realities. He becomes curious to learn what is written in the book of nature and know the right interpretation of the handwriting on the walls of creation. The Academy must, in the nature of the relations between the two, be the ally of our public schools. Nor are its benefits confined to the youth of the city. It is emphatically the citizens' school, the home of the mechanic, as well as the museum of the learned and the curious.[11]

W. H. Pratt, one of the founders of the Davenport Academy of Natural Sciences, labored hard toward making the museum "the ally of the schools" but it was not until 1889 that a formal arrangement was concluded with the school authorities whereby classes from the eighth and ninth grades came regularly to the museum. Each day Pratt gave up a portion of his time to explaining the collections to the children and giving them lectures illustrated with specimens from the museum.

[11] S. S. Hunting, Address at Social Meeting of March 6, 1877, *Proceedings*, Davenport Academy of Natural Sciences, Vol. I. p. 190.

The superintendent of Davenport schools, J. B. Young, in his report of July 1889, made favorable mention of these lessons as a part of the public school instruction. Pratt was also pleased with the result of his plan of cooperation with the public schools which he considered original with themselves. As he wrote in his report of the work to the trustees of the Academy dated June 13, 1890,[12] he thought that the experiment had fully demonstrated its feasibility, usefulness and popularity and showed unmistakably that it could be advantageously extended to one or two lower grades, and that each class might attend once a month, if no more. Having introduced the method and given it a successful trial, he felt that its usefulness and importance, both to the schools receiving the instruction and to the institution giving it, were so great that he hoped the plan might become a regular system and part of the public school course of instruction, exerting a strong influence on the extension of natural science instruction in the schools.

After Pratt left Davenport this plan of cooperation was taken up by others and continued with a slight interruption until 1904 when an arrangement was made between the school board and the museum trustees by which the school board voted to employ the curator for one-half time to teach science in the public schools. Under this plan the curator spent his mornings in the schools where, with specimens from the museum, he taught science to from four to eight classes, making the rounds of the schools in about three weeks' time. At certain times of the year classes also came to the museum where lectures were illustrated with objects from the collections.

The success of this method of cooperation between the Academy and the school board was shown, according to E. K. Put-

[12] W. H. Pratt, Report to the Trustees, *Proceedings,* Davenport Academy of Natural Sciences, Vol. VI, 1890, p. 291.

nam,[13] director of the Academy, not so much by the figures and statistics of classes, as by the increased interest of the individual children and the effect upon their educational development. All through the city, the children would count the days until the man from the Academy or the "bird man" as he was frequently called, came with his specimens to talk to them, and on Saturdays and Sundays large numbers of the children came to the Academy to see the more complete collections there, often bringing with them their parents. Another result of this educational work of the museum, Putnam stated, was the reaction on the museum itself, a reaction which benefited the older members of the community as well as the children. One of these results was the start toward a commercial and industrial department which proved of great interest to the general public as well as to the school children.

## American Museum of Natural History

In New York City, at about the same time as the educational work was being started by the museums in Buffalo and Davenport, the cornerstone of the new building of the American Museum of Natural History was laid by President U.S. Grant in 1876. Professor Henry stated in his address upon the laying of this cornerstone:

> How incomparably greater would be the importance of this Museum, were there connected with it a professor, who at stated periods of the year, would give courses of free lectures on the subjects it contains, who would expound the laws of the phenomena of nature, who would point out the changes the world has undergone during geological periods, and who would reconstruct the history of man in primitive times from the remnants of his previous existence which have been gathered in this institution.[14]

[13] E. K. Putnam, The Educational Work of the Davenport Museum, *Proceedings,* American Association of Museums, Vol. 2, 1908, p. 65-7.

[14] Albert S. Bickmore, Autobiography (unpublished), p. 37.

The new building was formally opened on December 22, 1877. Following this opening, Albert S. Bickmore, superintendent of the museum and the person who inspired the founding of this institution, realized that the isolated position of the new building would produce an unfavorable effect upon the popular prestige which had been acquired in its former location in the old Arsenal near the main entrance to Central Park. He knew that the elevated railroad would soon come up Columbus Avenue to Manhattan Square. After a long period of waiting, encouraging rumors finally came that the main artery of the new subway would pass near the museum on its way from the Battery to the northern extremity of Manhattan Island. During the intervening period of isolation Bickmore felt that it would be necessary for the museum to enter new fields of usefulness to the city. As stated in his unpublished autobiography,[15] the first thought that occurred to him was how the museum might assume an attractive and helpful part in promoting the education of the youth by cooperating with the teachers of the public schools, one of the principal purposes of the museum organization as set forth in its charter. Accordingly, he sought the cooperation of Stephen A. Walker, president of the board of education, of William A. Wood, a prominent member of the board, of John Jasper, city superintendent of schools, and of Thomas Hunter, president of the normal college, who joined him in his attempt to seek a practical solution of this problem.

When Morris K. Jesup was made chairman of the executive committee of the museum, Bickmore at once acquainted him with the problem. He also explained his proposed solution by undertaking a new and wider field of usefulness with the public schools, which his advisors had informed him would be cordially received. Jesup's first act as an official of the museum was to sign the following letter prepared by Bickmore:

[15] Albert S. Bickmore, Autobiography (unpublished), p. 50.

American Museum of Natural History
Central Park, New York City
November 30, 1880

Hon. Stephen A. Walker
President of the Board of Education

Sir:

The Trustees of this Museum having acquired large and costly collections of Mammals, Birds and specimens illustrating the Ethnology and Geology of our own and other lands, and having placed the same on public exhibition in their Museum on Manhattan Square, desire that their valuable property may be of service to your Board in educating the youth of our City. They would therefore be happy to meet a committee appointed by your Board to confer upon the best method of thus promoting this public good.

Very truly yours,
(signed)
Morris K. Jesup
Chairman of Executive Committee [16]

This communication was referred by the Board to its Committee on the Course of Study. The members of this committee at once called at the museum and expressed their appreciation of the offer. They stated that although there were mandatory laws on the statute books of the State requiring that all children should be taught language lessons concerning animals and plants, no instruction of this kind was being given because no means existed by which the teachers would obtain this information. They felt that if the museum could enable them to fulfill the requirements of the law it would be benefiting the children and its assistance would be fully appreciated by the parents.

Bickmore was the one curator at the museum who had been a college professor so he offered his services in the experiment. Thirty teachers were to be invited to come to the museum on Saturdays for a free course of six lectures concerning animals on exhibition in the museum halls. It was planned to illustrate

[16] Albert S. Bickmore, Autobiography (unpublished), p. 51.

these lectures with stereopticon slides and to make them so simple that they could be repeated by the teachers in their schools. As soon as the first course was completed, Bickmore was requested to give a second, then a third. His audiences increased and the work attained such popularity that a lecture room of much greater capacity had to be secured. In the annual report for the year 1882, written by John Jasper, city superintendent of schools, appears the following acknowledgment of this work:

> It seems proper to state that the lectures delivered by Professor Albert S. Bickmore, at the Museum of Natural History, have been productive of very good results in this department of study. These lectures, introduced about three years ago, as an experiment, have so grown in attractiveness and utility, that the class of twenty-five teachers has become one hundred and fifty, representing every Grammar Department in the system, and irregularity in attendance has almost disappeared. The Museum of Natural History, thus, through the teachers, reaches the pupils of our schools, and through the latter making itself felt in nearly every household of our great city, is demonstrating its usefulness to the community at large. To Morris K. Jesup, Esq., Chairman of the Committee, great credit is due for the commendable public spirit which they have displayed in this matter from the very beginning, and to Professor Bickmore, who has so ably interpreted and carried out the Committee's views, the thanks of the teachers are due for the patience, ability, and kindness he has shown.[17]

Later, in 1886, this work was increased still further by a State appropriation so each of the Normal Schools of New York State might receive the courses of illustrated lectures which had been enlarged to include human and comparative anatomy, zoology, physiology, and physical geography. The steady expansion of the system was its marked characteristic until April 1904, when Bickmore's health failed and a different type of educational program was offered by this museum.

### Boston Museum of Fine Arts

Educational work by art museums may be considered to have started in 1872, when the Metropolitan Museum of Art first

[17] Albert S. Bickmore, Autobiography (unpublished), p. 60.

offered a series of lectures, and in 1876 by the Boston Museum of Fine Arts when classes were permitted the use of unoccupied rooms in its building and took advantage of the art exhibits for their studies. These classes were later succeeded by an art school under the direction of the museum. This museum was the first to recognize officially the duty of providing oral instruction upon its contents for the public.[18] J. Randolph Coolidge, Jr., a trustee of the museum, in a letter written to a friend in 1892, proposed a plan for expert guidance in the galleries. In the seventeenth annual report of the museum, Coolidge, as temporary president, stated: "We must admit that a museum fails in the right use of its opportunities, if it neglects the means of making the significance of its collections both clear and interesting to the public and to students." [19]

In 1895 this interpretation of museum exhibits was under consideration by museum officers and the following year the trustees consented to have volunteers from the Twentieth Century Club of Boston meet visitors in the galleries of casts to give information about the reproductions of sculpture shown. "The experiment was continued for three months under the supervision of an officer of the Museum who recommended to the trustees that if continued the service should be made official." [20] Finally, in June 1906, the Museum Bulletin announced the project and applied the term "docent" to this duty. The first docent was appointed in April 1907, and gallery instruction was made an official function at this museum. Similar appointments with the name of "museum instructor" were made in 1907 and 1908 at the American Museum of Natural History and the Metropolitan Museum of Art. The term "docent," meaning one whose function is to explain exhibits, an official commentator on things

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[18] Benjamin Ives Gilman, *Museum Ideals of Purpose and Method,* Riverside Press, Cambridge, Massachusetts, 1918, p. 307.

[19] Museum of Fine Arts, Boston, *Seventeenth Annual Report,* 1892, p. 4.

[20] Gilman, op. cit. p. 307.

shown, or a companion among museum exhibits, has since been widely accepted throughout the museum world.

### Syracuse Museum of Fine Arts

To the Museum of Fine Arts, Syracuse, New York, belongs the honor of inaugurating visits of pupils with their teachers from the public schools to study art appreciation at the museum. George Fisk Comfort, one of the founders of this museum, wrote in an early letter: "In 1901 I originated the plan of inviting pupils to come with their teachers from the schools to hear talks on our exhibitions. This work has since been copied by museums throughout the country." [21] Comfort, also one of the founders of the Metropolitan Museum of Art, had suggested this work at the organization meeting of the Metropolitan Museum but it was not acted upon until many years later, after he had had the opportunity to try out his idea in the smaller museum he was founding in Syracuse. In this same year school classes visited the Carnegie Institute of Arts.

### Metropolitan Museum of Art

Four years later, in 1905, the Metropolitan Museum in New York decided to make the museum available to the schools and in the minutes of the Board is the statement that "any teacher with not more than six pupils for whose conduct he or she would be responsible might be admitted upon application to the Metropolitan Museum." [22] The Boston Museum of Fine Arts and other art museums in the country soon adopted this plan of educational work.

### Pacific Coast Museums

Among the museums on the Pacific coast the Southwest Museum of Anthropology in Los Angeles, founded in 1905, and

[21] George Fisk Comfort, Private Letter.
[22] Winifred E. Howe, *A History of the Metropolitan Museum of Art,* New York, 1913, p. 304-5.

the Oakland Public Museum founded in 1909, were the first to start educational work. At the Southwest Museum this was begun in 1907 through lectures and visits of groups and classes under guidance. The curator of the Oakland Public Museum was much interested in assisting education in the schools by visual aids and in 1910 arranged to have lectures at the museum for school classes. This type of work has been continued to the present in this museum.

## *Sources of Financial Support*

Occasionally there has been a donor to a museum who specified that his bequest be used for active, popular educational work. This was the case in the San Diego Museum of Natural History and also in the Field Museum in Chicago where the N. W. Harris Fund was provided for school extension service from the museum. In few cases was there direct financial support from the local board of education except where an instructor was assigned to the museum by the board to handle visiting classes from the public schools or to lecture with museum materials in the schools of the city or county. The former arrangement was first made in the Davenport Museum of Natural Sciences in 1889. It was initiated in the Commercial Museum of Philadelphia in 1926. Substitute teachers were assigned by the New York City board of education to assist in the American Museum of Natural History and the Brooklyn Children's Museum from 1927 to 1930, when the depression and the resulting need for economy caused their withdrawal. One of the most important sources of financial assistance in developing educational work in museums during the past quarter of a century may be found in the grants made to museums by the Carnegie Corporation.

## *Reasons for Inaugurating an Educational Program*

The reason for a museum initiating a definite educational program has been sought in interviews with officials of many

museums and also in correspondence with the directors of more than two hundred museums in the country. In response to these inquiries the following reasons have been given:

1. Desire on the part of museum officials to increase the service of the institution to the community by making the museum and its collections of greater use.

2. In fulfillment of the main purpose of the museum—education.

3. Belief that the museum should be a vital center of education in the community.

4. To assist education in the schools by visual aids.

5. To offer cultural advantages to the citizens of the city and its community.

6. To educate the masses.

7. To increase the interest in natural history and art appreciation.

8. In response to requests from the public schools for materials to use. (This reason was given by curators from four art galleries.)

9. To increase attendance directly and indirectly.

10. Curator felt that an active educational program would stimulate the staff in its contacts with the public and give suggestions for further development of the museum.

11. Curator saw a definite need for such educational work in the city and believed that only through educational work can a museum become important in the life of its community.

12. Curator anxious to give tangible service to the taxpayers.

An examination of these reasons shows that altruistic motives on the whole were assigned to the inauguration of an educational program, although the curators were also aware that a successful

program was of some assistance in making the citizens cognizant of the value of the institution to their community. A few curators stated that they hoped to secure greater support of the annual budget through their educational work but others asserted that their budget had been considerably increased through the expenditures for such a program.

## Chapter II

# THE DEVELOPMENT OF ADULT EDUCATION AMONG MUSEUMS

For many years the museums of our country have carried on an adult program of which they have not been especially conscious. Most museums have always been concerned with adults but have made very little integration in their adult activities. Up to the last decade they had taken little stock of such programs. Nor have these programs been thought of under the term "adult education." In fact, widespread adult education, organized and somewhat semi-official, was, until recently, almost unrecognized in this country. The steady decrease in working hours in the day and working days in the week for the average person turned the attention of many adults to the ways and means of a more profitable and enjoyable use of their new leisure. This has been fostered by the movements which have emerged from discussions of the subject. It may have been the publicity which was given to the activities of the W.P.A. classes in which Harry Hopkins reported a total attendance of 1,300,000 people taught for 1936 that brought the problem of adult education more prominently before the general public and made educators generally cognizant of the vast problem waiting for a solution.

In his annual report of 1936, James Bryant Conant[1] of Harvard, stated that the only worthwhile liberal education today is one which is a continuing process going on throughout life; that universities should give reports of their stewardship to the country at large, and should pay attention to the education of their alumni. Although museums have no alumni, they have,

[1] James Bryant Conant, *Annual Report for 1936,* Harvard University, 1936.

from their very beginning, been endeavoring to follow this advice. They have been trying to make their collections and exhibitions serve as free and informal universities dealing in objects rather than in words. To be of the greatest use in the education of their communities they have endeavored to instruct and at the same time, entertain. With the vast numbers of "general public" daily visiting all the museums of the country today, a great task of adult education awaits accomplishment.

One of the early museums in America was the Baltimore Museum and Gallery of Fine Arts owned by Rembrandt Peale. This was housed in a building constructed by Peale in 1813 to serve as a museum. In Matchett's Baltimore Directory in 1824 appeared the following advertisement of the museum:

> This institution containing a valuable collection of Natural History, viz. Quadrupeds, Birds, Fishes, Turtles, Lizards, Snakes, Insects, Shells, Corals, Minerals, and the stupendous
>
> SKELETON OF THE MAMMOTH
>
> which was dug out of a morass, in Orange County, State of New York, Indian curiosities, Implements of war, Agriculture, and Dresses of Various Nations, besides a large collection of miscellaneous articles,—Also a valuable
>
> GALLERY OF PAINTINGS
>
> Busts, Medallions, Coins, Medals, etc., etc.
>
> The Museum is always open to visitors from sunrise to 10 o'clock at night,—it is brilliantly illuminated every evening with gas lights, and in the course of the evening, a rich display of Philosophical experiments are exhibited in the Lecture room, in some one of the following branches, viz. Chemistry, Pneumaticks, Electricity, Galvanism, Magnetism, Chinese Shades, Transparencies, and the Magic Lantern, which has attached to it, a complete set of Astronomical slides.
>
> Medical Electricity is judiciously administered.
>
> Profiles cut and framed as usual.
>
> Admittance at all times 25 cents, children half price.[2]

[2] Matchett, Baltimore City Directory for 1824. Second Advertisement in front.

The spectators at these "Philosophical experiments" demonstrated in the lecture room were probably unaware that they were being stimulated to observation and were developing ideas under the leadership of an instructor. Without doubt, however, they were the recipients of one of the first programs of adult education offered by a museum in America. Unfortunately, this was a privately owned museum and through financial stress, was closed in 1830 and the building sold to the city of Baltimore. Thus these educational advantages were lost as the building was not used again as a museum until 1931 and the citizens of Baltimore had no further opportunity to enjoy educational offerings of this special type.

### *General Museum Lectures*

In the better established and more enduring museums which are still open to the public, the early attempts to educate the adult public consisted in giving a series of lectures to their members or to the general public. Sometimes these lectures were given for the purpose of increasing membership of the museum. Again, they were given in an attempt to make the public more interested in the museum and its collections. More often, however, the annual reports of the various institutions state they were given for the express purpose of spreading scientific information or of developing an appreciation of art in the community. The first mention of such lectures regularly given under the auspices of a museum in this country may be found in the reports of the Academy of Natural Sciences in Philadelphia.

The Metropolitan Museum of Art started series of lectures very early in its history for the annual report for 1909 contains this statement:

> With the completion of a well-equipped Lecture Room, seating four hundred, in the new Fifth Avenue extension, the Museum will be in a position to carry on the courses of lectures which, begun in 1872 and continued until 1902, were then interrupted by the lack of a proper audience

hall. Among the lecturers in the Museum courses of the past have been Sir F. Seymour Haden, Charles Eliot Norton, Rodolfo Lanciani, Alexander S. Murray and John LaFarge. As soon as plans may be matured, it is hoped to continue this part of the Museum work, so long recognized by the Trustees as an important element of Museum influence.[3]

In 1911 the trustees adopted the policy to give courses and individual lectures both by members of the museum staff and others, but only "upon subjects which properly belong within the scope of the museum." [4]

At the Buffalo Society of Natural Sciences in January 1876, Friday evening lectures were started for members of the Museum "to make the Society better known and to disseminate knowledge along natural history lines." [5] The thirty-fourth annual report of this Society states: "The course of formal lectures given by our Society during the winter, while the attendance did not pay the expenses, were interesting and instructive, and we may hope will bear good fruit in the future." [6] Later, Henry R. Howland, first superintendent of the Society's museum, stated:

> During the half century of its existence the Society has always recognized that in addition to its natural function of stimulating and encouraging original research a controlling purpose should be to further educational work in Buffalo by every means in its power. Its museum and its library have always been opened to the people for their free use and year after year popular lecture courses have been given during the winter months upon such scientific subjects as are of general rather than technical interest. These have always been free to the public.[7]

The Davenport Academy of Sciences was likewise giving free lectures as noted by E. P. Lynch in his president's address of January 2, 1884: "The lecture committee have also, through their chairman, Rev. A. M. Judy, arranged a course of five lectures in

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[3] Metropolitan Museum of Art, New York, *Annual Report, 1909,* p. 42.
[4] Metropolitan Museum of Art, New York, *Annual Report, 1911,* p. 41.
[5] Henry R. Howland, The Educational Work of the Buffalo Society of Natural Sciences in Cooperation with the Public Schools, *Proceedings of the American Association of Museums,* Vol. III, 1909, p. 74.
[6] Buffalo Society of Natural Sciences, *Thirty-fourth Annual Report,* May 8, 1894. p. 1.
[7] Henry R. Howland, op. cit. p. 74.

our rooms. The Academy and the public are indebted to Dr. Jennie McCowen, who has inaugurated this course of lectures to the ladies on the subject of Physiology. Among the pleasing features of the year were the lectures by Professor Hilder, of St. Louis, and Prof. Putnam, of the Peabody Institute." [8]

The Worcester Museum of Natural History offered lectures in 1885. The Park Museum in Providence presented a lecture course for the public in 1895, one year after its opening. This same year lectures were also given at the Springfield, Mass. Museum. In 1892, the Metropolitan Museum of Art made an agreement with Columbia College for a series of weekly lectures on art, free to the public, "the Museum furnishing the lecture room for an audience of five hundred, with the use of such objects as can safely be exposed in the lecture room; facilities for providing lantern slides, two electric-light lanterns, with screens and other necessary apparatus, and the running expenses of the lectures; Columbia College providing and compensating the lecturers." [9] This Saturday morning series was given to increase "the utility of the Museum" and proved so popular that the large attendance during the second year necessitated enlarging the hall in which the lectures were delivered. The museum officials were evidently much pleased that the popular interest in these lectures continued undiminished as the annual report for 1896 stated: "These free lectures at the Museum are evidently destined to become an important factor in the education of the community, as well as a potent agency in arousing public interest in the activities and benefits of the Museum." [10] This winter course of lectures in cooperation with Columbia was modified in 1901 by having one series given upon art and another upon scientific

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[8] Davenport Academy of Natural Sciences, *Proceedings, Vol. 4,* January 2, 1884, p. 238.

[9] Metropolitan Museum of Art, New York, *Twenty-second Annual Report,* 1892. p. 537-8.

[10] Metropolitan Museum of Art, New York, *Twenty-sixth Annual Report,* 1896, p. 676.

subjects alternately at the Museum of Art and at the American Museum of Natural History.[11]

Mention should be made here of the rather extensive series of lectures for adults carried on by the American Museum of Natural History. This museum has been one of the greatest exponents of the public lecture our country has known. Through the wide extent of its service from 1885 to 1905, it doubtless wielded more influence than any other institution in furthering this type of education for the people. In addition to the lectures designed especially for teachers, initiated in 1880 and described under the chapter on teacher training, this museum extended the service in 1890 to lectures for the public. The first course was a series of eight lectures to museum members and their families. Five of the lectures were on economic botany and geology, given by Albert S. Bickmore and three by Frederick Starr on the "History and Origin of Dress" illustrated largely with material in the museum's Ethnological Department. The same year free public lectures were given on the afternoons of Thanksgiving Day, Christmas Day, New Year's and Washington's Birthday.[12]

By an arrangement with Columbia College, somewhat similar to that made with the Metropolitan Museum of Art, free lectures for the public were started in 1892. These Saturday evening lectures were principally on subjects relating to the museum collections and were designed to add to the popular value of the museum. The annual report for the following year stated[13] that these lectures were a most valuable auxiliary in bringing the collections before a larger class of the people, and thus broadening the educational influence of the museum.

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[11] Metropolitan Museum of Art, New York, *Thirty-first Annual Report,* 1901, p. 845.

[12] American Museum of Natural History, New York, *Twenty-third Annual Report,* 1891, p. 9.

[13] American Museum of Natural History, New York, *Twenty-fifth Annual Report,* 1893, p. 9.

In 1895 a new series of informal lectures was inaugurated. These were given by the assistant curators of the several departments on Saturday afternoons in the library and were illustrated by specimens from the collections. The plan at once met with popular favor. In 1895 cooperation was extended by the museum to Henry M. Leipziger, Assistant Superintendent of Public Schools of the city and directly in charge of the Bureau of Lectures under the Board of Education, whereby the museum was opened on Tuesday evening of each week to provide for a series of lectures under this Bureau. Again, in 1897, the museum was opened on another evening each week to provide for the lectures given under the auspices of the Linnaean Society, the New York Entomological Society, New York Academy of Sciences, and the New York Microscopical Society. A total of eighty-three lectures was given in 1899 with a total attendance of 66,049.

### *Museum Lectures for Special Groups*

Some museums have also been successfully giving lectures for groups having special interests. When the Toledo Museum of Art was organized in 1903 lecture courses on art topics were given for members and another special series was given for women factory workers two years later. In 1928 this museum added classes in design for department store buyers and also for designers in the Owens Bottle Company. The Metropolitan Museum of Art gave a course of lectures in 1914 for buyers, salespeople, and students of design. This series was repeated and brought to the museum many designers representing manufacturers of furniture, textiles, costumes, glass, jewelry, wall papers, and other forms of applied art. Through the bequest of Jessie Gillender in memory of Arthur Gillender, funds were provided in 1920 for continuing this series of lectures "for the benefit of artisans engaged in crafts demanding artistic study as expressed in contents of The Metropolitan Museum of Art." [14]

[14] Metropolitan Museum of Art, New York, Lecture Program for 1937-38, p. 12.

Through the financial assistance of a Carnegie Corporation grant, the Worcester Art Museum gave somewhat similar series of lectures during the last three years on the Processes of Art and Industrial Art. As stated by Minnie Goldstein, secretary for the School Service, of this museum, at the annual meeting of the American Association of Museums in 1936, this feature was designed for people actually engaged either in the retail sale or the manufacture of domestic articles. The lectures were planned to give the laymen, in as visual a way as possible, some idea of how objects were made. Subsequent talks on textiles, metals, ceramics, design and color aimed to interest the business men and women actively engaged in the production or sale of the industrial products made in the community. The lectures were often supplemented by temporary exhibitions made up of objects in the museum collections and by films. Many of the business firms of Worcester cooperated but there were others who still had to be convinced that art "pays" and that machine-made objects could have aesthetic form or appeal. The success of the series might in some measure be judged by the average attendance of 150 having been maintained at the Wednesday evening lectures throughout the year.

Another type of lecture course given for a special group has been the Friday evening lectures in the American Museum of Natural History. This has been given for adults belonging to the Evening Elementary School Students Association, most of whom are foreign-born. Capacity audiences in an auditorium seating about 1400 attended the lectures which were first started in 1929. The subjects of the lectures were selected by a committee appointed by the Association in conference with a staff member of the museum. Following the lecture an invitation was extended to the group to visit the special hall where the exhibits pertaining to the subject of the lecture could be examined. Each lecturer in these courses reported that he had never had a more appreciative audience. The large number who remained for one

to two hours after each lecture to look at the hall exhibits also indicated a real interest and a desire to learn.

## *Study of Museum Materials*

In addition to presenting before large groups such general lectures which might or might not relate directly to the original material in the museum, a definite attempt was made in some museums to provide visitors with the opportunity to examine selected specimens of original material and to make a first hand study of it. The twelfth annual report of the Museum of Fine Arts, Boston, issued in 1887, contains the statement of the curator of the Print Department, S. R. Koehler,[15] regarding a class of seven ladies to whom the curator delivered a series of free lectures on Wednesday of each week on the technical processes involved in the making of prints, illustrated by the exhibition of tools and materials, and supplemented by the examination of specimens drawn from the museum collection. This was true adult education and one of the best ways in which adult education can be carried on by a museum—through direct observation and study of the collections.

Such talks must have been successfully given, for the sixteenth annual report issued in 1891 states: "a great and growing demand for this sort of instruction which can be most advantageously given in proximity to the objects it illustrates." [16] Also, in the eighteenth annual report of the same museum occurs this statement:

> Another class outside of our school has made a generous gift of money to the Museum for the purchase of casts. The Museum cannot be too grateful to the various classes who acknowledge in this generous manner the pleasure or the benefit which they have derived from the use of its collections. Perhaps nothing shows so forcibly the educational end it is accomplishing as the constant presence of small classes who are studying seriously the lessons which can be learned only in an institution of

[15] Museum of Fine Arts, Boston, *Twelfth Annual Report,* 1887, p. 15.
[16] Museum of Fine Arts, Boston, *Sixteenth Annual Report,* 1891, p. 4.

this kind. And the desire, which results from these, of helping the Museum to increase its usefulness by adding to its collections, casts or other objects of which, perhaps, a class may have felt the need in its work, fosters a feeling of mutual dependence and interest which is of great service to us in keeping the Museum in touch with the community for whose benefit it exists.[17]

Later, in 1907, occurs the statement in the annual report of this museum that "The Museum exists for the people. Its use by the connoisseur, by the artist and by the student of the history of art is in no way inconsistent with its use by the public at large." [18]

In the Davenport Academy of Natural Sciences a different type of personal instruction was reported in 1890 by Curator W. H. Barris:

> The curator has adopted the expedient of accompanying each visitor through the museum and explaining to him the several objects of interest claiming his attention. The success of this direct personal effort is evinced not only in the increasing number of visitors but in their uniform expressions of appreciation of that which they see and hear. The teaching function of the institution is thus made prominent, and is extended most freely to all who choose to place themselves within the reach of its exercise. The year has certainly shown what may be accomplished in this direction. Definite ideas are thus gathered as to the varied objects of natural history upon our shelves. As a consequence visitors go away satisfied with and emphasizing their satisfaction with what they have learned. A new interest is thus awakened which it is hoped will go on deepening and doubling in intensity and in time it is hoped it may become a powerful factor for permanent good to the Academy.[19]

## *Museum Docentry*

Adult education by means of such peripatetic lectures could be offered by museums in the early stage of their existence to a very limited extent and without definite organization because of the lack of time and more pressing duties of their staffs. The

[17] Museum of Fine Arts, Boston, *Eighteenth Annual Report,* 1893. p. 20.

[18] Museum of Fine Arts, Boston, *Thirty-second Annual Report,* 1907, p. 16.

[19] Davenport Academy of Natural Sciences, *Proceedings,* Vol. 6, 1889-97. p. 302-3.

need of having one individual who could act as instructor to small groups throughout the day became so pressing that, as stated previously, the Boston Museum of Fine Arts in April 1907, assigned a staff member to the duty of free public guidance in the galleries. At the beginning of the next year, Louis Earle Rowe was engaged and the name "docent" given to the position. This designation has since become widely used for such a position in other museums.

Benjamin Ives Gilman,[20] secretary of the Museum of Fine Arts, stated at one of the meetings of the American Association of Museums that the person engaged in this work was not to be an *instructor in subjects* but an *interpreter of objects*; nor was the person simply to give parrot-like information at second hand. The purpose of the docent was to help the visitor to enjoy a work of art as it was made to be enjoyed, "eine Einleitung zum Genuss der Kunstwerke"—an introduction to the enjoyment of art.[21] The principle of the plan was that the service should not occupy anyone's full time, but only intervals from private work over the same objects that would be interpreted. It was thought that only in this way could the service be fresh and vital. The lifeless repetition of sterilized items of knowledge was to be avoided. Emphasis was placed on the fact that the person "must be pupil still and teacher already." Therefore, the word "docent" was chosen to express this function. As originally used in the German universities, the title docent applied to a class of persons who did teaching and at the same time studying and publishing with a view to appointment later as professors, somewhat similar to the term instructor or assistant to the professor as used in some American universities.

Three lines of docent service were worked out at the Museum of Fine Arts. Sunday docent service consisted of talks given in

[20] Benjamin Ives Gilman, *Proceedings,* American Association of Museums, Vol. 7, 1913, p. 64-5.

[21] Benjamin Ives Gilman, The Museum Docent. *Proceedings,* American Association of Museums, Vol. 9, 1915. p. 119.

the galleries, in which the docent started with one of two objects and then branched out along lines which seemed to be the most interesting to the special groups of people he was working with. According to Louis Earle Rowe,[22] for several years docent at this museum, such talks, supposed to last only a half hour, usually proved so interesting that it was difficult to stop after one and three-quarters or two hours, indicating that the people wanted such interpretation of the exhibits. The second feature was the daily docent service, where anyone coming to the museum made application at the door, and was shown certain exhibits. The third line of docent work was with the public school teachers and their classes.

Early in 1907 the American Museum of Natural History appointed Agnes L. Roesler as an "Instructor" to "meet members and their friends, also classes of school children, and to accompany them through the halls, explaining the meaning of the various exhibits." [23] The following year, in 1908, the Metropolitan Museum of Art appointed Lucy O. Perkins to a similar position. Two years later the plan was taken up in England and there were several appointments under the name "museum demonstrator" in museums in London.

The success of this personal instruction was marked from the first. In the American Museum of Natural History three thousand persons presented their members' cards the first year for help from the instructor in addition to the many classes from the Normal College that were given illustrated lectures and laboratory instruction.[24] The services of docents in museums have thus helped to establish some relation between the visitors and the objects exhibited. Not formal instruction, but such guidance as may be necessary, together with the opportunity to talk over

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[22] Louis Earle Rowe, *Proceedings,* American Association of Museums, Vol. 7, p. 63-4.

[23] American Museum of Natural History, New York, *Thirty-ninth Annual Report,* 1907, p. 23.

[24] Ibid. p. 23.

the objects exhibited with a competent student, is what the museums have endeavored to offer through the docent.

At first this docent service in the Boston Museum of Fine Arts [25] was limited to week days and the demand became so great that several persons were appointed to serve as docents in addition to their other duties. Later an arrangement was made whereby a member of the staff in each department acted as docent on one day each week. Sunday docent service was also added. Generally speaking, the visitors divided into two classes, the casual visitor and the student. There was the visiting sightseer for whom the docent in a hurried survey, endeavored to excite enough interest to arouse a desire for repeated visits. Such a survey was limited to showing the best objects which the museum possessed, hoping that the visitor might thus carry away with him a few lasting visual impressions as well as the mental stimulus which had been aroused by the docent encouraging him to ask questions. An increasing interest on the part of the students was soon awakened and before long nearly all the schools and colleges within a radius of fifty miles of Boston called frequently for this service.

Other students from the industrial schools also made visits, often planned weeks in advance, for assistance in the many points where the museum offered illustrative materials, whether in history, dress, design, comparative style, development of form, or use and balance of color. At no time was a settled plan followed with the groups for the docent always recognized that each individual or group had varying interests which required varying treatment. The primary interest he tried to determine first and then emphasized the illustrative material bearing upon it. Two general principles were always observed, that of watching for "museum fatigue" and stopping before it became apparent and the second, keeping the group small enough so each person could readily see the objects and feel free to ask questions.

[25] Louis Earle Rowe, Docent Service at the Museum of Fine Arts, *Proceedings*, American Association of Museums, Vol. V, 1911. p. 10-14.

A former curator of education at the Cleveland Museum of Art, Rossiter Howard,[26] states that the general public visiting a science museum wants to be entertained by the presentation of ideas in so compelling a form that they may go out seeing some aspects of the world with enhanced vision. Most visitors prefer to have their entertainment something which they cannot get out of a book—something which belongs to the museum, whether it be a science, art, or historical museum. An auditorium lecture may furnish historical background, but a gallery talk accomplishes most when it makes the objects seem to do the talking. A person feels that he has a new outlook on art if the docent can help him to *see* in the changes in medieval arts the development of European society from the decadence of Roman culture through the barbarism, chivalry, and mysticism of the Middle Ages to the dawn of the scientific era. If a museum can initiate an experience for its visitors and lead them into a new understanding, it will be performing an educational service, according to Howard,[27] who adds: "This can be accomplished best when the museum teacher subordinates his knowledge, making it serve as an introduction to the material." In all cases, he advocates that it is best to work directly with museum material, stimulating the visitors to careful observation and developing their ideas under the leadership of the instructor.

## *Gallery Talks*

Although the smaller museums can not afford and do not require a full-time docent, the art museums which feature series of loan exhibitions changed every month or six weeks, have usually made a special attempt to have a staff member available for "gallery tours" or "exhibition talks" at least during the first week of the exhibit and as frequently thereafter as the public

[26] Rossiter Howard, Principles of Museum Education, *Museum Work*, Vol. 6, 1923-24, p. 121.

[27] Howard, op. cit. p. 122.

interest may require. This docent has talked about the exhibit, its significance and history, and also assisted the visitors in their interpretation and appreciation of the art shown.

Members of the Portland Art Association gave talks related to their exhibit of Greek and Roman casts as early as 1892, when the Association was first established. This practice was still being followed in the summer of 1937 when the writer visited the new art museum in Portland. Some of the other art museums where these gallery talks on special exhibitions are regularly given are the Art Museum of Seattle, the San Francisco Art Museum, Palace of the Legion of Honor, Fine Arts Gallery of San Diego, H. C. Henry Art Gallery, Minneapolis Institute of Arts, Rochester Art Museum, Syracuse Museum of Fine Arts, Cincinnati Art Museum, and the Wadsworth Atheneum, Hartford.

The Metropolitan Museum of Art is outstanding in its development of an intensive program of such gallery talks. In the autumn of 1937, for example, at two and at three-fifteen o'clock on Sundays, identical series of forty-five minute gallery talks gave surveys of the sculpture, painting, and decorative arts of various countries and periods as represented in the Metropolitan collections. At two-thirty one might choose either a series of gallery talks on "The Artist and Society" or a motion picture. At three o'clock he might attend a course in color design, five of the lectures having the "American Small House" as their subject, and at four o'clock special Sunday lectures on a wide range of subjects correlated with museum collections might be heard. The talks are thus varied to show many different collections during the month so one may have a general survey of the museum during the year.[28] A similar plan is followed in the Boston Museum of Fine Arts.

In museums of science and industry a combination of lecture-demonstration method has recently been used with adult groups. At the Chicago Museum of Science and Industry several technical

[28] Lecture Program, The Metropolitan Museum of Art, 1937-38. p. 6-14.

experts have strategic locations near exhibits. At various intervals during each day visitors are given demonstrations and explanations of certain exhibits. These may be dye making, tool making, the manufacture of baking powder, the oil distillery, or Boulder Dam with all the detail of its locks developed in a large wall exhibit with real water flowing. Or it may be a trip down into the coal mine, the museum's most famous exhibit. No one lecture demonstrator handles a group of visitors exclusively. He gives his lecture demonstration in a limited area and then passes the group along to another so that every group may be in touch with at least half a dozen lecture demonstrators. This relieves the demonstrator from responsibility for subject matter outside the field of his specialty and prevents any monotony of presentation. At the Franklin Institute in Philadelphia, a demonstration is given at three o'clock each afternoon. In each of these institutions the writer has observed groups of adults intensely interested and indicating through their intelligent questions that they were experiencing a real learning situation.

## *Organization of Classes for Adults*

Classes in art appreciation and the history of different periods of art have sometimes been organized by a museum as the result of considerable interest having been aroused by certain exhibitions. Art museums have progressed much further than the museums of science and history in the formation of classes for adults interested in studying a cultural subject over a period of months. Where the museum is a private or semi-private institution, dependent to a certain extent upon its membership, this has proved a method of maintaining interest and bringing in new members.

Work with adult classes and clubs has been a strong feature of the educational work in a considerable number of museums. The Toledo Museum of Art is an outstanding example of this type of work. In 1903 this museum started work with a Women's

Art Club organized for arts and crafts, a Camera Club, and an Art History Club. Four years later a course in Art History was conducted for the City Federation of Women's Clubs. The following year educational work with clubs was increased and in 1910 weekly and monthly art criticisms were given to art groups. The work with adults has continued to grow until in the autumn of 1937 the writer found that over five hundred adults had registered in the fall classes. Each of these adults had deposited five dollars which would be returned to him providing he attended regularly and completed the work.

A definite trend, which has been increasing during the last decade, has been the effort to have the work with adults include many activities. Reports from art museums show the formation of classes in modelling, painting in various media, sketching, including a sketching club for business men in the evening, classes in lace making, home decoration, commercial art and pottery, as well as other forms of applied art.

In the Newark Museum, founded by John Cotton Dana, whose vision of a Museum was a place where people could come to do something they enjoyed and where they would find materials, subjects, and a place to work in, Activity Groups in art and nature were successfully conducted with over three hundred people enrolled.[29]

In 1929 the Museum of Northern Arizona at Flagstaff started a most worth while project among the Hopi Indians living in that vicinity. The project was undertaken with a view of improving and finding a wider market for Indian arts and crafts. House to house visits were made among the Hopi and personal contacts established among the craftsmen. In July 2-9, 1930, the first exhibition was held of the Hopi Craftsmen to display their art. A second exhibition was held the following year. As a means of popularizing Indian art and so increasing the market of the Craftsmen, three travelling collections were sponsored: 1) with

[29] Reported by Katherine Coffey, Curator, Newark Museum, 1937.

the Indian Tribal Arts Exhibition, 2) a special Hopi collection of Art, 3) a special exhibition of Hopi and Navajo arts and crafts sponsored by the American Federation of Arts.

Art for enjoyment and use was the aim of a course in Art Appreciation given for adults at the San Francisco Museum of Art from October 1937 to May 1938 under a subsidy from the Carnegie Corporation. According to the prospectus issued by this museum, the aim of the course was to develop individual discrimination for judgment and enjoyment of art; to aid in understanding art as an integral and helpful part of daily living.

In addition to the courses given in art appreciation, the Toledo Museum of Art offers a course in appreciation in another realm—that of music. This is an outgrowth of the first lectures on values in music and the free Sunday afternoon concerts which were given in 1914. They were temporarily discontinued in 1924 but reorganized three years later as weekly lectures in Appreciation and History of Music for adults. Then in 1931 grants were received from the Carnegie Corporation and the Juilliard Foundation for furthering this work. This development included evening concerts for adults as part of the Music Appreciation Course, a symphony orchestra, creative music classes and a weekly class for adults in Fundamentals of Music. Music appreciation has also been carried on in some form at the Cleveland Museum of Art since 1916 with somewhat similar work started at the Worcester Art Museum in 1919. Cleveland installed the first organ in a museum in 1922. A Carnegie grant has assisted the latest developments in both museums which have stressed particularly the relation of music to the plastic and graphic arts. At Cleveland a definite attempt has been made to achieve some sort of coordination between music and art objects. One method has been to study American Indian chants and dances with textile and pottery designs. Other art museums in the country have also conducted or sponsored musical programs. Among these are the Sunday afternoon string quartette in the Denver Art Museum, Sunday

concerts in the Phillips Memorial Gallery, the Chicago Art Institute, the John Herron Art Institute, and the Davenport Municipal Art Gallery; the Saturday evening concerts at the Metropolitan Museum of Art, the Dance Recitals at the Brooklyn Museum, and a music appreciation course at the Carnegie Institute.

Thus the art museum is no longer a passive institution, satisfied with displaying treasures of the past. It concerns itself also with the art of the future and according to Douglas Moore,[30] formerly of the Cleveland Museum of Art, music is considered worthy to be placed side by side with the accepted visual arts. There is no doubt that it possesses a standard and that it can be exhibited just as well as painting and sculpture.

While art museums have encouraged the formation of many classes and clubs among adults, science museums have likewise been cognizant of the opportunity and have formed groups in astronomy and telescope making, also bird study clubs with early morning trips, camera clubs, mineralogy clubs and hobby clubs of various kinds. A very specialized type of adult work was started in 1896 at the Army Medical Museum in Washington, D.C., through instruction in Pathology, illustrated by the museum specimens and given chiefly to surgeons in military medicine in the Army Medical School. Another valuable piece of work was carried on at the Springfield, Mass., Museum of Natural History in 1927 with evening school Americanization classes in which objects in the museum collections proved very helpful in teaching adult immigrants the English language. Groups from industrial plants also came on certain evenings and members of training classes for scout leadership were given suggestions regarding ways of fostering interest in nature study.[31] The staffs of science museums have been prominent in the work of scientific societies, assisting in many programs by presenting the results of their researches. These museums have also worked with societies such as the

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[30] Douglas Moore, Music's Place in the Art Museum, *Museum Work,* Vol. 7, 1924-25. p. 164-5.

[31] City Library Association, Springfield, Mass., *Annual Report,* 1927. p. 25.

Linnaean Society of New York, which have a somewhat popular appeal and carry on research.

On the whole, however, science museums seem to have made less attempt than art museums to seek the formation of new groups or to study the special interests of their visitors or members with a view of conducting small study groups among those having similar interests. An exception to this is the series called "Know Your Museum" which the American Museum of Natural History initiated for its members in the autumn of 1930. At first a completely new subject was presented at each meeting to a select group of persons intensely interested. Later, the four sessions were conducted by one curator and only one topic treated, a method found much more satisfactory than the previous one. One series was on "The World of Birds," designed to acquaint members with the broad facts concerning the origin and distribution of birds, with some of the interesting and significant ideas to be drawn from a knowledge of their behavior. Another series was on "Fossils and Their Significance." In the autumn of 1937 a change was made in the series by increasing the informal evening sessions to eight in number on the general subject, "Evolution, the Masterkey." Many specimens and other illustrations were used during the lectures and the following discussions which were held directly in an exhibition hall where the models of the comparative anatomy of man could be studied. Direct participation of the members attending was encouraged and many interesting discussions arose.

The Minneapolis Institute of Arts tried a similar series during the winter of 1937. Their series was called "Know Your Own Museum" and the underlying idea was to enable members to become familiar, not only with the objects in the museum's collections, but also with the ages that produced them, and *how* and *why* they produced them, thus combining art, technique, and history, with the greatest emphasis on history. Some of these lectures were given entirely in the galleries and whenever possible,

objects from the study collections were also used which might be handled and examined. This work seemed to be especially valuable for those who had a general interest in art.

Informal discussion groups for adults conducted on the forum plan have been offered by the Brooklyn Museum in addition to its general program. This provided an opportunity for persons interested in special fields to meet weekly or bi-weekly over a considerable period. Such offerings by museums indicate a definite attempt of their educational departments to keep pace with the latest developments in the field of adult education.

## *Use of "Interest Finders"*

Several museums have recently mailed "Interest Finders" to their members to assist in the formation of groups having similar interests. The following form was used by the Brooklyn Museum:

APPLICATION BLANK

DISCUSSION GROUPS FOR ADULTS

See Program of Department of Education

Brooklyn Museum,
Eastern Parkway,
Brooklyn, N.Y.

Date

Name .....

Address .....

Telephone no. .....

Do you represent a group? .....

If so, how many are in the group? .....

I. Indicate subjects preferred by placing a numeral after each title (i.e. "1" for first choice, "2" for second choice, etc.)

*The Language of Art* ( )
*Art of Primitive Peoples* ( )
*Oriental Art* ( )
*Art of Ancient Civilizations* ( )
*Renaissance Art* ( )
*America by Candle Light* ( )
*Peasant Art* ( )
*Modern Painting* ( )

II. If you represent a group interested in a special subject, not listed above, indicate the subject here .....

III. Indicate the choices of week days (not Saturday or Sunday) and hours (between 10 A.M. and 3 P.M.) when you could come.

First choice ..... day of week ..... hour .....
Second choice ..... " " " ..... " .....
Third choice ..... " " " ..... " .....

IV. Indicate below approximate dates, if possible.
When would you like to start meeting?
How long would you like to continue?
Would you prefer to meet weekly? ( ) bi-weekly? ( )
(Check preference.)

Likewise, the American Museum of Natural History mailed a "Finder" to its members as follows, combining it with the registration blank for the "Know Your Museum Series":

THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79th STREET
NEW YORK, N.Y.

I wish to register for the KNOW YOUR MUSEUM SERIES on alternate Tuesday evenings at 8:15, beginning October 26, 1937.

NAME .....
ADDRESS .....

The Museum always endeavors to adapt its facilities to the demands of the times and to assist Members who are interested in using its collections.

For our information it would be very helpful if you would check the following:

Would you, as a member of the Museum, be interested in attending informal afternoon discussion groups in the Members' Room during January, February, and March, to become better acquainted with your Museum and the staff? ( ) Yes ( ) No

If you answer Yes:

What day would you prefer?

( ) Mon. ( ) Tues. ( ) Wed. ( ) Thurs. ( ) Fri.

( ) 3. P. M. ( ) 3:30 P. M. ( ) 4 P. M.

Would you be interested in a ( ) general or a ( ) particular subject?

If you check a particular subject, which one would interest you?

( ) Birds ( ) Mammals ( ) Fishes ( ) Insects ( ) Reptiles
( ) Minerals and Rocks ( ) Fossils ( ) Animal Behavior
( ) Evolution of Man ( ) Primitive Man

## *Talks for Blind and Deaf*

A specialized type of adult education undertaken to a small extent by a few museums is that of offering lectures for the adult blind and for those who are deaf. In 1909, when the American Museum of Natural History set aside a room for the adult blind where specimens were accompanied by labels written in Braille, it also invited about seven hundred adult blind to free lectures prepared especially for them. Wherever necessary carfare to and from the museum was advanced and Boy Scouts volunteered to act as guides. The attendance at the lectures was usually about 300. The animals, birds, or flowers which formed the subject of the evening lecture were exhibited in the foyer of the museum where they might be handled by the audience following the lecture. Among the speakers at these evening talks have been Ernest Thompson Seton, Charles Gorst, Clyde Fisher, and Ellsworth Jaeger. In the autumn of 1937 the latter gave a Saturday evening lecture on "Voices of the Night," in which the calls of several wild animals, as the coyote, fox, great horned owl, and others were given. Mounted specimens were handled by the blind both before and after the lecture. Their interest in nature seemed very genuine. They were espcially glad when they could "see" an animal or bird they had heard about but had never touched before, or when they could examine one perhaps known years before when they were not blind.

In the Metropolitan Museum of Art special lectures for the adult blind were initiated in 1913 with a talk on "Sculpture"

illustrated with small bronzes taken from the museum collection and placed in the hands of the audience. The second was on "Musical Instruments," illustrated by instruments from the collection which were played by musicians so the distinctive quality of each might be recognized. Lectures for the deaf have also been given frequently at this museum. At the Buffalo Museum of Science, a member of the staff has visited the adult group of the Blind Association of Buffalo, taking with him museum material to illustrate the talk given.

### *Cooperation with Other Institutions*

The final phase of adult education which is to be considered is that of cooperation with higher institutions of learning. Since a museum deals in objects instead of words, in concepts rather isolated and specialized, conserving materials instead of using them, concreting principles in science, art, and history, it has a function in the field of education which the university cannot easily duplicate. Therefore, it is only natural that a close cooperation should develop between the two and that museums, exclusive of college museums, should give certain types of courses which can be advantageously objectified by their collections of original materials. In no instance should a museum take over the formal academic work which is the province of the university. Such an interpretation of the function of the museum has been regarded as a true guiding philosophy for its educational work.

A number of museums have arranged with University Extension Divisions to give courses in the museum. These courses have been based upon the museum collections and have carried university credit. The Boston Museum of Fine Arts began in 1906 to cooperate with an auxiliary committee on the "Utilization of Museums of Art by Schools and Colleges" in an attempt to arouse an interest in art among the students of schools and colleges through the agency of the museum collections. Two years later, at a meeting of the committee it was decided that serious college

work should be undertaken in the courses of lectures given at the museum. Accordingly, for 1908-09, the museum offered two "collegiate courses"—a half-year course on the "Observation of Pictures" and a course through the year on "History of Ancient Art" by the museum director and George Henry Chase of Harvard University. The annual report of the museum for 1909 contains the following statement: "At least two of the colleges in the vicinity accept the certificate that these courses have been satisfactorily completed and give credit for them to students who have regularly matriculated." [32]

At the Metropolitan Museum of Art, where adult education is stressed particularly as implying enjoyment as well as study—not at all unreasonable to assume, with the artistic level of the exhibits so high, University-Museum cooperative courses were initiated in 1913. In 1920, the Toledo Museum of Art started courses of art lectures with college credit and in 1926, Toledo University allowed students to major in art at the museum for work in Art Appreciation, Art Backgrounds of History, History of Art, and School of Design classes. This was offered in four year courses, also open to adults.

The Worcester Art Museum began its university extension work in 1924, when it made an arrangement with the University Extension Service of the Massachusetts State Department of Education whereby the museum offered courses under the University Extension to men and women other than students at Worcester institutions, and credit for work done in the museum was given at those universities and colleges cooperating with the State of Massachusetts. Thus the standing of their collegiate work was established.[33] With the financial assistance of a Carnegie grant this museum offered in 1933 courses in the History of Art and Architecture for a selected group of students from the colleges of the city. This work was later offered in cooperation with Clark

[32] Museum of Fine Arts, Boston, *Thirty-third Annual Report,* 1908, p. 45.

[33] Worcester Art Museum, Worcester, Mass. *Thirty-eighth Annual Report,* 1934, p. 22.

University in the form of extension courses. In 1937 the museum presented a course on French Culture in conjunction with Clark University. The lectures were supplemented by the illustrative material of the museum, slides, photographs, phonograph records, and films. The previous year a similar course on German Culture was given by Clark University at the Museum. Such courses are an important contribution to adult education.

The Detroit Art Institute allied itself to the University of Michigan in a common policy of developing the study of Near Eastern Art. A university extension course in Islamic Art has been given at the museum for several semesters, supplemented by an exhibition of Persian miniatures. This Art Institute has also been working in conjunction with Wayne University. In 1936 members of the museum staff offered seven semester courses for students of the College of Liberal Arts and the College of Education.[34]

A Carnegie course in the Appreciation of the Arts has recently been offered at the Cincinnati Art Museum. Six hundred students were enrolled in the first course with a waiting list of some length. The first year of the course was devoted to an intensive study of the fundamental principles underlying art as demonstrated in drawing, painting, sculpture, architecture, and the decorative arts. The second year was devoted to a discussion and study of good and bad taste and to techniques and materials. The third year, given in 1937-38, has dealt with an historical outline of art. The objectives of the course as stated in a museum bulletin, were to encourage people to observe works of art with some understanding of the means used by the artists to attain their ends, to develop critical standards for forming estimates of quality, and, lastly, to trace historical development. When the writer visited this museum in September 1937, there were several galleries filled with interesting exhibits to illustrate these aims. In many instances, electric push buttons had been arranged so the

[34] Institute of Arts of the City of Detroit, *Bulletin No. 5*, Vol. XV, p. 64-5.

interested visitor could secure the desired effects at will, somewhat similar to the plan followed with the exhibits in museums of science and industry.

Among other museums which have cooperated rather extensively with colleges and universities are the Museum of Northern Arizona, Carnegie Museum, Cleveland Museum of Art, and the American Museum of Natural History.

This chapter has traced the development of adult education and the trends it has followed in the museums of the United States. Over a period of nearly half a century definite attempts have been made by museums in various sections to carry on some educational work with adults. In some cases these efforts have been carefully organized, but on the whole, there has been relatively little evidence of a realization on the part of the museum that one of its chief duties lay in the interpretation of its collections to adults for their enjoyment and for the enrichment of their lives. Progress has been made, notably during the last decade. A marked trend has been away from lectures more or less related to the museum collections, with a passive listening on the part of the audience and their acceptance or non-acceptance of the lecturer's viewpoint, to museum offerings involving greater activity and participation on the part of adult visitors, individually or in groups. Some museums are distinctive in such attempts but there is no organized effort among all the museums to carry on adult education. In no instance has the maximum educational value of the museum been realized. Another trend is in the increasing awareness on the part of the museum of the problems in connection with a fulfillment of its duty toward its visiting public. It remains a problem of the future for the museum to assume the leadership in this adult field and not only to establish relations with existing groups and individuals, but also to organize new groups which have common interests.

CHAPTER III

# TEACHER TRAINING IN MUSEUMS

In this chapter there will be traced the development of a somewhat specialized phase of adult education carried on in a number of museums in the United States—that of teacher training, which includes courses designed particularly for teachers-in-service and also the training of student teachers. The American Museum of Natural History was the first museum in which a course of lectures was given especially prepared to assist teachers in content matter. These were based upon natural history topics which were required in the course of study. The early history of this work was briefly described in the first chapter but more details follow.

## *Bickmore's Work in the American Museum of Natural History*

The city superintendent of New York public schools selected the personnel for the first class of teachers, thirty in number, to attend a course of free lectures given in 1880-81 on Saturdays at the American Museum of Natural History. Albert S. Bickmore, museum superintendent and instructor for the class, chose "Corals and Coral Islands" for his first lecture. A few specimens of corals were taken from the exhibition cases and the anatomical structure of the living animals was shown by projecting the colored plates of an edition of Cuvier's "Animal Kingdom" on a transparent screen through a door from an adjoining room. In his unpublished autobiography, Bickmore [1] related how he gave the lecture in an informal and conversational manner and invited

[1] Albert S. Bickmore, Autobiography (unpublished) p. 57-8.

the teachers to ask questions regarding any matters not fully explained. The earnest questions which followed startled him somewhat as they indicated such enthusiastic interest on the part of the teachers. The subjects chosen for the five following lectures were other interesting groups on marine life. Then the teachers expressed their thanks and asked Bickmore to continue in the same way for six more lectures.

To quote from Bickmore's autobiography:

> At the close of the course originally proposed I reported my experience in this new department of museum work to our President and Executive Committee, and added "We have been seeking a wide field of usefulness. We now have a most important one thrust upon us. Shall we welcome the request of the teachers with a favorable reply, and hopefully wait to see what may ultimately develop from this humble beginning?" It was readily agreed that we must by all means carry out the wishes of the teachers, as fully as possible and that any additional apparatus that I might need, the Museum would promptly acquire. I stated that to make our instruction most effectual we should adopt a visual method, and to accomplish that end I needed the aid of a photographer and a stereopticon, so that we might exhibit slides of the larger mammals, which could not be transferred from our cases to the little lecture room, and after the session was over, I could then take my class down to our exhibition halls where the teachers could see the specimens which they had just heard described, and which they could subsequently show to their pupils. In this way the Museum would become an attractive and effective part of the public school system of our metropolis.[2]

It is of interest to note that the *visual method* was emphasized by Bickmore even at this early date, many years before the public schools of the city had begun to use stereopticons and when little attention was paid to the use of actual specimens in classroom teaching.

The second series of six lectures was as largely and constantly attended as the first series and at their conclusion the teachers asked for a third series of six more, so that the first course finally consisted of eighteen sessions. This showed that the teachers' interest was apparently increasing. The board of education sent

[2] Albert S. Bickmore, Autobiography (unpublished) p. 59.

the museum a note expressing their gratification at the result and asked for a second course to be given during the next session to fifty teachers. At the close of that series came another note for other lectures for a hundred and fifty teachers. To provide for these larger audiences, the museum had a small lecture hall constructed to seat about 300 persons.

The next expansion of this teacher training work came with the passage of legislation authorizing the state superintendent of public instruction to establish and maintain, in connection with the American Museum of Natural History, a course of free instruction, illustrated by its collections and slides, to the teachers of the public schools of New York City and to the teachers of the public schools and of the normal schools throughout the state. The museum was also to furnish the city schools and the several normal schools with the necessary apparatus to present to their students the lectures on human and comparative anatomy, physiology, zoology, and other subjects which the New York City board of education might require.

In accordance with the terms of the new law, Bickmore planned a course of study from corals to man, extending over four years and following strictly the requirements given in the Teacher's Manual prepared by the board of education. The principals of the normal schools asked that the lectures on Human Anatomy and Physiology should come first on account of a new law just passed requiring the teaching of "The Injurious Effects of Alcohol and Narcotics." This enlarged system of teacher training was begun in 1885 but Bickmore soon found that although he was speaking to the best teachers in the city, yet their knowledge of the physical geography of even their own country was so inaccurate that they could not profit fully by his talks upon the geographical distribution of the animals they were studying. Thus, in the autumn of 1885, he added physical geography to his curriculum. He began the second year with a study of the principal features of New York State and of North America, for he

believed that every teacher should start her class in geography with a study of the natural features of her immediate locality and then in order, those of her own state, her own country, continent, and finally the lands and seas of the globe.

To aid in presenting the geographical wonders of the United States, Powell, director of the National Geological Survey and a friend of Bickmore, selected over two hundred of the best negatives to show scenes in the Yellowstone Park, the Grand Canyon of the Colorado, and other parts of the western territory over which the Survey had extended. In 1886 Bickmore himself began an extended series of journeyings at his own expense which in time took him to nearly every part of the globe. Accompanied by excellent photographers, he studied foreign lands and peoples for the purpose of preparing better lectures for the teachers. The slides made as a result of these personal visits were sent together with the printed lectures delivered to teachers at the museum, to each of the normal schools in New York State, the Normal College in New York City, and the Training School for Teachers in Brooklyn.

The entire list of lectures for the four courses given for teachers at the American Museum of Natural History in cooperation with the New York State Department of Public Instruction was as follows:

FIRST COURSE 1884 and 1885
*Autumn of 1884*

*Human Anatomy and Physiology*

1. The Skeleton
2. The Muscular System
3. Arteries and Veins
4. Nervous System and Senses
5. Digestion and Respiration
6. Hygiene

*Mineral Kingdom*
*Building and Ornamental Stones*

7. Granites and Sandstones
8. Limestones and Marbles

*Vegetable Kingdom*
*Forestry*

9. Evergreens—the Pine, Spruce and Cedar
10. Deciduous trees—the Oak, Elm and Maple

*Spring of 1885*

*Animal Kingdom*

11. Introductory—The Sea
12. Corals and Sea Fans
13. Oysters and Clams
14. Marine Univalves and Snails
15. The Nautilus and Argonauts
16. Crabs and Lobsters
17. Flies and Mosquitoes
18. Butterflies and Moths
19. Bees and Ants
20. Beetles

SECOND COURSE, 1885 and 1886

*Autumn of 1885*

*Physical Geography*

1. The Alleghanies and Niagara
2. The Mississippi Valley
3. The Yellowstone National Park
4. Monument Park
5. The Canyons of the Colorado
6. The Yosemite Valley
7. Mexico and Central America
8. The West Indies
9. The Andes
10. The Amazon

*Spring of 1886*

*Zoology*

*Fishes*

11. Herring and Shad
12. Salmon and Trout
13. Halibut and Flounder
14. Cod and Hake
15. Sharks and Rays

*Reptiles*

16. Salamanders and Frogs
17. Snakes and Lizards

*Birds*

18. Swimming Birds and Waders
19. Pheasants and Grouse
20. Eagles and Owls

THIRD COURSE, 1886 and 1887

*Autumn of 1886*

*Useful Minerals*

1. Coal and Petroleum
2. Iron and Steel
3. Silver and Gold

*Articles of Food*

4. Wheat and Rice
5. Sugar and Salt
6. Tea and Coffee
7. Indian Corn and Tobacco

*Materials for Clothing*

8. Wool and Furs
9. Cotton and Hemp
10. Silk and Flax

*Spring of 1887*
*Zoology*
*Birds*

11. Kingfishers and Hornbills
12. Trogons and Humming Birds
13. Woodpeckers and Toucans
14. Parrots and Cockatoos
15. Crows and Birds of Paradise

FOURTH COURSE, 1887 and 1888
*Autumn of 1887*
*Physical Geography*

1. The Atmosphere
2. Rain, Ice, and Glaciers
3. Scandinavia and the Alps
4. Thibet and the Himalayas

*Races of Mankind*

5. The Nile and Its Peoples
6. India and Its Peoples
7. The Mediterranean and Its Peoples
8. China and the Chinese
9. Japan and the Japanese
10. The Arctic Regions and the Eskimos

*Spring of 1888*
*Zoology*
*Mammals*

11. The Horse and Rhinoceros
12. The Whales and Manatees
13. Dogs and Seals
14. Bats and Moles
15. Monkeys of the New World
16. Monkeys of the Old World

*Races of Mankind*

17. Peoples of the Pacific Islands
18. Indians of North America
19. Indians of South America
20. Early Inhabitants of Europe [3]

In addition to the lectures to teachers, the twenty-eighth annual report of this museum [4] mentions a room which was especially equipped for the curator to use in his instruction of school superintendents in the manipulation of the visual apparatus and slides. This was the first attempt to give aid in the "mechanics of visual instruction." Thirty-four years later, when many types of visual apparatus had become available to the schools, this museum's department of education gave a college course on this

[3] Albert S. Bickmore, Autobiography (unpublished), Appendix.

[4] American Museum of Natural History, New York, *Annual Report,* 1896, p. 7-8.

subject for teachers-in-service. This was given with marked success for several years.

The aim in this museum teacher training was the imparting of facts by means of the visual method: lantern slides and museum collections. One method Bickmore followed in using lantern slides of birds was to have two screens. On one screen the slide of the bird specimen was shown, while beside it on a second screen, were views of Central Park or other parts of the country in summer and winter, so some relationship could be established between the bird, its habitat, and the season when it could be found in New York.

Bickmore also endeavored to help the kindergarten and primary teachers of the city by giving demonstration lessons with visual aids to the lowest grades. The twenty-ninth annual report [5] states that the experimental trials were very encouraging and that the state superintendent of public instruction approved of their being continued through the teachers of the lower grade classes.

The annual report of the museum for 1896 states [6] that letters were received by the curator asking how the slides, apparatus and text of the lectures delivered to the teachers could be secured for use in other cities. The owners of large manufacturing plants also inquired if it would not be possible to secure this type of instruction for their employees. Thus this form of teacher training spread into other parts of the country. The Milwaukee Public Museum was one of the places which secured several sets of slides to assist in the lectures given to teachers in that institution.

In 1891 the modest beginning in museum teacher training by the visual instruction method was extended to the teachers of New York State and lectures were given at each of the county teachers' institutes, thus enabling the system to reach annually

[5] American Museum of Natural History, New York, *Twenty-ninth Annual Report,* 1897, p. 20-1.

[6] American Museum of Natural History, New York, *Annual Report,* 1896, p. 8.

more than 20,000 teachers.[7] Four years later it was again broadened by an act of the Legislature, so that the lectures were made available to all the cities and villages of the State. The state superintendent of public instruction, in referring to the lectures in 1887, had said: "The system is new, but undoubtedly it is destined to have an important part in future educational work." [8] It would thus seem that Bickmore's museum instruction to teachers was one of the important factors in the introduction of visual aids into the schools of our country.

Popular lectures for the public had meanwhile been started by the New York City board of education, and a Tuesday evening series was given at the museum. Duplicates of the museum slides and lecture texts were requested by Henry M. Leipziger, Supervisor of Lectures of the board of education, to be incorporated in the free courses to the public. However, the popularity of the Bickmore lectures for teachers, especially the lectures describing his personal travels, increased to such an extent that many had to be turned away from the small lecture hall. To learn how many teachers would attend such a course when delivered in a suitable hall, the museum trustees were asked to rent Chickering Hall which seated about 1200. For the series of six lectures given here there was an average of 1,329 teachers attending, indicating that a much larger hall was needed at the museum to accommodate those teachers who wished to attend. In 1893 the crowds continued to be so large that the lectures were divided into two sections. Finally, in 1900, after several years of petitioning the City on the part of the teachers and the museum authorities, a new lecture hall, large enough to accomodate 1,400 teachers, was completed and opened at the museum. This was filled at the lectures which Bickmore continued to give each autumn and spring until 1904, when his health failed. At the same time, the state failed to renew its grant for the lectures to teachers. The

[7] American Museum of Natural History, New York, *Thirty-second Annual Report*, 1900, p. 45.
[8] *Loc. cit.*

fall course was given by other members of the museum staff and the following year a nature study course was given. However, organized courses for teachers were not offered again by this museum until 1930. The valuable negatives which Bickmore had secured in his world-wide travels were unfortunately destroyed in the capitol fire at Albany.

## *Similar Work in Other Museums*

This work of teacher training at the American Museum of Natural History aroused discussions in several other museums but up to the end of the century no organized attempt was made in any other museum to give instruction to groups of teachers. The Annual Report of the Boston Museum of Fine Arts for 1900 [9] stated that an organized movement was well under way for the formation of classes of school teachers who were to study the museum collections under properly qualified instructors, with a view of explaining them afterwards to their own pupils. The museum earnestly hoped that this might be carried out for it was felt that such work would greatly increase its usefulness as an educational institution.

Again, in the report for 1907, it was stated [10] that six public lectures had been given. These were designed primarily for teachers in colleges and public schools, also for those preparing themselves for the teaching profession. The last lecture in the series was one on "Museums of Art and Public Schools" by Walter Sargent. Each of the lectures was well attended. In 1908 courses on "Observation of Pictures" and the "Art of Praxiteles" were given in the classroom of the museum [11] but the Committee on the Utilization of Museums of Art by Schools and Colleges decided that serious work, like that done by the colleges, should be undertaken in these courses. Accordingly for 1908-09 the

[9] Boston Museum of Fine Arts, *Twenty-fifth Annual Report,* 1900, p. 21.
[10] Boston Museum of Fine Arts, *Thirty-second Annual Report,* 1907, p. 16.
[11] Boston Museum of Fine Arts, *Thirty-third Annual Report,* 1908, p. 46.

museum offered two "Collegiate Courses" one of which was on the "Observation of Pictures." Teachers from the Boston schools who satisfactorily completed the course were permitted to submit this work for a regular promotional examination.

This same year the museum held conferences for supervisors of drawing and manual training. At each conference an official of the museum treated some one phase of art as illustrated by the collections and a more general discussion followed. This plan proved useful, the report stated,[12] in helping the teachers to realize both the importance of the museum collections for their daily work and also the desire of the museum staff to assist them in every possible way. Steps were taken to carry out some similar plan for teachers of Latin and Greek and teachers of history. Classified lists of objects useful to these teachers had already been prepared and issued to them.

At the Davenport Museum of Natural Sciences in 1903, a regular class of teachers was organized for the study of natural history.[13] The Fairbanks Museum in St. Johnsbury, Vermont, reported at the annual meeting of the American Association of Museums in 1907 [14] on special work for teachers. This consisted in having the teachers come by grades after school hours for definite instruction in the subject matter and method of teaching nature study. By request of the state superintendent of schools, an "Outline of Nature Study" was written by the director of the museum and this, printed by the state board of education, was placed in the hands of every teacher in the state. The Milwaukee Public Museum also gave a course for teachers to assist them in their nature study work. The Milwaukee school syllabus of nature study, somewhat similar to that now used by the New York City elementary schools, required the teaching in each grade of a specific bird, tree, flower, and vegetable. A teacher's course was arranged by the Public Museum to offer special aid in this work.

[12] Boston Museum of Fine Arts, *Thirty-third Annual Report,* 1908, p. 45.
[13] American Association of Museums, *Proceedings,* Vol. 2, 1908, p. 65.
[14] American Association of Museums, *Proceedings,* Vol. 1, 1907, p. 140.

It consisted of three series of about seven lectures each, dealing with bird study, tree study, and botany. In each series the first lectures treated of general topics and the last in the list, the specific objects of nature called for in the course of study. The first teachers' course in 1905 was on Bird Study.[15]

About this time courses for teachers were being offered at the Chicago Art Institute. At the annual meeting of the American Association of Museums in 1909, Henry W. Kent, then Supervisor of Instruction at the Metropolitan Museum of Art, expressed his feeling [16] that it was almost useless to talk to teachers about art because they knew so little about the subject. However, President French of the Chicago Art Institute, stated [17] that during the past year more than 1,500 public school teachers, one-fourth of all the classroom teachers in the city, had studied regularly in their evening and Saturday classes. He had given the explanation the previous year in the annual meeting when he said:

> The Association may be interested to know how the teachers of Chicago became interested in the Art Institute last year. The teachers received credit upon certain courses and the Art Institute happened to be placed on the list. The teachers discovered that the courses given were agreeable courses. Last year in January they began to attend the Saturday evening courses in great numbers. We have sometimes had 900 at work in an evening. More than 1,600 taking actual lessons, passed their examinations, got the credit, and nearly ruined the Board of Education so they were obliged to strike us off their list. We hope our relation with the teachers will continue. They all know the Art Institute well now and they had a most beautiful time.[18]

Although Kent of the Metropolitan Museum of Art felt rather dubious about teachers and art, nevertheless an important step in teacher training work was taken by this museum in the fall of 1911 when a series of two talks was given in the new lecture hall by James P. Haney, Supervisor of Art in the high schools of the city and another series of four lectures was given in 1912. This

[15] American Association of Museums, *Proceedings*, Vol. 8, 1914, p. 60.
[16] American Association of Museums, *Proceedings*, Vol. 3, 1909, p. 80.
[17] American Association of Museums, *Proceedings*, Vol. 2, 1908, p. 84.
[18] American Association of Museums, *Proceedings*, Vol. 3, 1909, p. 80.

was for groups of high school teachers and the subject was on the value of objects of art. The talks were as follows: Museums and Teachers of History, by G. Stanley Hall of Clark University; Museums and Teachers of Art, by Kenyon Cox; Museums and Teachers of English, by Stockton Axson of Princeton University; and Museums and Teachers of the Classics, by Oliver S. Tonks of Vassar College.[19]

An extension course for teachers on "Appreciation of Modern Art" was given at this museum in 1913 by the College of the City of New York, supplemented by a study of the originals in the museum galleries under the direction of the museum instructor. Four groups of about fifty teachers each were met about fifteen times. In the museum's report for 1914 [20] the work of the Instructor included two courses of lectures in the museum to high school and elementary school teachers. An aggregate attendance of 345 was reported at these courses. Requests from the teachers themselves for a definite course were reported in 1915, indicating that the teachers were aware of their need for assistance from the museum in their art work. The course given at this time consisted of gallery talks on painting for teachers from the elementary schools. These courses were continued in 1916 to 1919. In 1920, through the helpful cooperation of Frank H. Collins, Director of Drawing in the elementary schools, there was a series of model lessons given by Anna Curtis Chandler for the teachers of art in the elementary schools of the city.[21] These lessons were to be repeated by the teachers to their classes, with the use of specially selected sets of lantern slides lent the teachers for the illustration of their talks.

At the same time in the Brooklyn Museum, there was being given each month, a progressive series of illustrated lectures on the "History of Art" to the art teachers of the New York City

[19] Winifred E. Howe, *A History of the Metropolitan Museum of Art,* New York, 1913, p. 308.

[20] Metropolitan Museum of Art, New York, *Annual Report,* 1914, p. 30.

[21] Metropolitan Museum of Art, New York, *Fifty-first Annual Report,* 1920, p. 30.

schools. This series was likewise directed by Frank Collins. The lectures were given on the level of the 5th, 6th, 7th and 8th grades of the public schools. The first eight lectures were: Reindeer Artists and Hunters—Even the Cavemen Found the Need of Art Expression, Pyramid Builders, Nimrod, Parthenos and Temple at Athens, Olympic Games, A Roman Triumph, Marcus, Constantine and Justinian. These lectures were later repeated by the art teachers, the museum furnishing the topical outline and the necessary slides, to the four upper grades of all schools having lanterns.

## *Growth in This Field*

With the trend in education during the past two decades laying increasing stress upon the use of visual aids, it was a natural result that some of the more progressive teachers in the cities where museums were located should bring their classes to these institutions more and more frequently. Then some of the instructors began to realize that although they might know something about what kind of exhibits the museum contained, they did not know enough about the objects to interpret them accurately to their pupils. The labels on the exhibits were usually so brief that they did not give the information which was best adapted for the special needs of their pupils. When the teachers could get a curator or docent to explain these exhibits, often many possibilities for applications to their work became apparent that had not occurred to them before. Another value, they found, was the training in observation. For teachers, like most other people, are too prone to rely upon book information. They forget that carefully observing objects and then forming their own conclusions from such observations, will be of far greater value to them than quoting directly from books often written by people who have also relied upon secondary sources for their information.

During the period from 1920 to 1930 teachers were just beginning to realize the vast possibilities in the use of the original materials and objects of museum collections for vitalizing school subjects and providing both instructors and pupils with unparalleled opportunities for careful observation.

In a few instances teachers began to petition the museum authorities for a course which would help them to know more about the museum, its aims and opportunities, and the facilities it offered in connection with their own work. Such was the case at the Springfield Museum of Natural History, where a course was started in 1920 for which the Junior College there allowed credit.

At the Carnegie Museum in Pittsburgh, there was a gradual development of a course for teachers-in-service under the auspices of the University of Pittsburgh carrying credit in that institution. This course, first given in 1929 and continued to the present, aimed to acquaint the students with the purposes and aims and resources of the museum and of its various sections. It was attended mostly by teachers of nature study or the biological sciences, and was regarded by the museum authorities as helping to make the museum more useful in the educational system of the city.[22]

Before such teachers' courses could be offered by museums, it was necessary that the museum must have a staff member or members who were fitted to carry on such specialized work. It is one thing for an individual to be a curator in a museum and devote hour after hour, day after day, to painstaking research work. It is quite another matter for that individual to have a pedagogical point of view and know just what the needs of progressive classes may be and how to present subject matter about the museum collections in such a way that teachers will recognize the practical value to them of taking a course in "Museum Appreciation."

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[22] Carnegie Museum, Pittsburgh, *Thirty-second Annual Report,* Serial Number 133, 1929, p. 50-51.

Another factor to be considered was that of credit for such a course. Most people like to feel that they will receive some kind of "coupon" for the completion of a course. About this time there was a general rise in the academic standards for those desiring teaching certificates or licenses. A college degree was one of the requirements. In some cities, as New York, the board of education required every teacher who had not yet reached the maximum salary to complete satisfactorily a thirty-hour course during the year immediately preceding the award of the regular salary increment. The result of such rulings was that many "Alertness Courses" for teachers-in-service were offered in this city.

At the American Museum of Natural History, in 1930, such an alertness course in "Geography" was announced for teachers of the public schools of New York City. As there was no way of foreseeing what response there would be, no attempt was made to limit the enrollment. To the great astonishment of everyone, 1,314 teachers registered for this course! Incidentally, there were over fifty teachers in this number who had taken the teachers' courses under Bickmore at the turn of the century. Some of them were now principals and came to this course, as they said, to renew their acquaintance with the exhibits in the museum so they could be of greater assistance to the teachers in their respective schools. This large number of registrants required a change in all plans for conducting the museum course. The small classroom was abandoned in favor of the same large auditorium where Bickmore had formerly presided and lectured. The lecture method also had to be used with this group but in addition to the lectures, there were carefully prepared questionnaires for use with the exhibits which supplemented the subject matter presented in the lecture. The questions could not be answered correctly without careful observation of the object for no textbook contained the answers. This laboratory or exhibition hall work necessitated every student making two trips a week to the museum

for the thirty weeks. It may be of interest to note that over eight hundred of these teachers came bi-weekly and completed the examination. The others, who were taking the course without credit, attended somewhat more irregularly but were present more than half of the time. The following year the registrations in this course were limited to three hundred but in spite of this, it had to be given in two sections to accomodate the numbers wishing to enroll.

At the end of three years a group of 325 teachers was selected at random from several different courses then offered by this museum to determine how many teachers were taking the work chiefly for "alertness credit." Of this number, 217 teachers had already reached their maximum salary, or about two out of every three then enrolling in these museum courses were not taking the work for salary increment. By this time it had been arranged so the courses could be taken for college credit, for alertness credit or for no formal credit. Sixty-three of the group selected had taught from twenty to thirty-eight years in the New York City schools. This seemed to correspond with their written statements that they desired the course to give them a fuller acquaintance with the museum exhibits as an aid in their work.

Teachers of Worcester, Massachusetts, schools have had a similar opportunity for the past two years in the course offered them by the Art Museum in "How the Facilities of the Museum Can Be Applied to Teaching." The subjects discussed have been library service, the study of the museum collections in the light of historical significance, facilities for music study, and trends in art instruction. The course has been given by members of the museum staff, the superintendent of schools, and some departmental heads of the public school system and the librarian. An additional meeting has been held at the Natural History Museum to show how the facilities of that institution could also be used by the teachers. An added assistance for these teachers is a Teacher's Study Room in the museum with a person in charge

whose duty it is to coordinate the educational activities of the museum with those of the public and private schools in the vicinity. Another important duty is the discussion of problems with teachers, showing them how the facilities of the museum may be used to their advantage.

## *Survey of Courses in 1932*

In 1932 the writer made a survey of the museums of the country to determine which of the institutions were offering courses for teachers. There were fifty-two museums giving courses for teachers-in-service or for student teachers from educational departments of universities or colleges. Great variety was found in the subject matter of the courses but in nearly every case there was close correlation with the museum exhibits. A few illustrations may be of interest, as well as the reasons given by the director for the type of course offered:

Flagstaff, Arizona—Museum of Northern Arizona; two courses in Southwestern Archaeology. Aim—to give to the teachers an outline of the development of the human race in the prehistoric Southwest. Four credits given by the Arizona State Teachers College at Flagstaff. "It seems essential that the training of teachers for rural schools in Arizona should include some knowledge of the prehistoric peoples of the region whose habitations are found everywhere in this state." [23]

Yosemite Museum and School of Field Natural History: one course to train teachers and camp counselors in field identification and interpretation of nature. "Offers the best means of broadening the museum's influence since the number of people that the museum staff can reach directly is limited, but by training teachers who can reach more, its sphere of influence is broadened considerably." [24]

Colorado Museum of Natural History: one course in Ornithology. Aim—to acquaint the teacher with the local birds. Credit by Denver University. "I personally regard courses for teachers as of the utmost significance. The vast majority of teachers to whom nature work is assigned have no personal knowledge of the subject so nature courses given by the museum are of the greatest importance to give teachers a fund of authentic information." [25]

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[23] Harold S. Colton, Museum of Northern Arizona, Flagstaff. Personal letter.
[24] C. C. Presnall, Yosemite Museum, Yosemite, California. Personal letter.
[25] J. D. Figgins, Colorado Museum, Denver, Colorado. Personal letter.

The Art Institute of Chicago: one course in History of Art. Aim—to provide a survey of the history of art and develop appreciation. One promotional credit for Chicago public school teachers. "I believe there should be such courses, especially to show teachers how to use the museum collections in their own work with their students." [26]

Museum of Natural History, Iowa City: "A course given in the nature of technical training adapted to the needs of those teachers who find that a knowledge of museum methods is valuable in preparing material for classroom use and in building up small museums in their schools. These students are in attendance through the summer sessions." [27]

Baltimore Museum of Art: Course for students of the Maryland State Normal School for Teachers. "The aim is to give every teacher going into the schools an appreciation for art and to make them realize that when they need help, they can obtain it at the Museum of Art. It is our belief that it is extremely necessary that the educational departments offer courses to the teachers. We are now making plans to advance this work with teachers in the schools." [28]

Washington County Museum of Fine Arts, Hagerstown, Maryland: Course "Art Appreciation Through the Ages." Aim—to extend the museum's work to the school teachers of both town and county. "I am deeply interested in the educational side of museums, and in extending the work of our museum to the schools in every way possible." [29]

Boston Museum of Fine Arts: Three courses are given. They are: Survey Course in History of the Fine Arts, Museum Collections as an Aid in Teaching, Appreciation of Art. One credit for each by Teachers College. "There is nothing more valuable for a museum's educational department to offer. Response from in-service teachers plainly indicates value and necessity. Desirable to offer such courses to pre-service teachers also." Marion Evans Doane, Supervisor of the courses. "The president of our Teachers College here is also enthusiastic and, with my own convictions strong in the matter, I hope we may be able to extend the plan to include pre-service teachers also.[30]

Buffalo Museum of Science: Twenty-five courses were offered but since 1932 a drastic cut in the museum's budget allowance necessitated the dropping of nearly all activities. They are being resumed at the present time. "Our belief, based upon a careful study of our records, is that the value of the courses in Natural History can hardly be over-

[26] Helen Parker, Chicago Art Institute, Chicago, Illinois. Personal letter.
[27] Homer R. Dill, Museum of Natural History, Iowa City. Personal letter.
[28] Matilda P. McComas, Museum of Art, Baltimore, Maryland. Personal letter.
[29] Jean W. Lucas, Washington County Museum of Fine Arts, Hagerstown, Maryland. Personal letter.
[30] Henry H. Clark, Boston Museum of Fine Arts, Boston, Mass. Personal letter.

estimated. Many teachers who take the work agree that they fill a very vital necessity." [31]

Metropolitan Museum of Art: Six courses for teachers are offered as follows: "Outline of the History of Italian Painting," "Course for High School Teachers," "Course for Elementary and Junior High School Teachers," "Study Hours for Teachers," "Tradition and Contemporary Art," "The Museum and the New School." Credit is given by Columbia University, New York University, City College, Teachers College. "I feel that the necessity is great and that the value cannot be over-estimated." [32]

Cleveland Museum of Art: Three courses intended especially for teachers are given by members of the museum's educational staff. Increased emphasis is placed on the work of aiding teachers in the schools to take advantage of the museum's resources. With its limited staff the museum could not possibly conduct in person all the classes which desire to come. As in other large cities, there is a growing demand that museum instructors spend part of their time in showing teachers from the schools how best to conduct these visits themselves—how to fit visits into the course of study, and manage the mechanical details of a visit; where to find promptly the objects they wish to point out; the importance and history of each object. "Highly important work. Present training of art teachers often fails to include enough direct study of works of art, past and present, from original examples such as museum courses can best provide." [33]

Washington State Museum, Seattle: Two courses are given—"The Use of the Museum in Teaching Natural History" and "Indians of the Northwest Coast." The aim in the latter course is to acquaint teachers with correct information about the primitive people of this region, and its prehistory. "We find it advisable and necessary to give courses for teachers so they may act as their own docents." [34]

Thus it may be seen that some of the chief reasons for museum courses for teachers-in-service are: (1) for the best interests of the children. It is advisable for the teachers to become thoroughly acquainted with the facilities of the museum so their teaching may be vitalized with the use of original materials. (2) Teachers' courses based upon museum facilities offer the best

[31] William P. Alexander, Buffalo Museum of Science, Buffalo, N.Y. Personal letter.
[32] Huger Elliott, Metropolitan Museum of Art, New York. Personal letter.
[33] Thomas Munro, Cleveland Museum of Art, Cleveland, Ohio. Personal letter.
[34] Martha R. Flahaut, Washington State Museum, Seattle, Washington. Personal letter.

means of broadening the museum's influence since by training teachers many more children can be reached. (3) Museums offer so much in the way of illustrative material helpful in school work that teachers should be given the opportunity to know the facts about these exhibits and how to make them useful to their pupils. Their regular teacher-training courses do not prepare them as a rule for this type of teaching. (4) One of the best and surest ways of having the pupils receive the benefit of museum influence and material is to educate the teachers to a realization of the advantages of such contacts both in their classrooms and at the museums. Teachers may thus become museum-minded and be better able to train their pupils in direct observational work.

While there was lack of uniformity in the level of the work given in courses for teachers-in-service five years ago at different museums, there seems to have been a definite trend since then of adopting the method of cooperation with some nearby college or university and placing the work on a credit basis. In general, a course in a study of museum exhibits and materials for teaching is given in fifteen two-hour sessions and carries two credits for its completion. The trend has also been to increase the number of courses offered to teachers so far as the museum's budget will permit. In two cases in 1937, where the museums' budgets were too small to allow such work, the supervisors of art and of visual instruction in the city schools were undertaking to give such courses to their teachers.[35] These supervisors believed in the statement made by Ned H. Dearborn that "the demands upon a teacher in any field require a broad and deep reservoir of knowledge which may serve not only his regular daily needs as a classroom teacher but which may be used as an emergency supply of information and understanding." [36]

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[35] Observation of the writer at San Diego, California, in 1937.

[36] Ned H. Dearborn, Problems in Teacher Training, *Volume V*. p. 5.

## *Training of Student Teachers*

Another phase of museum work in teacher training which has developed rather recently is that of working with student teachers. For the last ten years a few museums have given partial courses to students from normal schools and teacher training schools or the educational departments of colleges. At the Carnegie Museum in Pittsburgh in 1926 work was started with classes from the Frick Training School. These classes were taught the use of objects and collections contained in the museum in their work of teaching. A plan was initiated whereby all of the students passing through this training school should receive instruction in nature study at the museum.

In New York City, in the spring of 1927, groups of five student teachers from the Brooklyn Training School were placed in the Brooklyn Children's Museum and also in the American Museum of Natural History for the period from May 31 to June 30. During this assignment the students studied the museum exhibits, observed docentry in the exhibition halls and work in the classrooms, became acquainted with the educational facilities of the institution and finally, were given the responsibility of handling classes from the public schools on their visits at the museum. This plan was successful but due to lack of assistance at the two museums, could not be repeated the following semester. The closing of the training colleges of the city later took away the possibility of repeating the work.

However, during the past three years, work of training student teachers from the educational departments of colleges has been in progress in a few museums of the country. With the requirement of some states, as New York and Ohio, that every person who wishes certification for teaching shall have had a certain number of hours of observation and student teaching, at the level for which the candidate wishes certification, a few students have been doing part of their work in observation and teaching in museums. At present, the American Museum of

Natural History has the most carefully planned course. At the Toledo Museum of Art and the Cleveland Art Museum student teachers come in on Saturdays for practice work when these museums are taking care of from two to three thousand children in art classes. The Museum of the City of New York has also been training groups of student teachers for five-week periods.

At the American Museum of Natural History there has been an intensive course given since the spring of 1935 for students from the College of the City of New York who may, at some later period, become teachers in the city's public school system. Groups of five students have been taken from the public schools where they have been teaching and assigned to the museum for five weeks. At the end of this time they return to their schools and another group takes up the work at the museum. Usually, six groups have been handled during the entire year but occasionally two groups have been at the museum at the same time from City College or one from New College, Columbia, and the other from City College.

Definite objectives were set up for this training. Among these were intellectual growth on the part of the student teacher. This was most necessary as he had to study the museum exhibits thoroughly enough to use them in teaching. Another phase of this was a gain in his knowledge of the subject matter required in the various courses of study used in the metropolitan area and methods by which such subject matter could be made available in assisting children to carry out worth while activities. It was expected that the student teacher should grow in creative power through his own efforts and in his ability to utilize creatively the interests of children and to see possibilities in the use of the museum exhibits. He was expected to show growth in his methods of working with children and to use enough initiative to provide an environment which would be a source of stimulation for their activities. He was also encouraged to try developing in children an appreciation of the beautiful.

The first two weeks at the museum are spent by the student teachers in observation of work done in the educational department and in a study of the museum exhibits. In the observation work the student is encouraged to note how the museum instructor guides the children's activities; how these activities are related to the entire unit and to the curriculum; how it is adapted to the age level of the child; whether or not it provides for good habit formation; and if it contains opportunity for new experiences which will produce mental growth and growth of good social attitudes. He also notes how the instructor initiates the activities utilizing the children's interests and suggestions; how the materials of instruction are handled; how some of the slower children are encouraged to do their best; and methods used in developing self-control, self-direction, and good work habits.

Another part of this training includes the collection and selection of the materials for instruction, including actual materials or realia, motion pictures or sources for them, lantern slides, photographs, and bibliographies for the children. So far as possible the individual needs and capabilities of each student teacher are considered in giving the definite assignments for his actual teaching of classes visiting the museum. The museum supervisor observes the student teachers at work and holds frequent conferences with them before and after each class. Without exception, each group of young men assigned to the museum after careful selection by the college committee on teacher training, has sent in a petition asking that a longer period of time at the museum be allowed because they felt that the advantages were so much greater than in a school classroom. Among these advantages may be listed the following:

1. The student teacher has unrivalled advantages in the variety and number of concrete materials at his disposal for vivifying a great many topics stressed in several courses of study.

2. The student teacher learns how to select carefully the materials of instruction at his disposal and how to use various methods in their presentation.

3. The student teachers secure experience with a wide range of age-grade levels. Often this range has been from grade 2-A through to the college level. A third grade class may be followed by one from a high school which requires quick adaptation on the part of the student teacher. Again, an entirely different class from the one expected and for which careful plans have been made, may arrive. This situation calls for quick thinking and quick action on the part of the student teacher.

4. A class from a progressive private school requires different technics on the part of the instructor from one arriving from a formal school. Classes from New Jersey schools follow a different course of study from those in Westchester or New York City. Thus a student teacher has the opportunity to acquaint himself with several courses of study as well as with many different grade levels. He also has the opportunity to compare backgrounds of similar levels from different sections of the city where the same course of study is used.

5. Perhaps one of the greatest advantages of all is the opportunity given the student teachers for the enrichment of their own background.

The young man who stood highest in a recent examination for teachers of ungraded classes and received his appointment in the autumn of 1937, returned to the American Museum one afternoon to state that he felt his success was due largely to the advantages he had received while a student teacher at the museum.

Thus teacher training has been carried on in a considerable number of the larger museums in the country and has developed into a rather prominent feature of the educational programs of some of these museums. The earliest courses to teachers-in-service stressed content matter more than method but later the trend turned toward museum technics and application of museum materials to teaching procedures. At all times the teachers have been given the advantages of working with original objects and gaining inspiration through personal contact with the expert,

who in an art museum may be a famous painter or sculptor, or in a natural history museum, may be a well-known explorer able to describe most vividly interesting personal experiences with peoples and animals in far-away parts of the world.

Another trend in the work has been to raise its academic level from a series of lectures more or less related, to a carefully planned course which is accredited by a college or university of recognized standing. Somewhat similar work has been given by museums for students at state teachers colleges so the graduates might have an idea of how to use museum materials when they entered the teaching service.

Intensive museum training courses for student teachers have only recently been developed in two museums but specialized work on Saturdays which is recognized as part of the required work has been started in other museums, especially art museums.

Thus museums are making a definite contribution to the further education of teachers, giving them excellent training in observation, practical courses offering materials which can be used in school, and more opportunities for advanced study.

## Chapter IV

# DEVELOPMENT OF MUSEUM WORK WITH ORGANIZED SCHOOL CLASSES

One of the most extensive phases of museum educational work has been that conducted with classes of children from the schools in the community. Special work with organized visits of classes from the public schools was initiated at about the same time in two museums, the Buffalo Society of Natural Sciences and the Davenport Academy of Sciences. Almost as soon as the Milwaukee Public Museum was opened in May 1883, teachers began to visit it with their classes and the custodian (director) of the museum often talked to them about the exhibits. During the five weeks that intervened between the public opening of the museum and the close of the schools, about twelve teachers with their classes came to the museum for such instruction. The second annual report of this museum contains the following statement regarding the educational aim of the institution:

> It is hoped that teachers and principals will frequently make use of the opportunities afforded by this museum for making the teaching of natural history true object teaching, for illustrating the contents of reading lessons, for collecting matter to be used in conversational and literary exercises, for diverting the attention and inclinations of their charges from amusements of a lower to those of a higher moral worth, for training their powers in observation, and for awakening in them a sense of the beautiful and love for its manifestations in the world around them.[1]

The sixth annual report for 1887-88 mentions a feature of much interest in extending the usefulness of the museum as an educational factor.[2] This was the inauguration of informal lec-

[1] Milwaukee Public Museum, Milwaukee, Wisconsin, *Second Annual Report*, 1884, p. 21.

[2] Milwaukee Public Museum, Milwaukee, Wisconsin, *Sixth Annual Report*, 1888, p. 10-11.

tures by the custodian or director to the pupils of the eighth grade of the public schools. These lectures were delivered in the rooms of the museum, on subjects of natural science, illustrated by the objects on hand. The first talk was on rocks and treated of the formation of sedimentary, igneous and metamorphic rocks. Type specimens were shown and explained. The second lesson gave a condensed account of the geological ages of the earth. Charts, casts and real fossils were used in illustration. The third lesson dealt with the formation of coral islands, presenting specimens of the different types of corals and using the blackboard to explain the subsidence theory of atoll formation. The fourth lesson dealt with some of the more common animals of Wisconsin and specimens of the smaller mammals, birds and reptiles were used as illustrations. The material of the four lessons was so arranged as to aid the pupils in their course in physical geography.

At first these visits were voluntary on the part of the teachers and pupils. Ten years later, the superintendent of the Milwaukee schools inaugurated a system which permitted all the different grades to visit the museum several times during the year under the guidance of their teachers.[3] Then in September 1899, the school board appointed a special lecturer for classes coming to the museum. A somewhat similar arrangement had been made ten years previous at the Davenport Museum. This was the second instance of direct financial aid being extended to a museum by a city board of education to provide for the teaching of children in organized classes at a museum. The special duty of this lecturer in the Milwaukee Museum was "to make thousands of children acquainted with the beauties of nature and to encourage the habit of observing and comparing; to teach the child not to destroy but to preserve and protect everything that is beautiful." [4] In his annual report the director added:

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[3] Milwaukee Public Museum, Milwaukee, Wisconsin, *Fifteenth Annual Report*, 1897, p. 20.

[4] Milwaukee Public Museum, Milwaukee, Wisconsin, *Eighteenth Annual Report*, 1900, p. 6.

For years I have worked to induce the Board to employ a special lecturer and an expert teacher to instruct the school children in the halls of the Museum, but my plan was never carried out. At last a remedy has been found. Professor Lindsay Webb, formerly principal of the Seventh Ward School, has been appointed by the School Board to perform this work. He is an excellent teacher, very enthusiastic, and succeeds in keeping the children interested all the time. Every day four classes, averaging about two hundred children per day, are instructed in the Museum. Thanks are especially due to the Superintendent of Schools, Mr. H. O. R. Siefert, and the President of the School Board, Mr. Augustyn, for this new departure in the line of education.[5]

Again, in 1902, the custodian reported[6] that the lecturer of the school board had instructed 20,000 children in about four hundred classes from the fourth to the seventh grades from the public schools in the room provided by the museum and had used many specimens with the classes. In addition to this work, the museum was also visited by other classes accompanied by their teachers. These lectures were correlated with their school work. The schedule of the classes was made by the superintendent of schools' office so there could be no confusion by the numerous class teachers of when they were expected or what the subject of the lesson was to be. Indian customs and animals of North America, manners and customs of South America, and human and animal skeletons illustrating physiology were the subjects treated.[7]

The Park Museum of Natural History in Providence, Rhode Island, began in 1895 to instruct classes from the public schools and in 1900 the Fairbanks Museum of St. Johnsbury, Vermont, was giving nature study lessons to the classes arriving at the museum from the schools in that vicinity. These were lessons, not lectures. In general, the children provided their own material for part of the lesson, so they had an active part in the work,

[5] Milwaukee Public Museum, Milwaukee, Wisconsin, *Eighteenth Annual Report,* 1900, p. 23.
[6] Milwaukee Public Museum, Milwaukee, Wisconsin, *Nineteenth and Twentieth Annual Reports,* 1902, p. 16-17.
[7] Milwaukee Public Museum, Milwaukee, Wisconsin. *Twenty-second Annual Report,* 1904, p. 14.

asking and answering questions about the minerals, flowers, seeds, or insects brought into the museum. Sometimes an experiment was suggested to follow the lesson. After a study of limestone, the pupils made plaster and mortar. Following a series of lessons on gypsum, they made casts of various objects, thus gaining intimate knowledge of the properties of plaster-of-paris. The museum cases of minerals were opened so the children could examine at will the various specimens of satin spar and alabaster. Among the subjects studied at these lessons were the following: "Seed Distribution," "Crickets and Grasshoppers," "Dry and Fleshy Fruits," "Common Minerals," and "Moths and Butterflies." In order that this work might supplement to the best advantage the school work carried on by the regular teacher, the director of the museum held frequent meetings with the teachers after school hours at which the subject matter and the methods of teaching the museum class were discussed.[8] At these meetings books of reference to assist in follow-up lessons were lent to the teachers. Much home observation was also stimulated by this museum work, the children often observing the entire life cycle of an insect and then reporting on it at the museum.

While science instructors in the schools were holding closely to their textbooks, prescribing what their pupils should learn, and using objects only occasionally to illustrate facts, the museum of science was luring the student, using facts for the purpose of explaining objects, and bringing the pupils into direct and enthusiastic contact with real materials.

At the American Museum of Natural History, Albert S. Bickmore, the superintendent and curator of education, was always glad to instruct classes visiting the museum. The annual report of the museum for 1872 stated that large numbers of pupils from the common schools of the city and its suburbs had come in bodies to the museum, under the care of their teachers, who used the

[8] Delia I. Griffin, The Educational Work of a Small Museum, *Proceedings*, American Association of Museums, Vol. I, 1907, p. 139-40.

collections for imparting much useful information.[9] Such visits must have been made after school hours or on Saturdays, however, for it was not until 1900 that the board of education of the city gave permission for certain classes in the public schools to visit the museum during school hours.[10] A more organized effort to instruct children was started by this museum in 1904 with a rather extensive series of illustrated lectures in correlation with courses of study in geography and history. These lectures were given by curators of the scientific staff in the large auditorium at three o'clock so there would be less interference with the schools' daily program. A special instructor was also engaged in 1906 to teach classes visiting the exhibits in the museum halls. It may be of interest to add here that this museum seems to have been the first institution in the country to use motion picture films as an educational aid. The first films were shown late in 1908 and in 1911 the lantern slides used in the auditorium lectures for school classes were supplemented by motion picture films. A film on "Cotton Growing and Manufacture" was one of the first films used.

## *Comparison of Methods*

The method of instruction used by the museums in their early science teaching was somewhat in advance of the trend of the times, which emphasized the importance of teaching isolated facts and testing the pupils' retention of them. This still occupies a large part of the time of many a science teacher today, although few science teachers would maintain that catalogues of facts are ends in themselves. Such teaching gave the pupils an acquaintance with natural phenomena but neglected contact with real objects of nature. The aims and methods were also not such as to develop original and independent thinking among the students.

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[9] American Museum of Natural History, New York, *Third Annual Report,* 1872, p. 7.

[10] American Museum of Natural History, New York, *Thirty-second Annual Report,* 1900, p. 12.

During this period up to 1910, the aim of science teaching showed a strong trend away from the utilitarian aim to that of formal discipline and a training of the faculty of observation, including the teaching of the experimental method of solving problems.[11] The laboratory method, welcomed as making science teaching vital and effective, was introduced and popularized during this period. This encouraged more teachers to bring their classes to science museums where they found such an abundance of specimens for observational laboratory work. A description[12] of the aims and methods in such science teaching as applied to the study of physiology in the Peter Cooper High School of New York City was given in the *Journal of Applied Microscopy* for July 1900.

The following extract from this article indicates the attention to details and the complete systematization of knowledge in a meticulous classification and comparative study of the mammalian skeleton:

In the study of the different organs, continual reference is made to the structure and functions of other animals. After the consideration of the bones and teeth of man and of the animals in the school museum the classes are taken to the American Museum of Natural History to study other mammalian skeletons. Groups of eight to ten pupils gather about the different specimens, each pupil answering in his notebook the questions given below. The facts gained from this observation are discussed at the museum, and the boys and girls hand in at the next recitation a written account of some of the animals studied.

COMPARATIVE STUDY OF THE MAMMALIAN SKELETON

A. Spinal column
   1. How many vertebrae are found in the neck (cervical) region?
   2. How many vertebrae bear ribs (dorsal vertebrae)?
   3. How many vertebrae in the lumbar region?

[11] Frank L. Clarke, A Report of the Teaching of Chemistry and Physics in the United States, U.S. Bureau of Education *Circular of Information,* Number 6, 1880, p. 10.

[12] James E. Peabody, Physiology in the Peter Cooper High School for Boys and Girls, New York City, *Journal of Applied Microscopy,* Vol. III, Number 7, July 1900, p. 929-31.

4. Can you determine how many vertebrae have united to form the sacrum?
5. How many vertebrae in the tail (caudal vertebrae)?
6. In what regions of the spinal column are curves noticeable? How do they differ from the curves in the human skeleton?
7. Are spinous processes specially developed in any region? Can you suggest any reason for this?

B. Ribs and sternum

8. How many ribs has the animal?
9. How many are attached to the sternum?
10. Is the sternum a single piece of bone? If not, of how many parts does it seem to consist?

C. Anterior appendage

11. Can you distinguish a shoulder-blade (scapula)?
12. Has the animal a collar-bone (clavicle)?
13. Is the humerus relatively long or short compared with the whole appendage?
14. What is the relative size of radius and ulna?
15. Is it probable that rotation of the radius about the ulna was possible?
16. Is the projection (funny-bone) on radius or ulna?
17. How many wrist bones (carpals) in the anterior appendage?
18. Does the animal walk on the palm of the hand or on the tips of the fingers?
19. How many fingers (or toes) of the anterior appendages does it use?
20. How many bones are there in each finger?
21. Is a thumb distinguishable?
22. What use does the animal make of the anterior appendages?

D. Posterior appendage

23. Is a knee-cap (patella) distinguishable?
24. What is the relative size of tibia and fibula?
25. How many ankle-bones (tarsals) are found in the posterior appendage?
26. How many toes of the posterior appendage does the animal use?
27. Does the animal seem to be adapted for swift or for slow locomotion? Give reasons for your answer.

E. Teeth

28. What is the dental formula (number of incisors, canines, grinders) in each half-jaw?
29. Did the animal probably eat animal or vegetable food? Reason for your answer.[13]

The above outline shows that science teaching in this period was carried on with little or no regard for the particular interests and needs of the learner, since all these students were supposed to have minds made up of the same faculties which needed to be trained.

Very different methods, closely related to the special interests of the pupils, have developed since these earlier attempts in using museum exhibits for teaching purposes. An illustration might be used from a class visiting this same museum in 1937. These fourth grade children had become interested in polar exploration and also in the Eskimos from discussions they had heard at home about the Soviet flyers and their camp at the North Pole. Their first visit to the American Museum of Natural History was to see Peary's sledge which he used in reaching the ninetieth degree of latitude on April 6, 1909. In addition to an examination of this, the museum instructor turned their attention to the modern equipment used by the explorers Amundsen and Lincoln Ellsworth in their polar flights. On a second visit the children studied the Eskimos whom Peary had made friends with during his work in the north. The museum teacher allowed the children to form themselves into small groups with a special task self-chosen for each group. One was to study the clothing of the Eskimos, others the type of house, methods of transportation, the ways of securing food, and the animal life of the Arctic. Articles of clothing which had been made by the Eskimos were examined carefully in a classroom before the group went into the exhibition hall where they studied the more extensive display. Models of the igloo,

[13] James E. Peabody, Physiology in the Peter Cooper High School for Boys and Girls, New York City, *Journal of Applied Microscopy*, Vol. III, Number 7, July 1900, p. 930-1.

tupic, kayak, and umiak were handled and studied. A short bit of film "Nanook of the North" was projected to bring more reality into the study. Then the groups went into the mammal hall to look at the animals hunted by the Eskimo. From here they went to the special Eskimo exhibits which showed them in life-sized models how the Eskimo mother cooks food over the soapstone lamp with oil from the seal or walrus blubber for fuel; how she fishes through the ice; the method of catching seals with a harpoon; the real kayak of the Eskimo, also his sledge; the playthings of the children and other interesting things connected with their every-day life.

At the time of this second visit to the museum, the class teacher made arrangements to have small illuminated groups of Eskimo life in summer and in winter delivered to the school together with colored lantern slides. These were used the following day when the children were reporting on their visit. As a result new impetus was given to the work, for the children decided that they would like to construct an Eskimo village and also make some lantern slides to show to other classes in their school. This was followed by the production of a very creditable Eskimo group and some cellophane slides which the children used in a simple dramatization of "A Day Among the Eskimos."

Usually the groups of children arriving at this museum for instruction go to a classroom where they are given the opportunity of handling specimens and objects which can not be sent out to a school classroom. Then the museum instructor makes the transition to the larger exhibits in the museum halls. Here the work may be continued in different ways. One method used is that of giving each child completion statements to be filled in only after he has carefully looked at the objects. Another method is to give each child outline drawings, each one of which lacks some essential detail, such as the tail of the beaver or the stripes of a zebra. This again, requires careful observation on the part of the pupil before he can correctly complete the outline.

After a classroom discussion of primitive methods of land and water transportation in which the children had been handling models and had also examined the real sledge which the Eskimos had made for Marie Peary when she lived in the Arctic, the children were given the following set of completion statements after they had studied the larger exhibits in the exhibition halls:

PRIMITIVE TRANSPORTATION

Fill in blank spaces with the correct word chosen from the following:

| | | |
|---|---|---|
| snow shoes | horse | drag |
| dog | dugout canoe | balsa |
| cradle board | reindeer | travois |
| birch bark canoe | bull boat | kayak |
| sledge | moccasins | burden frame |
| | skiis | |

1. The baby carriage for the little Indian papoose is called a.....
2. Three types of boats used by the Indians were: 1..... 2..... 3.....
3. The Indians traveled over land on ..... and .....
4. The Eskimos used for their transportation: 1..... 2..... 3.....
5. The Indians carried their heavy burdens on a ..... attached to a ..... or .....
6. Two pack animals used by the Indians were ..... and .....

After these statements are completed the children take them back to their classrooms where the following day they discuss what they did at the museum and talk over what they saw and studied. This follow-up work on the part of the teacher is considered very important.

The interests of the students were also given consideration in the methods followed at the Philadelphia Commercial Museum where organized work with classes in geography was started in 1906, after conferences with the superintendent of public schools of the city. All the geography classes were invited to come to

the museum for lectures and classes on commerce and geography, selecting from lists of subjects given them by the museum such as they desired, and arranging a date with the museum when this selected lecture could be given. The subjects covered some twenty-five different countries and ten or twelve other topics such as the cotton interests of the world, or wheat, sugar, coal, forestry, tea, coffee, chocolate, and fibers. The kind of lecture given depended upon the classes arriving. After the lecture the classes were divided into small sections and taken by the museum curators through the exhibits representing the country on which the lecture had been given, the products being thoroughly explained and discussed by men who were perfectly familiar with the subject.[14] During the first year in which this cooperation with schools was initiated, the curator in this museum talked on many different topics to more than eight thousand pupils and three hundred teachers, coming from sixty different schools of the city. This work was continued year after year until finally it was given recognition by the school board by the assignment of two public school teachers at the museum to assist in the instruction of visiting classes.

In Buffalo the work at the Society of Natural Sciences became even more of an integral part of the school system in 1905 when attendance of classes at the museum lectures was made compulsory. The department of public instruction in that city prepared each year a schedule which was sent to every elementary school principal notifying him of the day and hour at which each of the grades in his school was to come to the museum. The school laboratory equipment was so limited then that for the physiology classes a full supply of the necessary apparatus and chemicals was provided so that experiments might be shown during the lectures. In the bird talks, actual specimens of the birds were first shown and then on the screen the homes of the birds and their enemies were projected. As the children examined the mounted specimens

[14] W. P. Wilson, Educational Work of the Philadelphia Museums, *Proceedings*, American Association of Museums, 1907, p. 135-6.

individually, they were questioned and encouraged to ask questions. For illustrating the habits of bees, a hive of live bees was used, the walls being of glass so that bees and comb could be plainly seen. Bee-keeping utensils were explained and a beautiful series of colored slides showing bees at work upon the flowers was also used.

Special exhibition cases of materials were prepared in connection with the work of the various grades and at the close of each lecture the regular collections of the museum were visited by the classes under the guidance of their teachers. It was felt that this systematic visitation by the classes resulted in more effective results than had been secured previously under the plan of voluntary attendance.[15] Learning rather than teaching received the emphasis in these educational activities of the museums where so many opportunities were offered.

The Wyoming Historical Society of Wilkes-Barre began the instruction of classes from the rural schools in 1894. From the date of its opening, (December 1899) the Brooklyn Children's Museum welcomed classes of children daily between 9:30 and 5:30. At the Brooklyn Central Museum instruction for classes from the public schools was started in 1904. In California at the Southwest Museum of Anthropology in Los Angeles and in South Carolina at the Charleston Museum instruction was given to classes in 1907. The Historical Society of Wisconsin took up the work the following year and in 1910 many classes from the Grand Rapids schools were taught by the Kent Scientific Museum.

In the art museums of the country formal instruction to classes was not started so early as in the museums of science and history. The Boston Museum of Fine Arts made an attempt during the year 1895 to attract the pupils of the public schools by sending free tickets to teachers, admitting them with three pupils at any time the tickets might be presented. As stated in the annual

[15] Henry R. Howland, The Educational Work of the Buffalo Society of Natural Sciences in Cooperation with the Public Schools, *Proceedings,* American Association of Museums, Vol. 3, 1909, p. 75-6.

report for 1895: "It was thought that if accompanied by their teachers the young people would be greatly aided in seeing what the museum has to show them, while the teachers themselves, under the spur of interpreting these objects, would derive an advantage not accruing to irresponsible spectators." [16] The consciousness of having attempted this experiment was the chief result as the tickets were not freely used. Two years later, however, 1,400 tickets were granted and in addition free entrance was given to many classes from schools in the city and from other towns. The Metropolitan Museum of Art was more generous in its allowance of six pupils to enter with each teacher. No instruction was given to these classes in either museum until the special docent was appointed in 1907 at Boston and in 1908 at the Metropolitan Museum of Art in New York.

Although classes from public schools began going to the Syracuse Art Museum in 1901, the Carnegie Institute of Art in Pittsburgh that same year started an even more extensive plan of educational work with schools. Students of the high schools and of the eighth grade classes came to the Institute under a systematic plan, to study the paintings in the International Exhibition. The original plan was formed by the Superintendent of Public Instruction and the Director of Fine Arts of the Carnegie Institute.[17] These were the first attempts to bring classes from the public schools to art museums for the study of art appreciation.

The Toledo Museum of Art was the first art museum in the country to become child-centered in its vision for educational work.[18] As early as 1903 this museum recognized children as the most important personalities to contact. Classes came very frequently from the public schools, and always voluntarily, for art appreciation talks and work in drawing and sketching. The pur-

[16] Museum of Fine Arts, Boston, Massachusetts, *Twentieth Annual Report,* 1895, p. 12.

[17] John W. Beatty, The Museum of Art in Its Relation to the Public Schools, *Museum Work,* Vol. II, Number 2, November 1919, p. 45.

[18] Blake-More Godwin, Toledo Museum of Art—Personal Interview, October 8, 1937.

pose of this museum was to lead the children to like art, to apply its principles to their daily living, and to discriminate between good and poor pictures, sculpture and music. For the past thirty-five years this museum has been outstanding in its attempt to develop standards of good taste through the talks to classes which relate art to the subject matter of the elementary and secondary schools.

The art museums which initiated work with public school classes during the second decade of this century included the John Herron Art Institute of Indianapolis, the Chicago Art Institute, the Portland Art Association, the Cleveland Art Museum, and the Rhode Island School of Design.

During this period new science museums were established and at once started similar work. Others, established earlier, also initiated an educational program. These included the Museum of Anthropology, Berkeley, California, the Everhart Museum of Scranton, Newark Museum, the Natural History Museum in Minneapolis, the California Academy of Sciences in San Francisco, the New Jersey State Museum, the Elgin Audubon Museum, the University Museum in Philadelphia, and the Springfield Museum of Natural History.

## *Later Trends and Methods*

About this time a new approach in science teaching was developing. This was the trend toward stressing the newer developments in science and recognizing the need to make the sciences play a more active role in the preparation for every-day life. Such aims toward a more fundamental approach in teaching, many of the museums of natural history in the country endeavored to meet by the emphasis which their instructors placed upon biology and the application of the latest discoveries of their research workers. Since this period was also marked by a rapid increase in the school population to include "all the children of all the people," resulting in a downward shift in the average pupil in-

telligence, the schools found greater need than ever to stress visual aids and to use more concrete objects for illustrating principles in both the natural sciences and the social sciences. In the cities where museums of science and history were located, the school instructors found that here were institutions which could supply these needs and museum trips became more frequent.

Another impetus, especially in the area in which the art museums were working, was received by the report issued in 1918 by the Commission on the Reorganization of Secondary Education which set forth the seven cardinal principles of secondary education. A study of possibilities in the sixth area, "Worthy use of leisure," resulted in an awakening on the part of some educators to the advantages gained in carefully conducted museum trips. This was most evident where the museum in the community was able to offer special lessons for vitalizing definite areas in the school curriculum.

In the early 1920's new ideals and new methods were taking the place of the old ones, awakening much interest and securing encouraging results. A few teachers began to learn about the many different ways in which the museums might assist them in their daily teaching. They learned that the museums' collections might illustrate and enliven the subjects about which their pupils had previously learned only through the printed word. They also began to realize that the influence of the museums' art works might raise the standards of beauty throughout the community. The work inaugurated at the Carnegie Institute of Art in 1901 was now considerably broadened and might be given as an example of this change.

At this time all the members of the eighth grade classes in the public schools of Pittsburgh visited the Art Institute three times a year for instruction in some of the fundamental qualities possessed by works of art, using the original examples in the Institute's galleries for comparison and illustration. The car-fare of from eight to ten thousand students was paid each year by the city board of education for these visits to the Institute. There

the instructor disregarded the story expressed by a painting or other work of art as of little importance as far as art was concerned. Instead, he stressed the subtle and beautiful qualities of tone, harmony, grace and character in a simple way.[19]

Much of the early formalism in museum teaching was undergoing modification and gradually the role of the museum instructor became more like that of a catalyst, especially helpful in synthesizing the formal curriculum of the schools. The formal textbook method of acquainting children with colonial life suffers in contrast with the following method which involved true "experiential" learning on the part of the children who visited the historical museum at Tioga Point, Athens, Pennsylvania, fifteen years ago:

> Our museum has a completely appointed colonial room and we let the groups of boys and girls from the 4th and 5th grades live through the whole round of the quaint activities of a pioneer day.
>
> First we gathered around the old fireplace and laid a fire. An attempt to strike fire with flint and steel and tinder having failed, the leader took up the colonial fire carrier and detailed one of the boys to go to a neighbor's hearth for live coals; and soon it was time to play the ancient bellows. The crane swung out, a great iron cooking-pot and griddle were hung over the imaginary blaze, and all the processes of colonial cookery, even to baking waffles, were gone through in talk and motion, the children having a chance to handle as well as to see every utensil called into play. Afterwards the table was set out with old-time pewter porringers and the children discussed an imaginary colonial meal.
>
> In similar fashion one form after another of the day's activities was carried out, all the ancient implements being put to use as far as the limitations of a museum would permit. The lights of other days, from pine knots to whale-oil lamps, were shown and wall candles, snuffers and tray were put to use. Candle molds were brought out and both molding and dipping processes talked over.
>
> The making of linen from the flax in the field to the finished fabric and the carding and spinning of wool were discussed in detail. Literally every implement involved in dressing both fibers was produced and explained, and the old spinning wheels, one with flax and one with wool on the spindle, were really made to "go."

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[19] Beatty, *op. cit.* p. 45-8.

Ancient bullet molds were brought to the hearth together with the old skillet used for melting lead or pewter, and also a fascinating collection of Revolutionary bullets and flintlock guns, which were handled and investigated in every detail. The boys enjoyed a hunting game, using the old weapons.

The museum is rich in colonial tools, both household and agricultural, so the leader devised a visit to a colonial blacksmith's shop, allowing the children to finger the hand-made implements, hand-made nails, hinges, latches, et cetera, while they listened to a talk based upon material gleaned from the reminiscences of a former patriarch of Athens, Pennsylvania. The boys threshed imaginary wheat on the floor of the museum, using an old flail of 1800, and afterwards winnowed the wheat in a great Indian basket once used in the heart of Manhattan Island.

The girls were treated to a colonial journey by stage-coach and pillion, being permitted to get ready all the quaint accessories—saddle-bags, hair trunk, band-boxes, cap baskets, foot stoves, et cetera, and discussing the experiences of old-time travel. And then, at nightfall, the use of the brass bed warmer was exploited.

The children were so dead in earnest about the play, so full of keen questions, that it was almost as if they had been really living a page of pioneer history. They will remember the real "play" day at the museum after many a hard-conned history lesson is forgotten.

After this play day the children spent a happy hour with the ordinary museum games using the card questions listed as the fireplace game, the kitchen game, and the rest. Very knowing they were after their personally conducted tour back through the centuries.[20]

Such organization of materials about some human theme, the daily life of the pioneers, not a formal organization but an organization of knowledge in terms of the activities of life, is a truly functional method of teaching which can be well employed in some museums. It has become increasingly evident that what the children touch becomes a part of their personal experience more completely than anything they merely look at, especially through glass. Even the chance to press a button to start a piece of mechanism which is permitted in the three museums of science and industry in the country, relieves and interests the child when his most active means of individual research, that of touching and examining at close range, is frustrated.

[20] Louise Wells Murray, Playing Pioneer, *Museum Work,* Vol. VII, Number 1, July-August, 1924, p. 53-4.

This form of activity is well cared for in the lessons given in many of the museums. At the Commercial Museum in Philadelphia, lessons are given by teachers assigned by the board of education. In these, the pupils take specimens in their own hands, perform steps in industrial processes, such as pressing oil from cotton seeds or ginning raw cotton, and by many other experiments gain concrete experience with materials and industrial methods. They do actual blasting in a miniature quarry which shows a wooded hill with one side cut away, exposing veins of rock. This model is about four feet in length. The children drill a hole in the rock with star drill and hammer, fill it with powder, pack it with cotton, tamp it with clay, and then retire to a safe distance, about fifteen feet, while the blast is set off electrically, shattering the rock to fragments.[21]

This same museum has initiated a system of museum instruction to class representatives where the entire class cannot visit the museum. From two to six students in science in every junior high school in the city have come to the museum after school hours. In groups of twenty, these class representatives are given lessons with specimens and are shown how to perform experiments. Samples of the substances which are used to illustrate these lessons are given to each student who then returns to his school to repeat the lessons, demonstrations, and experiments to his own class.[22]

At the Reading Museum and Art Gallery, which, unlike any other museum of the country, is owned and operated by the board of education of Reading, there is a very close correlation between the museum lesson and the school curriculum. The lesson at the museum supplements, correlates with and enriches the work of the classroom.

For example, if a class visits the museum at a time when it is studying the geography of the Southern States, the museum teacher will perhaps plan a lesson on the cotton industry. The children will see a grow-

[21] Personal Observation of Classes at the Philadelphia Commercial Museum by the author.

[22] *Museum News,* Volume V. Number 5, July 1, 1927, p. 2.

ing cotton plant, they will pick cotton from the boll, examine the fiber, gin the cotton, comb and spin the fibers into a thread by hand, and see the process of weaving. On the large tables in the children's room, placed there for their inspection, the children will find the products of the industry. They learn to know the most common kinds of cotton cloth, such as lawn, gingham, turkish toweling, cotton prints, et cetera. They begin to understand the interdependence of sections of the United States, and sections of the world through such products of the cotton industry as celluloid for combs and motion picture films, cotton seed oil, cotton seed cakes, and linters for mattresses. They also acquire a mental image for such words as "fiber," "cotton-gin," "ginning," "spinning," and "weaving," on which the teacher can draw to interpret like situations later in school life. To continue the building of new concepts, and to reduce the possibility of error, the children are taken to the auditorium where, through slides and motion pictures, they visit the region under discussion. They see pictures showing the labor involved from the plowing to the weaving of the cotton cloth, and in these pictures they look for indications of relief, and the climatic conditions which are needed for the industry. In this way they develop a knowledge of geographic principles as well as an appreciation of the region's contribution to life.

The museum visits are not entirely tied up with industry and commercial products. In this age of easy communication and wide travel, we must have a tolerance for and an appreciation of other people and their cultures. Surely no place is quite so well fitted to teach this appreciation as the museum with its exhibits of the industrial and fine arts of all peoples. Through these exhibits and the models showing man's response to his environment, we can destroy racial hatred and develop in its stead a tolerance and a real appreciation for the cultures of others.

If a class is studying about China, they will visit first on the museum floor among the beautiful Chinese procelains, silks, embroideries, and carvings. They find that China's contribution to civilization is beautiful beyond description and they begin to wonder just what is meant by "backward" as applied to nations. In the children's room they will perhaps discuss silk, rice, or tea culture, and by means of specimens, pictures, and slides, they can be led to discover that Chinese methods of farming and manufacturing are the peoples' response to a mountainous country, and to a dense population which demand an intensive type of agriculture. After such contacts, children come away with a feeling of admiration and respect for a people capable of real endurance, and with an appreciation for a culture and an art which is different from our own.[23]

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[23] Josephine Moyer, Geography in the Reading Museum and Art Gallery, *Education*. January 1935, Volume LV, Number 5, p. 299-304.

With the large annual increase in classes visiting art museums during the past fifteen years, the instructors in these museums have been increasingly careful to adapt their methods at a moment's notice to the variety of interests, ages and backgrounds in each group before them. At the University Museum in Philadelphia, the third grade children from the Friends' School at Moorestown, New Jersey study the Indian collections.[24] The children are told about the objects, make sketches of them, take notes, and return to their school full of ideas for what they call their "Indian Day." Each child makes a costume according to the designs they drew while at the Museum. The boys earn their feather "coups" for their head-dresses by good work in school, the girls also win the beads for their head-bands. In a woods near the school they build a tipi where they act out realistic scenes of Indian life among the things they have made. The "Indian women" cook the food, care for the tipi, look after the doll papoose and hoe the corn, while the "Indian hunters" with their bows and arrows go in search of game. They also make Indian pottery using the designs from the jars at the museum.

The majority of classes coming to this museum, however, are from the high schools and are interested in seeing the originals of objects they are studying in their ancient history. They can see the alabaster jar of King Sekhemui of Egypt upon which is an inscription which illustrates the old custom of naming a year from events that happened during it. They may see utensils used by the Egyptians in their daily life, as mirrors, writing materials, games, rings, and necklaces. Burial customs in Egypt are taught by a study of the interior of an Egyptian tomb. A class may have come to see the material illustrating the evolution of writing which includes the ebony tablet of Mena with the oldest continuous line of Egyptian hieroglyphics known, and a black diorite tablet from Mesopotamia on which is an inscription possibly the

[24] Helen E. Fernald, The Educational Department, *The Museum Journal*, Volume 16, June 1925, p. 135-6 (published by the University Museum, Philadelphia, Pa.)

oldest so far found anywhere in the world. The students may trace the development of cuneiform and of Egyptian hieroglyphics. They may see a copy of the Rosetta stone, also examples of many forms of ancient writings.

Or perhaps, the class may be studying some phase of art or industry and come to the museum to see the various forms as found in different ages throughout the world. If this study is pottery, the coiled pottery of the American Indians is compared with the wheelmade shapes of Greek vases.[25] Peruvian and Mayan decorations may be compared with Greek, also with Chinese and Persian painted and glazed potteries and porcelains. The need of the next class arriving may be for a study of art in the light of historical events and as the expression of the character of a people, so the museum instructor now guides the students in tracing art forms and influences into other countries, making comparisons, and helping them to find out what was contemporaneous and tended to bind the ancient world into a whole rather than separating it into isolated sections.

For some time progressive educators have realized the necessity of bringing children into intimate association with forms of art in order to develop an appreciation of the qualities of beauty which are to be found in the finest examples of craftsmanship which have been produced through the ages. In communities where art museums are located the realization of this fact has brought about closer cooperation between the public schools and the museum. Blake-More Godwin, director of the Toledo Museum of Art, stated [26] that one way of showing the teachers the advantage of such museum visits was to go to them with illustrated lectures related to their other subjects, selecting the slides so as to make them desire to see the real objects in the galleries. Today, most of the schools in Toledo have responded and classes come on planned schedules of gallery talks. The author ob-

[25] Helen E. Fernald, The Educational Department, *The Museum Journal*, Volume 16, June 1925, p. 137-8 (published by the University Museum, Philadelphia, Pa.)

[26] Blake-More Godwin, Personal Interview, October 8, 1937.

served [27] a fourth grade class enjoying a lesson which introduced a study of the color values in a painting and also methods of transportation. The latter happened to be the special unit the children were working on in their classroom at the time of their museum visit. The annual report of this museum for 1936 states:

> Their geography is vitalized by the arts related to the country being studied. History draws nearer as they are shown the products of past civilizations; languages are enhanced by the art indigenous to their native lands; American history gains respect through a view of American art. The peoples of foreign lands become less suspect, and their customs less derided by American children who learn sympathy and admiration for those of other races capable of producing enduring contributions to the arts. This cooperation with the grade schools has brought about its desired end—a larger public open to conversion of art enjoyed for its own sake alone. Constantly increasing in numbers are the school groups asking for participation in the Museum's main purpose, that of appreciation in the galleries. Talks are requested on line, mass and color, and those demanding them range from pre-school to senior high school classes. Some schools absorb as many as forty yearly talks planned for them, and the talks and tours of the art appreciation department reached 66,000 children last year.
>
> From such gallery inspiration concrete influences permeate the schools. Some classes present to the whole student body the information gained at the Museum. The amount taken back is surprising, and frequently schools organize a small group for more extensive Museum study and reports. Fired by talks at the Museum, students from the glass manufacturing district of the city evolved for their school a shadow play to dramatize the making of glass from early times to the processes now so vital to Toledo industry. Sixth grades enlivened their study by carrying the mail by Babylonian clay tablets and ancient and medieval letters from the manuscript gallery, and they studied such modes of transportation as were visible in the art of various countries shown in the galleries. Seventh and eighth grades sent representatives to the talks on how to make tapestries, pottery, book bindings, wood-engravings, and etchings. Some of these projects were carried out in the schools. Students who enjoyed Museum contacts evolved plays, games and note books to share with the school at large.[28]

The instructors in this museum have experimented with methods which seem the best adapted to set free the children's own initiative. They have been avoiding the older method of a

[27] Lesson observed on October 8, 1937.
[28] Molly Ohl Godwin, *The Museum Educates,* 1936.

teacher speaking to a silent group or asking questions to guide the class. In their picture study the instructor allows the children to propose their questions and to choose the paintings they would like to know about. In this way the children give more truly critical comments which show the results of their approach having been placed on the artistic qualities rather than on the story which the painting might tell.

The difference in the work given to children of varying age levels when they visit this museum is described by the supervisor of education in "School Arts" as follows:

Pre-school, kindergarten, first, second and third grade children come to the museum for picture study in the galleries. They are taught to recognize in a simple way the expressions of the laws of art not only in the paintings but in everyday life. Such application of the laws in looking at paintings becomes a game to them. Even at this early stage, schools frequently work out demonstrations of what has been gained in museum visits.

Fourth grade children not only come for picture study, but for talks that correlate their geography study with the museum's collections, including Egypt, Mesopotamia, the countries bordering on the Mediterranean Sea, Holland, and Switzerland.

Fifth grade children study United States geography and history and they come to the museum for talks on the Arts of the American Indian and of Colonial America, which include pottery, glass, printing and paintings; and for lantern slide talks on American architecture, furniture, textiles, et cetera; also for picture study of later American paintings. By this time, school projects are frequently worked out with the help of a museum staff member.

Sixth grade children study Old World history and European geography and they attend the museum for correlating talks on the Egyptians, Greeks, Romans, the Middle Ages, including the Renaissance, followed by talks on the Arts of England, France, Holland and Colonial America.

At the request of the supervisor of the Public School Art Department, talks on line, mass and color, as applied to museum paintings and other objects have been given to sixth grade children. Following an illustrated lecture in the museum's auditorium, the children have gone into the galleries to find the original material which they have sketched, later developing their drawings at school and finally checking their work before the chosen object in the museum.

*** After three lectures in the George W. Stevens Gallery of Books and Manuscripts, a junior high school class developed a comprehensive exhibit setting forth the "Story of the Book."

*** Language departments of the senior high schools have requested talks on Greek and Roman art and architecture, Pompeii, arts of Spain, France, et cetera, while English departments have come for talks on English cathedrals and on the art of the book as illustrated in the Book and Manuscript Gallery. Other high school classes have requested talks on India, China and Japan to correlate with their Oriental history course.

Classes in architecture have found it interesting to study the development of architecture set forth in the museum building itself, and in details that have been installed to trace its growth from Grecian times through the Renaissance. Many requests came for the illustrated talk on "Toledo Architecture and Its Antecedents," which the museum offered to high school groups.

Several high school instructors conduct their semester examinations in the galleries of the museum by requiring the students to draw from paintings or sculptures in the collections.

A course of talks for art and industrial art departments on design and color has been given to high school students from time to time. Objects used in illustration are to be found in the museum's collections as well as in everyday life. The museum objects are discussed in relation to place and period before being examined for their art value.[29]

## *Advance Preparation for Museum Talks*

In addition to giving much attention to the methods of teaching in the museum halls, a considerable number of museums in the country have realized the advisability of some preparation in the classroom in anticipation of the intended visit. Various methods have been tried. One has been to have the museum instructor visit the classroom a day or two in advance and there give an introductory lesson which stimulated the children for their visit. Few museums have a staff large enough to permit their following such a plan. Another method has been for the classroom teacher to visit the museum in advance of the class and there select the special exhibits which would relate the most closely with the work of the pupils. Still another method has been for the classroom teacher to talk over with the pupils the plans for such a visit and write down the questions they hope to answer through looking at the museum objects. A list of such questions is sent to the museum instructor in advance of the

[29] Elizabeth Jane Merrill, The Toledo Museum of Art, *School Arts*, Volume 36, Number 2, October 1936, p. 93-6.

arrival of the class. The following form has been successfully used by the Cleveland Museum of Art:

THE CLEVELAND MUSEUM OF ART
Cleveland, Ohio

Date of visit ..... Hour .....

Communications may be made with the
Department of Education, Garfield 4015
Miss Rogers, Secretary
School days, 9.00— 5.00
Saturday, 9.00—12.00

1. If the members of your class have been tested for their I.Q. or P.L.R., or if you can make a general estimate of their mental ability, will you kindly designate (by a check) into which of the following mental groups the class falls:

| | |
|---|---|
| high | mixed high and medium |
| medium | mixed medium and low |
| low | mixed high, medium and low |

2. Subject of the lesson .....
How far will your class be advanced in this subject at the time of your visit?
3. If you are working upon a particular phase of the subject, or upon a project in connection with it, will you kindly state its nature and where you wish the Museum lesson to put its emphasis?
4. Can you get the children to raise some questions to which they themselves may find answers in the Museum collections? We ask this because we find that when the children come to the Museum wanting to make discoveries related to the subject they are studying they attack the subject actively. We can help them in their attack if we know beforehand what they are seeking. Will you list a few of these questions on the back of this sheet or have some child bring a copy of them when you come?
5. Lantern slides or photographs from the Museum Library may be taken with you after the lesson and kept for three days. If you wish us to select them please check your choice:
..... slides
..... photographs

Name of teacher .....
School ..... Grade .....
Number of children coming.....
City .....

In addition to the advance preparation of the children there is also the scheduling of the classes which has become a considerable task in the larger museums where ten to twenty classes are handled each day. In some museums these schedules are made out at the beginning of the term with the teachers stating approximately when they would like to bring their classes and what topics offered by the museum will best supplement their work. Museum instructors are ready to discuss individual problems with teachers and principals so in addition to topics scheduled in advance, special classes are given whenever the need arises in the children's work. Thus the museum endeavors to supplement the work of both the formal academic schools and the more progressive types.

The transportation of classes of children to the museums has become a serious problem in some cities. Bus service is supplied free to the classes in some cities as Buffalo, Philadelphia, and Reading. Car-fare is supplied to pupils in certain grades of the Pittsburgh schools. The cost of this service is met by an appropriation of the board of education. In other places the transit companies sometimes offer reduced fares to the classes visiting the museum. Such an arrangement has been made in Seattle, Chicago, and elsewhere. For the past two years in New York City free passes have been given to classes using the city-owned Eighth Avenue subway permitting a limited number of children accompanied by a teacher and a W.P.A. guide to use the subway cars at non-rush hours for excursion trips which may be to a city park or to a museum. All other classes visiting the city museums in New York must pay full transportation charges which, in case of a specially hired bus, may amount to as much as thirty cents a pupil. It would be most advantageous if the contracts given a bus company to transport crippled children to school could include the transportation of other classes to museums during the remainder of the time.

The liability of a teacher on excursions is usually covered if ordinary precautions are used. Uniformly throughout the country, the boards of education require written permission as indicated in the following bulletin the author observed in the Snow Museum in Oakland, California:

TEACHER'S LIABILITY ON EXCURSIONS

Teachers who conduct class excursions are covered by insurance which the board of education carries. They need have no fear of personal liability in case of accident to children if they exercise ordinary care and precaution during the excursion and if they follow these regulations:

1. Secure approval of the board of education in advance.
2. Secure written consent of each child's parent or guardian in advance.
3. Conduct excursions on school days only.

Thus it may be seen that visiting classes has been one of the most important phases in the educational program of museums throughout their existence in the twentieth century. Various plans have been tried. One has been for the museum simply to open its doors to classes and teachers who looked after the instruction in the museum halls themselves. Another plan followed in the majority of museums has been that of endeavoring to employ its own teachers and care for all classes brought there by the public and private schools. The third plan which has been followed most successfully in some cities, has been for the local board of education to assign teachers to the museum, whose duty it has been to instruct all classes arriving from the public schools.

In all this work with the teaching of classes in museums there have been no precedents to follow and it has been necessary for museums to meet community needs by developing certain teaching techniques which were adapted to their particular type of exhibits and their individual situations. The methods employed in teaching museum classes have evolved gradually. In general these methods have followed the trends in the educational world and in several instances, have kept well to the front in their progres-

siveness. There has been some unevenness in this development as each museum has worked as an entity, using its own methods, and solving its own problems, but benefiting to a certain extent from advances made by sister institutions which formed the vanguard of the group.

## Chapter V

# MUSEUM WORK WITH HANDICAPPED CHILDREN

At the beginning of the century when individual differences in children were not recognized in school procedure, and as a consequence there were no public school classes in New York City for blind children, some attempt was made by the American Museum of Natural History to give assistance to this special group. In 1908 members on the staff in the museum's department of education gave talks on birds and small mammals at the Home for the Blind.

## *American Museum of Natural History*

Experimental instruction for blind children at this museum may, however, be said to have been initiated in 1909 with the opening of a room especially arranged for those who "see" with their fingers. This was also the first year that New York City formed classes for the blind in the public schools. Five such classes were formed that year. The branch public library at 83rd Street and Amsterdam Avenue at that time made a specialty of books for the blind, and this suggested the idea of setting aside a room in the museum for the blind. Here were assembled objects of natural history which could be examined or handled without damage. The specimens, among them an elephant and a hippopotamus, were accompanied by special labels in Braille.

The following year the museum was fortunate in receiving a bequest of $25,000 known as the Jonathan Thorne Memorial Fund, which was to be devoted to continuing and developing this work with the blind. The income from this fund enabled the museum to prepare special collections of nature study material,

Indian and Eskimo objects which were lent to classes for the blind in New York City public schools and to one in Newark. This work for the blind from 1910 to the present, has received much careful thought and time of the museum instructors.

The same year that the special room for the blind was opened at the American Museum of Natural History, a request was received by the Carnegie Museum in Pittsburgh [1] for a room to be set apart in the museum provided with proper facilities for giving instruction to the blind. Unfortunately, there was no space in this museum which could be devoted exclusively to such a use so a solution was found by requesting the Institute for the Blind to set aside a room there and lending objects from the museum which might be used by the inmates.

As the number of blind classes increased in New York more materials were selected by the Natural History Museum for loans to the public school classes. After consultation with the supervisor of classes for the blind, the museum prepared small plaster casts (one inch to one foot) of large mammals, elephant, buffalo, giraffe, camel, and hippopotamus, to lend to the classes in addition to the mounted specimens of small mammals and birds.

In 1912 there was a total of 249 blind children attending the museum lectures. An experiment of readings for the blind brought the classes from Brooklyn and Queens as well as from Manhattan. A staff member told stories of animals and the children handled mounted specimens and asked questions. When selections were read from Hiawatha, the children handled the Indian objects which illustrated the poem.

This same year a modification was made in the methods used which permitted more activity on the part of the children. Discussions were held on certain topics such as "The Story of Tools," "Toys of Savage Children," "Primitive Musical Instruments," and "Minerals and Their Uses." Each of these topics was illustrated with many specimens which the children learned about through their finger tips.

[1] Carnegie Museum, Pittsburgh, *Annual Report*, 1909, Serial No. 56, p. 43.

An interesting feature of the attendance this same year was a class of blind-deaf from the New York Institution for the Deaf. There were five pupils in the class accompanied by one deaf and one normal teacher. The latter interpreted the talk by finger language to one pupil and lip movement to the other teacher who passed on the words by means of her fingers to two of the pupils. Two of the boys could hear the lecture when they sat directly in front of the speaker. One of the pupils made clay models of the objects she "saw" with her fingers at the lectures.

An aid which proved to be of unusual value to the blind classes was the large relief globes on standards which were lent directly to the classrooms of the blind children in the public schools. These globes were more than two feet in diameter and showed the physical features of all the continents so that for the first time, some of the blind children were enabled to get an adequate idea of the earth as a whole. They could feel the comparative heights of the mountains and the flatness of the plains and run their fingers along the courses of the rivers. When they had discovered the character of a country and had learned something about the people who lived there, they were allowed to handle specimens illustrating clothing and implements and native animals. After a few lessons, these blind children could point to any place mentioned and could also trace a route for a journey. It was soon found that the normal classes in the schools used these globes profitably whenever they were allowed to go from their own classrooms to the room of the special class.

In planning the schedules for the 1914-1915 blind classes and also for the sight conservation classes which had now been formed in the public schools, special attention was given to the correlation of the instruction at the museum with the individual needs of each class. In the public school sight conservation classes the children received instruction and recited in their regular classes but assembled for a part of each day from their respective grades in the sight conservation room where they were provided with large type books, tablets with lines spaced far apart and other aids. The

teachers of all these sight conservation classes were visited by a museum instructor and helpful talks arranged, which not only supplemented and illustrated the school lessons, but gave to the children a glimpse of the outside world which they otherwise would never have had.

Two principles underlay this work: (1) to have the talks thus selected bring interest, pleasure, and profit to the every-day life of the child, and (2) to illustrate each talk in detail by objects that may be felt, or, as in the case of bird songs, by music that may be heard, so these children could readily visualize the subject matter under discussion.

The visits to the museum were recognized as part of the school work and were made during school hours, at the time selected by the teacher as most convenient. The carfare of the children was paid for from the Thorne fund of the museum. Each child in these classes received special attention and as the group was usually from ten to twelve in number, everyone had the opportunity to examine the objects carefully. With eager fingers they gathered about the animals of the sea, mammals, birds, Eskimo and Indian collections, also the flowers brought in from the woods and fields. Pupils from twelve classes for the blind from Manhattan and Brooklyn were regular visitors and at least eight talks a month were scheduled during the school year. Some of the most popular topics were a "Trip to China," illustrated with articles used in the daily life of the Chinese; "Methods of Transportation," in which models of boats, steam engines, pack horses, a small hydroplane, and a model of the Panama Canal were used; "How Cloth is Woven," with a loom and examples of types of weaving; "The Way in which Primitive People Live," dealing with the food, its preparation, fire drills, and homes of some of the American Indian tribes; "Our Native Birds," using some common birds of the vicinity and their nests; "How Our Furry Friends Spend the Winter," with some of the animals which hibernate; and the lesson which proved to be the most popular of

all—"The Solar System." With apparatus to show the earth and the sun, direct rays of the sun (represented by wires) and rotation of the earth on its axis, it was easy for a blind boy's hand to "read" the cause for night and day and for the change of seasons.

In New York the greater number of blind children and children partly blind come from homes of the poor. Often their intelligence quotient is rather low and in addition they have the definite handicap of poor sight. They need help in their study and play to give them a broad vision outside themselves and a courage of spirit to fight their way into helpfulness to others and even full self-support when they are grown. Their handicap requires a different channel through which sensations may enter the brain but does not hinder the association of ideas. The fingers of these blind or near-blind children seem to be acutely sensitive to line and surface. They soon learn to recognize innumerable fine distinctions and slight modifications which carry to their minds a quick identification of objects. In all of these museum classes there is good evidence for the assertion that in the education of children with normal vision too little importance is attached to the value of the sense of touch. It is true that the touch of the hand is very real and near, leaving nothing uncertain except the color. Fortunately, a museum of natural history can give opportunities to these children which are not easily found elsewhere.

In each of the classes conducted a special effort has been made to use actual objects which the children could handle. In a lesson about fur bearing animals and the commercial uses of fur, several of the common mammals were secured for use in the classroom and in addition, a series of mounted skins of the muskrat to show the stages through which a skin passes when being converted into "Hudson seal." Another activity which the children enjoyed was a lesson in making simple pottery where they could examine many interesting forms.

When the museum visit was over and the children returned to their classrooms, they sometimes wrote an account of the lesson they had had. A little girl, totally blind, composed the following story of the explanation given her in a talk on "Changes of Seasons." It is given here exactly as it was written in Braille:

THE SOLAR SYSTEM

Yesterday I went to the Museum and Dr. Fisher talked to us about the Solar System.

Solar comes from a Latin word which means sun so Solar System means the sun and the bodies that move around it. The earth is one of the worlds that move around it. The earth takes one year to make the journey.

When the earth's axis is leaning toward the sun, it is summer in New York, because the direct rays of the sun strike the Tropic of Cancer. Then it is winter in South America. In winter the axis leans away from the sun and the direct rays of the sun strike the Tropic of Capricorn. Then it is summer in South America. When it is spring or autumn the axis leans neither toward nor from the sun and the sun's rays strike the equator.

One reason for the change of seasons is the revolution of the earth around the sun; the other is the inclination of the earth's axis.

An acquaintance with birds has thrilled many of the children whose fingers eagerly stroked the plumage of the birds while some member of the staff talked about the interesting habits of these birds. Often blind children have had difficulty in realizing that all animals were not the same as their pet dog or cat. After a museum lesson where the sense of touch has shown a child the differences, an expression of delight has spread over his face. One boy said he had always supposed that a bird had four legs, the same as his pet dog. Another was so surprised to find that a bird was covered with feathers instead of fur or hair.

## *Other Museums*

Following the initiative of the American Museum of Natural History, the Metropolitan Museum of Art, in 1913, gave two talks to classes of blind children. The talks were given by the

instructor who had formerly been at the American Museum of Natural History and were on the furniture of the castles, thus relating the talks to the history which the children were studying. Articles of furniture which the children could examine were used during the talk. Three years later talks were given for the deaf who read the lips and six talks for the blind children. Later, talks were arranged for crippled children at both museums.

The Boston Children's Museum started to give classes to groups of blind children and also deafened children in 1916. The Brooklyn Museum began similar work in 1920, the Carnegie Museum in 1922, the City Art Museum of St. Louis about 1926, and the Kalamazoo Institute of Arts in 1932. The Toledo Museum of Art started the art training of blind children in 1918 by taking to the blind schools small statues which the children enjoyed handling.[2] On other occasions the blind children were brought to the museum and there "saw" sword guards, knife handles, and sculpture. To prove that they had "seen" the sculpture correctly, some of the children posed to represent different groups of statuary and others took the pose of individual statues. This work has now been abandoned as the director has decided to stress the work with normal and gifted children.[3] The M. H. deYoung Memorial Museum in San Francisco began the work in 1934 through the interest of some of their staff in the way in which sculpture, textiles, and even painting of certain types can be appreciated through the sense of touch. Special exhibitions of ceramics, craft work, such as furniture, sculpture, and other materials were arranged for the blind with labels and descriptive matter printed in Braille. This museum has also given special lectures for small groups of lip reading students who were interested in learning more about the current exhibitions. An occasional talk for blind children has been given in a few other museums in the country but in no museum has the work with handicapped

[2] Blake-More Godwin, Teaching the Child Art at Toledo, *Museum Work*, Vol. I, 1918-19. p. 220.

[3] Blake-More Godwin, Personal Interview. October 8, 1937.

children been carried on to the extent found in the American Museum of Natural History. Here an average of 250 talks are given annually to more than 3,500 children who are blind or in sight saving classes.

### *Later Developments*

Since the latter classes contain pupils from nearly all grades it was impossible for a museum instructor to give a lesson so that each child could receive the instruction at his particular level. In 1931 a new plan was put into operation which arranged for four or five sight conservation classes to arrive at about the same time. The children were then separated according to grade and those of approximately the same mental level met with an instructor in a classroom. In a 4B classroom, for instance, the table around which the children gather contains a collection of materials used by the native tribes of the Congo in their every-day life, which the children have been studying in their schools for the past week. A piece of bark cloth, a short grass skirt, brass armlets, a head ring used in carrying burdens, a field basket, smooth green plantains and rough brown manioc roots, seed rattles and a sansa and marimba for musical instruments, an iron spear and a throwing knife for hunting, a wooden drum used in the native method of broadcasting, a wooden bell for the little hunting dog, all these and other interesting things are available for the children to examine and handle so they may learn through their fingers what pages of textbook descriptions have failed to convey.

This museum also initiated craft work for children in the sight conservation classes. This was very simple and consisted of teaching the children how they could construct small three dimensional groups representing the homes of people in other countries. The groups were made of simple materials with foreground, accessories, and often a painted curved background. Another type of activity initiated in 1934 was that of finger painting which seemed to help even the dullest child to express himself in a rather satisfactory manner.

Regular visits of classes of crippled children were arranged for each month at the American Museum of Natural History in the autumn of 1937. Previous to this the classes had come only once or twice a year. The children who were badly crippled were provided with wheel chairs so they would not become too fatigued while enjoying their view of the fossilized skeleton of a huge dinosaur which lived millions of years ago or the dainty, lichen-covered nest of a humming bird; the herd of African elephants or the nest of cottontail rabbits; the largest of mammals, a whale, to the smallest, a shrewmouse; the Alpine rose or the cross-section of a Sequoia tree which was growing about fourteen centuries ago.

Thus museums, because of the concreteness of their exhibitions, are especially well adapted to conduct work with children handicapped with poor vision, poor hearing, or with crippled bodies. These classes, fortunately rather few in number, have been largely concerned with topics of interest to the children and illustrated in detail by objects that could be handled and thus more easily brought within the comprehension of the children.

## Chapter VI

# DEVELOPMENT OF MUSEUM EDUCATIONAL ACTIVITIES FOR INDIVIDUAL CHILDREN

Special museum activities for individual children developed rather slowly in the early days of these institutions but during the past quarter of a century they have been given much greater emphasis. In some museums they have now become one of the most important and extensive phases of the educational work. These activities fall under such divisions as children's clubs, children's rooms, story hours, and lectures, after-school and Saturday classes, and other miscellaneous activities.

The work has developed on an entirely voluntary basis for there is no compulsion when a child visits a museum after school hours or on Saturdays as there may be when he comes to the museum with his class from school. The children come because they enjoy it and because they like the active participation which is permitted them in the work which has developed such a feeling of friendliness, joy, and interest. In some rather small museums today one may find from five hundred to fifteen hundred children crowding the galleries each Saturday from October through May. The museum seems to have become the ideal spot for developing a child's science or hobby interests or certain art projects. These activities for individual children may easily be considered the most gratifying phase of a museum's educational work.

The museums established during the latter half of the nineteenth century, especially the art museums, were rather depressing institutions to children who stood in awe of the stiff formality and feared the uniformed guards who were ready to reprove a voice which was raised too enthusiastically or a finger which sometimes became too exploring. The vast marble galleries were

like awesome tombs to the child who whispered to the accompanying adult about the marvels displayed. The contact of the child with some original works of art and interesting forms of nature may have been close but it was never or seldom a friendly contact. Whatever curiosity may have been awakened was soon dispelled by the chill atmosphere of the galleries. Most of the art museums allowed children to enter only when accompanied by an adult. A small number still hold to this ruling.

In general, the museums of natural history were not so formal and welcomed young visitors. Often a curator would stop to query a youngster seen looking at an exhibit. Albert S. Bickmore wrote in his autobiography concerning his work in the American Museum of Natural History during the early 1870's:

> We were always ready and happy to answer the many questions that came to us, especially those from our younger visitors, for we hoped in this way we would be helping the youth of our city to become intelligent and thoughtful observers and our life-long friends. While we were thus pleasantly occupied, a specially courteous and prepossessing lad approached me one day, and manifested the most genuine enthusiasm in the work we were privileged to do. He startled me with his comments on the privileges and delights of a naturalist's life. I was completely captivated with his polite manners and his unusual mental power, and I thought of the remarkable promise of usefulness such a cultivated youth would possess if he should devote his great ability to the pursuit of our favorite science. . . . He had the enthusiastic fire of a true naturalist in his eye, and his delicate touch showed that he was gifted with the sensitive organization of a student who is peculiarly adapted to a successful investigation of the beautiful mysteries of nature.[1]

Gradually more and more children began to visit these museums of natural history by themselves. On Sundays entire families would come together, the children often pointing out and explaining to the parent what they had learned in a previous visit to the museum with their school class. Daily, after school hours, larger numbers of children came in, each one tightly clutching treasures he had collected. One boy might wish to identify some minerals. Another might have found some caterpillars new to

[1] Albert S. Bickmore, Autobiography (unpublished) p. 39.

him. Still another might bring in a sick or wounded bird. Groups of children began more or less regularly to seek the aid of some friendly staff member. The outcome of these young people meeting casually and finding a common interest existing among them, was the organization of a museum club with the meetings held in the museum where such excellent opportunities existed for studying many forms of life. When club members found new specimens it was advantageous to compare them with others in the larger collections of the museum. Occasionally it was possible for a boy to have the honor of presenting to the museum a specimen hitherto not found in the collection.

## *Museum Clubs*

At the natural history museum in Pittsburgh the Andrew Carnegie Naturalists was the name chosen for the club formed by a group of young boys. The 1898 annual report [2] of this museum mentions the interest exhibited by the club members, boys nine to eighteen years of age, who attended Saturday afternoon meetings very regularly under the leadership of F. S. Webster, a staff member. Two years later there were over one hundred club members and in 1901, when girls were admitted to the membership, more than six hundred often attended the club meetings to listen to lectures and take part in certain activities. During the third year of its existence, the club was subdivided into smaller groups, some members choosing mineralogy, some botany, and some zoology in one branch or another, each group "pervaded by a spirit of enthusiasm and happy earnestness." [3]

The first museum in the country which was formed especially for children, the Brooklyn Children's Museum established in 1899, encouraged the formation of children's clubs from the start. The Davenport Academy of Natural Sciences provided assistance

[2] Carnegie Museum, Pittsburgh, *Annual Report,* 1898, Serial No. 3, p. 20-1.
[3] Carnegie Museum, Pittsburgh, *Annual Report,* 1900, Serial No. 7, p. 23.

for a high school club, a section of the Agassiz Association; the Fairbanks Museum in St. Johnsbury, Vermont, encouraged the work of a branch of the Junior Audubon Society formed in the museum; the Charleston Museum had a bird club among a group of boys; the Children's Museum of Boston formed clubs among children soon after the museum was opened in 1914. Other museums which had clubs for children before 1920 were the Worcester Art Museum, Chicago Art Institute, Newark Museum, New Jersey State Museum, the Park Museum in Providence,[4] the Toledo Art Museum and others. This latter museum started bird and tree clubs in the first decade of the century but later gave them over to other agencies where it was felt they more properly belonged. In 1924 this museum began many Art Museum Clubs in the public schools of Toledo as the result of children's interest in the museum.

The past ten years have shown a definite trend to encourage the formation of children's clubs in the museums which give considerable attention to work with individual children. These clubs fall into three main divisions: the art clubs which provide for the creative urge in children, the naturalists' clubs and the collectors' clubs which satisfy the ever-present instinct of children to acquire possessions. Among the art clubs are those of sketching, drawing, and painting, also simple craft work in clay, wood, metal, and puppetry making. The puppetry and marionette clubs are the most popular at present. The naturalists' clubs include those in astronomy, mineralogy, nature photography, birds, mammals, flowers, dinosaurs, and insects. Stamps, minerals, and insects are the most common collections. The museum club sponsors discourage collecting anything which should be conserved and stress work in photographing forms of wild life and studying the specimens found in the museum exhibits.

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[4] Eva Waterman Magoon, Children's Clubs in Connection with Museums, *Museum Work*, Vol. I, 1918-19. p. 49-55.

## Club Programs

The Buffalo Museum of Science and the Children's Museum of Boston are two institutions which have developed rather extensive club programs with children from the lower age levels through the high school groups. The following program offered for the 1935-1936 season at the Boston Children's Museum was planned to include as many children's interests as possible as well as to satisfy children with the collector's instinct:

### THE CHILDREN'S MUSEUM OF BOSTON
Club Program 1935-1936

*Marionette Clubs* Mondays 3:00 to 5:00 First meeting Oct. 7

Senior Group—For last year's club members. The members of this group will train their marionettes, learn their speaking parts, make scenery and properties, and present their plays. New plays will be started and each member will have the opportunity of making more marionettes.

Junior Group—Each new member of this club will choose a character from a play and will make, string, and train his marionette for the performance. This group will commence its year's work by making Ragamuffin Marionettes.

*Sea Folk Club* Wednesdays at 4:00 First meeting Oct. 9

Wouldn't your visit to the beach be made much more interesting if you knew about the little animals that inhabit the seashore? Why not become a member of the club and enjoy working with the Museum's large collection of sea life material? You can start a collection of your own while you are learning the exciting life stories of such ocean creatures as the starfish, sea urchin, sea anemone, jellyfish, sponge, and octopus. Members will go on trips to the beach to collect seaweeds for mounting and to observe clams, snails, and other shellfish. A new and fascinating club for all sea-life minded boys and girls.

*Bluebird Club* Thursdays at 4:00 First meeting Oct. 10

A broadcast to our young Museum visitors! Are you not interested in the birds about your home and those you see and hear on the way to and from the Museum? Then join this club

to learn about them, take bird walks to find others, play games about them, color their pictures, and make models of them. Each member will earn a badge in the club colors of blue and brown. Happy meetings ahead for the Busy Bluebirds!

*Senior Stamp Club* Fridays at 3:00 First meeting Oct. 18

A club for more advanced students of philately. A study of "little known" countries with special reference to their positions in the stamp world is planned which will prove unusually interesting. Stamp exchange meetings and auctions will be conducted. An important part of the club's yearly program will be the holding of the Fifth Annual Stamp Poster Contest open to boys and girls of high school age and under in Greater Boston.

*Junior Stamp Club* Fridays at 4:00 First meeting Oct. 18

A hobby club for boys and girls in grammar school, and for beginners in stamp study. You do not have to be a collector to belong to this club. If you would like to know how the many varieties of stamps are made, and if you want to learn the fascinating stories of our country and foreign lands as shown by postage stamp issues, you are welcome to become a member of the Junior Stamp Club.

*Copper Craft Club* Saturdays 10:00 to 12:00 First meeting Oct. 19

Because of the popularity of this club, Mr. Samuel Draisen will again offer instruction in metal craft work to older boys and girls. If you want to learn to make attractive copper trays, book ends, silver bracelets, wrought iron lamps, and other interesting articles register early for this club as membership is limited.

*Nature Sketch Club* Saturdays 10:00 to 12:00 First meeting Oct. 26

Do you enjoy drawing and painting? If you do, you might like to join a group of boys and girls who will be given weekly instruction by trained teachers in pencil sketching, and painting. As this is a nature sketch club, the Museum's natural history material will be used and your models will be such animals as birds, fishes, snakes, and bears.[5]

Since the attendance is entirely voluntary such a museum club program must be so attractive that the children will want to take an active part in the work. This also insures more regularity in their attendance. Some of these clubs make definite contribu-

[5] The Museum Clubs of the Children's Museum of Boston, 1935-36.

tions to the museum's exhibits so the children feel more than ever that it is really their museum. An exhibit of copper craft articles made by club members was displayed for six months; the posters from a contest held by the Stamp Club filled a section of the museum and a Pueblo Indian village made by an Indian Club became a part of the permanent North American Indian exhibit.

As the director of this museum stated [6] in a paper presented at the annual meeting of the American Association of Museums in 1936, the club children engage in other activities such as week-end programs given by the dramatic, marionette, and orchestra clubs. Often the craft club members will stage demonstrations explaining their work. An Indian Lore Club held a pow wow on the museum terrace, cooking and serving real Indian food. Sometimes one club will be invited to tell of the club work at a meeting of another club. In June comes Recognition Day, which is the big event of the club year when diplomas, pins, medals, and awards, not "prizes," are given to the children who have done good work and have had perfect attendance at club meetings. Definite requirements must be met before a child may receive a diploma, a pin, and finally a medal, but the fact that the children do not mention rewards during the year shows that the contest spirit is not uppermost in their minds.

In all this work with children's clubs, the most important factor in the success or failure of the club has always been the personality of the club leader. The necessary qualifications for such a leader were well given by Mildred Manter:

> She must be a composite personality, alive, dynamic, a born leader. She must be natural above all else; for children are quick and keen to detect a false enthusiasm. She must really enjoy the work that is going on, must in reality go questing with the children she wants to guide. The club leader must be one of them and that gift cannot be acquired by any amount of will power or training—it is something that one has or has not.[7]

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[6] Mildred E. Manter, Children's Clubs and Museum Games, *The Museum News*, Vol. XV, No. 2, May 15, 1937, p. 6-7.

[7] Ibid. p. 6.

Where the museum has been fortunate enough to have a club leader with these qualifications there has been considerable success with children's clubs. Often, a very creditable publication is produced monthly by the club members. "Hobbies, Junior" is a mimeographed magazine published monthly by the members of the Junior Hobby Club in the Buffalo Museum of Science with Ruth V. Weierheiser acting as Faculty Advisor and the remainder of the work carried on by the children. In the April 1937 issue of "Hobbies, Junior" the contents included editorial notes, original poems, a story of an Indian legend, notes on the activities of the Roosevelt Field Club, a page of "Do You Know That?", an account of the life of Louis Pasteur, and puzzlegrams. The pages were well illustrated with original drawings of natural history objects.[8] Every part of the magazine was the work of children.

Another creditable junior club publication which has a wide circulation throughout the country is the "Junior Astronomy News," produced monthly by the Junior Astronomy Club of the American Museum of Natural History with Dorothy Bennett, assistant curator of astronomy and the Hayden Planetarium, as club advisor. Members of this club have written, mimeographed, assembled and sold 2,000 copies of a summer field book of the stars. Next they tried an eclipse book, a winter field book, a revolving star map, and finally, a "Handbook of the Heavens," which was brought out by Whittlesey House and is now in its fifth printing. With the income from these adventures, this club paid all the expenses of the artist who accompanied the Hayden Planetarium's Eclipse Expedition to Peru in 1937 and also sent one of their former members to Peru. Later, they presented to the Planetarium a fine series of oil paintings of the total solar eclipse. Thus the museum has often been the one to gain through stimulating special interests of boys and girls.

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[8] *Hobbies, Junior.* Buffalo Museum of Science, Vol. VIII, No. 3, April, 1937. p. 11.

Dramatic productions by junior club members have also been popular as a culminating activity of a season's program. For several years the children of the Junior Naturalists' Club of the Carnegie Museum have produced a nature play. One of these was a bird project, "Mother Nature's Helpers," motivated by the early arrival of a robin in Pittsburgh. With the general object to tell just as many interesting and pertinent things about bird life as possible, these children studied the bird specimens in the museum and out of doors. In six of the public schools the children composed original songs about birds, the result of the information gained through their museum study.[9] The play, written entirely by the children of the Junior Naturalists' Clubs of the Carnegie Museum, symbolized the four seasons and the various birds outstanding in each season in the vicinity of Pittsburgh. The children chose facts which seemed to them the most important in showing the chief characteristics of the bird. Each child portrayed these facts in his own way, the group selecting the characters for their final production. Although colorful costumes and mimicry carried out the idea of the bird world, scientific facts were not slighted. The contribution of songs by the public school children gave hundreds of children the feeling that they had a part in the play so it took on a city-wide interest. Some of the city schools presented plays in their own auditoriums continuing the idea of the Carnegie Museum production. The program was so successful that for the past five years the production of a new play has been one of the chief projects of these junior club members.

At the Rochester Museum of Arts and Sciences similar work has been developed recently among the children under the direction of Marion R. Peake[10] and designated as "Treasure Chest" productions. One of these which was given in January 1937, portrayed home life among the first settlers of Rochester. An-

[9] Jane Ava White, Mother Nature's Helpers, *Carnegie Magazine,* Vol. VI, No. 2, p. 35-7.

[10] Personal Interview with Marion R. Peake, May 21, 1937.

other represented Japanese home life including the Girls' Festival and the Boys' Festival. The photographs of the colorful scenes made on kodochrome film slides enabled the children to preserve a record of their production which they now show to other club members in planning for their next play.

### Junior Docents

Another outgrowth from the museum work with clubs has been the junior docents who are allowed in some museums to guide visitors through the galleries. This plan has been successfully followed in the William Rockhill Nelson Gallery of Art in Kansas City where junior docents are on hand each Saturday and Sunday to offer their assistance to the visiting public requesting guide service. In the Children's Museum of Boston the children who have done all the available club work are given the privilege of becoming junior docents. These junior docents are very serious about this work and take special pride in showing *their* museum to visitors. The visitors, in turn, have greatly enjoyed the enthusiastic interpretations of museum exhibits by the children.

## *Clubs from Outside Organizations*

Although there are many children's clubs which have been formed in museums the majority of the institutions in the country have followed the plan of working with clubs of outside organizations. Considerable work has been carried on with the Boy and Girl Scout troops, the Campfire Girls, Woodcraft League, the Y.M.C.A., Y.W.C.A., Y.M.H.A., 4-H clubs, Hi-Yis, and others. Some of the science museums have a staff member who assists the Scout groups in their studies for merit badges in conservation, astronomy, reptiles, insects, birds, weather, botany, or forestry, and also gives them the examinations in these subjects.

## *Children's Room or Junior Museum*

The large museums have found it necessary to provide a special room or rooms for carrying on their extensive work with children. Sometimes this has been designated as the Junior Museum Section, sometimes as the Children's Room. The first Children's Room was provided in 1901 at the Smithsonian Institution in Washington through the interest of S. P. Langley, Secretary of the Smithsonian, who in spite of his accomplishments as a physicist in the study of the solar spectrum and his invention of the first heavier-than-air flying machine, maintained that he was more "interested in children and fairy stories." [11] He was anxious to have a room where the children could have exhibits suited to their interests. As described in *St. Nicholas* in September 1901,[12] this was a small, pleasant room with plenty of light, and interesting things chosen just to give the child pleasure. If he received instruction as well, so much to the good. First of all, however, he must be attracted and pleased and made to wonder about what he saw.

The exhibits selected for this Children's Room at the Smithsonian Institution were the kind a child might enjoy: singing birds in cages, aquaria and terraria arranged so that even the smallest child could see them. The top shelves were placed so low that they too were within reach of the younger eyes. The labels were made to attract the child and all Latin names omitted with one exception. "Largest and Smallest Birds of Prey" accompanied a group of birds which included the great condor of the Andes and the bald eagle and the tiny sparrow hawk. "Birds with Curious Nests and Eggs" included the smallest and largest eggs in the world, the homes of the weaver bird, the hangbird, and the tailor bird. "How Creatures Hide" was the label instead of "Protective Mimicry" which might have been used for

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[11] Albert Bigelow Paine, The Children's Room at the Smithsonian, *St. Nicholas*, Vol. XXVIII, No. 11, September 1901. p. 964.

[12] Ibid. p. 964-73.

adults. Here the child could find the leaf insects and other interesting forms. The one Latin name which was the exception was attached to its owner, a very small humming bird, Rhamphomicron microrhynchum, as the best explanation of why other Latin names were not used.

The author last visited this Children's Room in September 1937, and there found twice as many adults as children, all interested in looking at the exhibits. Most of the boys and girls were explaining to the adults accompanying them something they had had the joy of discovering for themselves. However, the room lacked the hum of activitiy it would have had if there had been provided for the children some of the varying types of workable exhibits which modern trends have brought into the Children's Rooms or Junior Museum Sections established rather recently in a few of the large museums.

An outstanding example of such exhibits may be found in the Junior Museum at the Los Angeles Museum of Science, History and Art. Many of the exhibits here are arranged with electrical connections so the questions asked in the labels may be answered by some activity on the part of the child visitor. The correct answer is indicated by the flashing of a tiny electric light bulb or the ringing of a small bell. Each month a new exhibit is placed in the wall cases so there is always something of interest to the children as well as something which trains their minds and hands in useful and pleasurable activities. The record of 23,487 children visiting this room during the vacation period of one month, August 1937, proves the popularity of this activity with the children of Los Angeles.

But such rooms contain more than exhibits and electrical games. The most important section contains work tables where children may follow some definite interests such as identifying and polishing minerals, mounting and arranging different forms of insect life, preparing small habitat groups, making masques, costumes, puppets, working with copper or other metals in craft work, making plaster casts, or painting and sketching some of

the objects exhibited. One may even find children from a Music Appreciation class making their own instruments from small boxes, poles, or cans.

Thus there is no attempt at formality in these Creative Playrooms, as this space has been designated in the Albright Art Gallery in Buffalo. No adult ideas are imposed upon the children and there is always plenty of material to work with. Provision is also made for different age levels in the activities, often starting with the coloring of outlines of museum materials by children who are too young to read or write. Some museums start their activities with children of seven years or older. Others encourage visits of children under school age and plan definite activities for them as has been done at the University Museum [13] in Philadelphia where children from five to seven years do clay modeling or painting under the direction of a skillful instructor.

## *Saturday and After-School Classes*

The first museum to initiate classes in sketching for children coming voluntarily to the museum was the Toledo Museum of Art. In 1903 this museum started special work on Saturdays for boys who wished to sketch from life. Art teaching at this time was generally haphazard but from this time on, when this museum became child-centered, many different methods and theories of art instruction were tried out by the museum instructors on the large groups of children from all parts of the city who presented themselves on Saturdays.

Some of these theories were approved while others were rejected in favor of another method which seemed an improvement. Long ago cast drawing was discarded and more recently drawing from the nude, as largely irrelevant to the art of the present. The trend in this museum and other museums where the work has since developed, has been to work toward a growing experi-

[13] Carolyn M. Heller, Editor, *The Young Child in the Museum,* The Newark Museum, 1936. p. 20.

ence whereby the child might pass from the simplest to more advanced standards of good taste in daily living.

When the Worcester Art Museum inaugurated its work with children twenty-five years ago, copying from reproductions of the masterpieces was introduced with the purpose of encouraging accuracy of perception and clear vision. Six years later, regular classes were formed for a systematic study of the principles of design and attempts were made to work in different media with very little attention paid to the creative impulse of the child. Ten years ago, however, the old methods of instruction were found inadequate and new policies were adopted which recognized more of the recent trends in child psychology and allowed the child to create directly from his own experience. "The child is encouraged to visualize his idea in its entirety before placing it on paper. He then works with deliberation and finality. In doing this he develops without effort the invaluable habit of making decisions promptly and surely. There are no 'sketchy' lines and there is no retouching in this method, but virility, strength and self-reliance." [14] In being introduced to the materials and tools the child realizes that the tool influences the treatment. Each lesson presents a new problem during which the child is almost unaided and uncriticized. "Self-criticism and judgment are developed by a discussion at the beginning of the lesson of the best work done in the previous class, the children volunteering ideas." [15]

The instructors in the Toledo Museum have tried to be sure that their methods fulfilled the best possibilities in their work with the average child. With paint, clay and pencil they have dealt in the understanding of art as much as in the making of it. Most of the children begin at the early age of five or six with some art and music appreciation conducted at their age level, to make them aware that greater art and music exist than they

[14] Elizabeth Alberti, Art and the Child, *Bulletin No. 11,* Worcester Art Museum, Vol. XXIII, July 1932, p. 46.
[15] Ibid. p. 48.

are ever likely to produce themselves.[16] Simple musical instruments, similar to those used by primitive peoples, are made by the children and played by them. Human interest is considered more in the work with the younger children than with the older. Several times a year about fifteen hundred children are guests at free concerts given at the museum by excellent orchestras. Some twenty classes and more are in the museum each Saturday after the middle of October, for a study in color, design, water color, drawing, or modeling, using the basic principles of art which they also study in the masterpieces in the galleries. Each class is given problems in accordance with the ability of its members to create and enjoy, placing considerable emphasis on their imagination. Continual experimentation goes on in an effort to seek the balance between the amount of instruction needed and the freedom which should be given.

Classes as large as sixty each are handled successfully here as experience has shown that the interest and results are as good as in a smaller group where the teacher is apt to impress her own ideas too visibly on the work produced. The children are given a wide choice of expression and work entirely as individuals.

In the Saturday classes of the Cleveland Museum of Art, the Carnegie Art Institute, the Cincinnati Art Museum, the Nelson Art Gallery, the City Art Museum in St. Louis, the Wadsworth Atheneum in Hartford, the Worcester Art Museum, the Albright Art Gallery in Buffalo, and others, there has been a decided trend to attack the problems from the angle of the progressive school. Much the same procedure is followed as at the Toledo Art Museum, the children working as individuals on problems of their own selection or following some slight suggestion. In this way the museum seeks to develop interests for the leisure time of these children, appreciation of great masterpieces, and criterions of taste for the expression of art in their daily life.

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[16] Blake-More Godwin, Toledo Museum of Art, Personal Interview, October 8, 1937.

Such experiences show the children the pleasure to be gained as individuals without any or very little, expenditure of money and also train them in a self-reliant enjoyment of leisure.

With an exhibit of pictures by children which was held in the winter of 1936 at the Newark Museum and included the work of thirty museums, descriptions were sent regarding the methods used, which were usually variations of the progressive method. One method was to relate the work primarily to the museum, another to the surroundings of the child, his country, state, city, and home. Another emphasized learning through creating, and employed museum objects to supply information.[17]

In many of the art museums the children given this work in Saturday classes have been recommended by the art supervisors of the grade schools or by the principals. In some cases they are children of the museum members. The museums usually try to secure continuity of attendance in these groups and many of the children come regularly each year for four or five years. They talk things over each class period, which helps them to grow in judgment of proportion, in continuity of interest, and in sensibility of color.[18]

The Cleveland Museum of Art, in 1935, initiated a combined course in visual arts and in music for their members' children. The instructors of these classes acted as "team-mates" and interrelated the class in visual art with the work in music, to provide a broad and balanced program in art appreciation and expression. A child arriving at nine-thirty Saturday morning could thus meet for a class in Visual Arts if his age were six through nine years. At ten-forty he went into a class in Music where he remained until noon. For the children ten through sixteen years of age, this order was reversed. Each child could have either visual arts or music alone but all were strongly urged to take the combined course.[19]

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[17] Newark Museum, Newark, N.J. *Pictures by Children—How They Are Created in Museums,* January-March, 1936, p. 3.

[18] Molly Ohl Godwin, *The Museum Educates,* Toledo Museum of Art, 1936.

[19] Louise M. Dunn, Cleveland Museum of Art. Personal Interview, October 9, 1937.

As one observes these Saturday groups in the various museums, it is very evident that self-discipline, social harmony, and mutual helpfulness are developing among the children. Each child, even the smallest, appears to be very responsible and most earnest in his interest. He is learning how to handle simple materials and is experiencing the joy derived in the process of creating. No doubt many of these children in the Saturday classes are also being kept from out-of-school activities which are less socially desirable.

As the child grows toward adolescence, the teaching in most art museums places greater emphasis upon the development of a sense of form and an attempt, as expressed by George William Eggers, former director of the Worcester Art Museum, "to develop those innate tendencies toward good design which will ultimately lead to an appreciation of examples of fine art and utilitarian good judgment." Such methods offer a great contrast to the copy and imitation method with which art instruction was introduced into the public school curriculum about fifty years ago.

In tracing the trends which have been followed in the Saturday classes in art museums it is significant that each experiment has grown from some preceding endeavor and that it has also paved the way for further modifications as the need may be felt.

Science museums have lagged behind the art museums in general in the development of Saturday and after-school classes. Yet some of these museums have carried on a considerable amount of such work. The Buffalo Museum of Science has found that the two most popular subjects have been astronomy and American Indian study.[20] Other topics covered by these volunteer classes are about the same as those for which special clubs have been formed in some museums.

The Santa Barbara Museum of Natural History offers classes in Nature Study to children of its members, the groups meeting

[20] Ruth V. Weierheiser, The Child and His Museum, *Hobbies,* Vol. 18, No. 1, October, 1937. p. 6.

after school hours. Many phases of nature work are studied and discussed and programs given for the parents with lantern slides which the children themselves have made. The subjects presented have been Animal Homes, Prehistoric Life, Wild Flowers, The Animal World, Weather, and others. Another favorite method in such study has also been used for several years in classes at the American Museum of Natural History. This is the making of habitat groups of bird, seashore, or mammal life. At the Santa Barbara Museum cartons are used for these groups and correct scenery drawn and colored for the background, with real branches, twigs, rocks and other accessories to make the scene complete. A cardboard frame around the opening gives the effect of a very delightful group.[21]

## *Special Programs*

One of the most common forms of museum work with children has been that of providing entertaining lectures and film programs for members' children and children of the general public. These programs are usually given on Saturdays and Sundays and consist of music, plays, moving pictures, marionette shows and illustrated talks, not paralleling any school work, but offering topics which appeal to the young people attending. More recently some museums have offered demonstration lectures which combine the lecture with a class period.

### Lectures

The earliest of these programs was offered at the American Museum of Natural History for the children of members in the spring of 1904 and consisted of a series of six lectures with the following titles: Ants, Bees, and Wasps; Sea Beach at Ebb

[21] Arthur S. Coggeshall, Director, Santa Barbara Museum of Natural History, *Report on Educational Work.* Annual Meeting of the Educational Section of the American Association of Museums, May 3, 1937, New Orleans, La.

Tide; How to Study the Reptiles; Some Common Rocks and What They Mean; The American Indians and How They Live; and The Home Life of Birds.

Films began to be commonly used for these museum programs about 1914 but at that time it was even more difficult to find many films which were appropriate for children than it is now. A typical film program offered by a natural history museum is the following given at the Field Museum in 1930:

October 4—
Friend Snail; Drifting Dunes; The Silver Swimmer; Undersea Life; Nesting of the Sea Turtle

October 11—
Columbus; Lions on the Rocks

October 18—
The Story of Petroleum; Musquash the Muskrat

October 25—
Hungarian Farmers; Our Daily Bread; The Coon Hunt

November 1—
In Mexico; Enamelware; The Last of the Seminoles; A Four-footed Columbus

November 8—
Trees to Tribunes; Totem Tales; Sacred Baboons

November 15—
How a Volcano Works; Active Volcano in Hawaii; Aloha Land; The Cobra and the Mongoose; Strange Animal Habits

November 22—
Beautiful Corsica; A Persian Wedding; Egypt, Old and New; The Taj Mahal

November 29—
The Puritans; Peter Stuyvesant

December 6—
On the Trail of the Dik Dik; The Stork; Castles of Paper; Winter Pep

In 1928 the American Museum of Natural History initiated a series of lectures on biologic science for students in biology and general science. These are designed to supplement and enrich the high school curriculum in the above subjects and contain such topics as the following: Interrelation and Interdependence of

Living Things; Genetics and Evolution; Man's Place Among the Vertebrates; Insects and Human Welfare; Wild Birds and Their Human Appeal; Conservation of Mammals; Prehistoric Man; and Recent Advances in Biology. The Buffalo Society of Natural Sciences also offers a special series of lectures in the biological and physical sciences.

The following Pageant of History Talks for Boys and Girls were offered at the Detroit Institute of Arts in 1936: Early Art of the Christian Church; The Mosques of the Mohammedans; Dark Ages in Europe; Gothic Cathedrals; Master Painters of Flanders; Great Artists of the Italian Renaissance; The Story of Dutch Painting; Court Painter to a Spanish King—Diego Velasquez; Marie Antoinette Decorates Her New Palace; An English Lord Sits for His Portrait; American Colonists Copy Their Continental Cousins; In Our Own Day; Mystery Cities of the Mayas; American Artists of Colonial Days; Prehistoric Painters; Pyramids of the Pharaohs; 4,000 Years Ago in Egypt; Temple Builders of Mesopotamia; Sea Kings of Crete; Daily Life of the Greeks; Emperors of Rome.

More in the form of pure entertainment are the series given at the Cleveland Museum of Art during the spring of 1937: Shadow Play, Adventures of Little Pear; Design in Nature; Ice and Snow Patterns; North American Indian Ceremonies and Dances; Cinderella, an Original Operetta; and the Junior Music Appreciation Course at the Buffalo Museum: Bohemian and Polish Folk Music; Folk Music of the Germans, Spanish, Scandinavians, Russians, Irish, Orientals and Americans.

### Demonstration Lectures

The demonstration-lecture method is used in several art museums and is very well liked by the children who are generally a selected group. At the Carnegie Institute of Arts the instructor gives a twenty-minute demonstration in the nature of a chalk talk, with emphasis on some particular quality—such as balance,

curves, or proportion,[22] so simply presented that a nine-year old can understand it. This is followed by an application of its principles by the children who may remain for their work in the lecture hall or may go out into the galleries where they find many collections full of suggestions for their sketch. They may go through the rear door of the lecture hall into a pleasant grove which forms an ideal spot for any out-of-door sketching. But wherever they go, they quickly come upon an idea illustrative of the point of the demonstration and after thirty-five minutes of application return to the instructor for his criticism. As all of this is entirely voluntary there is considerable joy and enthusiasm expressed by the children who look forward to the next Saturday.

## Story Hours

The Story Hour is another phase of children's work which has been popular with young visitors from the first. Even in some of the small museums throughout the country, provided with a limited staff, it has often been possible to find some one who could weave interesting stories around favorite pictures or other exhibits in the collections. Such Story Hours have insured large crowds of children at the museum on Saturday mornings or Sunday afternoons, the most popular time for giving the story. At the Worcester Museum of Art this work was started in 1910 and at the Metropolitan Museum of Art in 1912. Other museums followed these leads and the Story Hour became well established in many museums in the late 1920's.

It is not mere story telling that the children hear in these Story Hours when they are well given. The writer and teller of museum stories can find very few stories adapted for her purpose and so must create her own. She tries to establish friendly relations between her listeners and certain collections in the mu-

[22] Margaret M. Lee, The Children's Hour, *School Arts*, Vol. 36, No. 2, October 1936. p. 84.

seum.[23] Her starting point and her goal are the object. Her story is a magnet used to draw the children's attention to the object and its interpretation. Such stories as Anna Curtis Chandler wrote and told to as many as eighty thousand children in one year in the Metropolitan Museum of Art, were imbued with such vivid imagination that the listeners could bridge the centuries and feel at home in any land or any time. With simple, straightforward vocabulary and with the action swift and dramatic, her characters became real individuals as she portrayed incidents accurate in the most minute details and true to the spirit of the time when they were supposed to occur. Thus an isolated museum object was surrounded with atmosphere, background, and environment and took on real meaning for the children as they listened intently to the story and looked at the accompanying lantern slides. After the story the children went into the galleries with the story teller to see the objects described.

Mary Powell, who tells the stories in the City Art Museum of St. Louis, has described her method and aim in telling incomplete stories as follows:

> Through the story an understandable background is built up and attention concentrated upon the subject and its qualities. The story is simply a means to an end and not an end in itself. Often the story is not even completely told but just enough narrated to engage the attention of the children when the emphasis then changes to the work of art upon which observation and thought are centered. . . . . Objects which are themes for the story are displayed whenever possible before the children and they are encouraged to use their own eyes to discover the meaning of form, line, color and design whether in painting, sculpture, prints, stained glass, armor or furniture. The children are not told what to see but they are asked what they see. From this it can readily be seen that the method of approach on the part of the instructor should be flexible, as objects of different character require varying treatment. The approach is frequently of necessity experimental.[24]

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[23] Winifred E. Howe, The Museum Story—Its Preparation and Its Place in Educational Work, *Museum Work*, Vol. II, 1919-20. p. 51-4.

[24] Mary Powell, Educational Work of the City Art Museum of St. Louis, *School Arts*, Vol. 36, No. 2, 1936. p. 126.

While the reason for the Story Hour has sometimes been questioned and in some museums it has been dropped in favor of other forms of activities with children, it can, nevertheless, furnish valuable background material for objects in the museum.[25] It can also be a talk on art but so cleverly concealed by its narrative form and so well illustrated with lantern slides that the children do not suspect they are being instructed.

### *Museum Games*

In some museums the Story Hour is supplemented by museum games. Just as the Story Hour has always been popular with children, so also has the museum game which was originated in its present form in 1914 at the Park Museum in Providence. Anna Billings Gallup, curator of the Brooklyn Children's Museum from 1902 to 1937, reported the use of games in 1910 but the true "museum game" originated in the museum at Providence. The limitations of the docent service gave the impetus for starting these games. With a large class the museum instructor cannot let all the children see the exhibit under discussion at one time. Those who cannot see or hear, soon become restless, move to the edge of the group, look at other exhibits, and prove a disturbing factor to the others. With these conditions much of the instructor's work is lost and little is gained by the children having visited the museum. The plan of the game as first tried in the Park Museum was described at the annual meeting of the American Association of Museums as follows:

> Some member of the museum staff gives a half-hour talk on a stipulated, seasonal subject, and then the game begins. The children are given the freedom of the building. This phraseology may give you visions of uproar, disorder, and loud talking. But may I assure you that the actuality is not so described. And, if there are other visitors in the building, they often approach the official in charge to ask how it is possible to keep such a large number of boys and girls (sometimes as many as

[25] Ella Ione Simons, A New Method of Developing a Knowledge of Values, *Museum Work*, Vol. II, 1919-20. p. 54.

one hundred) interestedly busy and quiet at the same time. Perhaps therein lies the secret—they are busy.

To guide their freedom, the children are given cards containing in each case a sentence about something in the exhibits. Each sentence is a puzzle sentence, since in each there is some word omitted, the blank to be filled in by the child receiving the card. These sentences have been carefully chosen to contain some fact of interest and instruction that a boy or girl ought to know, and are worded in such a way that the idea is neither too obvious nor too complicated to be grasped. The following are typical sentences:

> The ..... bird builds a black, hanging nest of fibers.
> Indian money is called ..... .
> Mercury comes from a ..... colored mineral.

In this way each child becomes an individual investigator of a particular topic. His surplus energy is wisely directed, and instead of rushing boisterously around the building, glancing hastily at everything and remembering nothing, he goes steadily about seeking one thing at a time. When one question is reported correctly to the official in charge, other cards are furnished until the end of an allotted time, usually fifteen minutes, when the children are again summoned to the lecture hall. Each child then becomes a reporter of the facts he has gleaned, and incidentally picks up other facts by hearing his comrades report on their results.

This museum game has been found to have several excellent results both from the child's and from the museum's point of view. The spirit of rivalry and enjoyment in the game for its own sake makes a peculiar appeal to the child and arouses great enthusiasm. The museum becomes to him a storehouse of knowledge rather than a place for mere amusement. And besides having his interest in natural science stimulated, the child has received a lesson in independent research, concentration, observation and memory. Instead of a jumble of ideas, each child has received one or more definite impressions of the museum exhibits. That the effect is lasting is shown by the fact that small groups of boys and girls return to the museum asking for permission to "play the game" by themselves.

The working out of the museum game plan has satisfactorily solved the difficult problem of disciplining the ordinarily boisterous crowd of children, because the mind of each child is occupied along a particular line, and excellent order is actually maintained by the boys and girls themselves.[26]

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[26] Eva W. Magoon, A Museum Game, *Proceedings,* American Association of Museums, Vol. 10, 1916. p. 31-2.

Thus the museum game, a true form of individual activity, was used some time before much emphasis was placed upon such activities by progressive schools and long before its need was recognized by the formal academic schools. With some modifications, every up-to-date museum now takes advantage of this opportunity to teach real facts by the game method. Most museum games are based on exhibits and labels and may be played by the children visiting the museum at any time they wish. In some institutions the children go to a game file, select the game they wish, get pencil and go to work. A system of credits for the completion of the games has been worked out at the Boston Children's Museum and at the Buffalo Museum of Science. In the latter museum there are twelve sets of games, each set printed on a different colored stock. The following is Bird Game No. 2:

BUFFALO SOCIETY OF NATURAL SCIENCES
Bird Game No. 2

1. The seed cracking bill of the sparrow is like the bill of the grosbeak, kingfisher, duck, cardinal, sandpiper.
2. Wading birds living along sandy shores have ..... feet, ..... legs, and ..... bills for getting food.
3. The Snowy owl, like other birds of prey, has claws called talons and a ..... bill for tearing flesh.
4. The spearing bill of the Great blue heron is like or unlike the bill of the duck, who haunts the water holes for .....
5. The ..... of the Snowy owl ..... it from the rabbits, rats and mice which it hunts.
6. Female birds have ..... colors than male birds for .....
7. The ground dwelling birds are colored ..... to match the ....., ....., .....
8. The woodpecker chisels with his ..... into the tree bark for ....., uses his ..... for a prop, and clings with his .....
9. The robin, bluebird and Baltimore oriole are insect eaters. What food do the rest of the birds in the case with them eat? .....

10. Birds that regularly visit us for the summer, or winter and spend the other season in another section are called migrants. The ....., our smallest bird, comes to us for the summer from great distances.

Name .....

To play the game, the child finds the answer and then awaits his turn to give it to the instructor. If satisfactory, he proceeds to the next question.

Greater variation is found in the games worked out at the Cleveland Museum of Natural History under the supervision of Harold Madison, director, who first used games at the Park Museum. On some of the cards outline drawings are used with certain sections missing for the children to supply after studying the mammal, bird, insect, or other object.

At the Duluth Children's Museum Mabel M. Wing, director, has devised simple games for young children which she has called "Find and Color." [27] The little children enjoy these and have fun hunting for the object, coloring it with crayons, and learning something about it. The Rhode Island School of Design gives each of the five hundred or more children arriving every Saturday morning for creative work in the art fields, a little pamphlet called "Chips." The pamphlet contains a short account of some object in the museum and space for a quick sketch of the object. The game is for the children to find the object from its description so during the morning eager youngsters are found peering through the galleries in search of the week's treasures. The museum objects chosen for "Chips" are varied, such as a Chinese painting done on silk and a silver cup by Paul Revere.[28]

At the City Art Museum in St. Louis, games vary greatly, the more childish museum treasure hunts giving way to problems which call for an application of the knowledge acquired in

[27] Mabel M. Wing, The Duluth Children's Museum, *School Arts,* Vol. 36, No. 2, October 1936. p. 79.

[28] Dana P. Vaughan, Museum to Children. *Bulletin No. 10,* National Association for Art Education, Vol. I, June 1937. p. 1-2.

the talks. "Artists and Craftsmen" is the title of one series with a variant title "Museum Adventures" for young people of twelve or older who are interested in people and their achievements.[29]

The Springfield Museum of Natural History has a very fine series of museum games on different age levels. Each one of these games requires close observation on the part of the individual before it can be worked out.

The Nelson Gallery of Art in Kansas City maintains a "Game Table" of jig-saw puzzles, "Color and describe it" sheets, also a game called "Scraps" containing sections of a picture of a museum object pasted on a cardboard and space below for questions which can be answered only after the correct object is found. After five sets of games are completed the child is given a post card of a museum object and after 125 games are worked out satisfactorily a colored print is given.[30] For older children games are provided which are based on Story Hours and observation of museum collections as in the following:

Dutch Artists Game

1. One of the greatest artists of all time lived in Amsterdam in the 17th century. His name was ..... His father was a ..... and even as a boy the painter loved to draw pictures of the ..... and the ..... of members of his family. When ..... grew up, he moved to the city of Amsterdam and became very popular as a ..... painter. He married a beautiful girl named .....; and they were very happy and prosperous for nine years. Then ..... died, and ..... seemed to lose interest in his wealthy patrons and painted pictures, not to please his sitters, but to give the most artistic effect. His popularity waned, and his downfall came when he angered the members of the Banning Cocq company by placing nearly all the members of the company in deep ..... and bringing out the faces of only one or two. This painting is called "....." and is one of .....'s most famous masterpieces. ..... had a son named ..... .....,

[29] Jessie B. Chamberlain, City Art Museum of St. Louis, Personal Interview, August 31, 1937.

[30] M. Nelson, Personal Interview, August 30, 1937.

who remained faithful to him all his life. ..... ran a small art shop and made enough money to furnish his father with ..... and ..... In the Nelson Gallery we have a ..... of this boy. It is called "....." The ..... are ..... and seem to be looking at you no matter where you stand.

2. In the Gallery of Dutch painting there is a woodland scene by the artist ..... Such a painting is called a ..... In this painting we find a ..... in the foreground, with a ..... in the doorway. A winding ..... passes the ..... and leads one back into the ..... Such heavy moist ..... as are found in the ..... are often seen in .....
3. What is the name of the Dutch artist who painted many pictures of cows? .....
4. Find the painting in this room which is so carefully painted that you can even see the dewdrops. It was painted by ..... and is called "....."
   Can you find five small animals in it? What are they? ..... ..... ..... ..... .....

## *Individual Work Sheets*

Some museums have carried these games into the secondary education field and have prepared individual "work sheets" or "Indoor Museum Trips" which are available upon application to any one desiring to work them out. At the Museum of Science and Industry in Chicago the work sheets for the season of 1936-1937 were prepared on Coal, Iron and Steel, The Industrial Revolution and the Factory System, Power, and Petroleum. The outline of the subject matter covered in the third set was as follows:

The Industrial Revolution and the Factory System

Part I

1. Evolution of the steam engine—from Savery's pump to a modern Corliss. (Operating models)
2. Cotton—Ancient Churga gin; Eli Whitney's gin; modern cotton preparation.
3. Beginning of the Railroad—Full sized operating replica of the world famous "Rocket"; the importance of the railroad in our national growth.
4. Power as a basis of the Industrial Revolution.

Part II

5. Machine Tool Production Line—Modern commercial machines perform operation after operation on a steel bar; final operation . . . . pulling the bar apart (to determine its strength) in a Testing Machine.
6. Nail Machine—Producing 300 nails per minute, exemplifying mass production.
7. Sugar—Model of complete modern sugar refinery; operations from plantation to package.
8. Salt—Operating model showing salt refining from brine well to finished product.
9. Phosphates—Large operating model explains how phosphates are produced; important uses of phosphates.

Specific questions were given based upon the above outline and the students, after listening to a museum lecture demonstrator who endeavored to have the exhibits become the center of very stimulating vocational guidance discussions,[31] worked out their own answers as a game.

The American Museum of Natural History and the Commercial Museum in Philadelphia began the use of games modified into the form of "Indoor Nature Trips" in 1927. In the former institution, a questionnaire is now available for each of the more important exhibition halls. These are prepared by the educational department of the museum and the subject matter is checked for accuracy by the curator who is directly responsible for the exhibits in the hall. After the student has completed the work sheet he may return to the desk of the educational bureau and there using a key sheet, check the accuracy of his answers. Biology instructors in the high schools of the metropolitan area have found these outlines a valuable aid and often from 500 to 700 Museum Trips will be given out to the students on a Saturday or school holiday.

In addition to using games based entirely upon museum exhibits, the School Service Department of the Peabody Museum

[31] J. R. Van Pelt, Museum of Science and Industry, Personal Interview, August 14, 1937.

of Natural History has prepared Vacation Questionnaires for the children, similar to the following used in June 1937:

Vacation Questionnaire

Check the *one true statement* in each of the following questions:

1. The official state flower of Connecticut is
   a. Trailing Arbutus
   b. Mountain Laurel
   c. Solomon's Seal
2. Mature insects may be distinguished from spiders because the insects have
   a. two wings
   b. six legs
   c. two pairs of antennae
3. The meadowlark is a bird that
   a. sometimes stays here all winter
   b. builds its nest in a maple tree
   c. has a short, wide beak
4. East and West Rocks were formed by
   a. a volcanic eruption
   b. the glaciers during the last Ice Age
   c. an intrusive layer of lava
5. Which three of the following trees are found on the New Haven Green?
   a. Ginko
   b. Hemlock
   c. Catalpa
   d. Horsechestnut
   e. Beech
   f. Sycamore
6. Sea anemones are
   a. flowers
   b. invertebrate animals
   c. fish

Come to the museum this summer and we shall help you find the answers to these or similar questions that arise during your vacation.

## *Additional Activities*

Activities for children other than those which have thus far been described in this chapter have been developed in several

museums of the country. A few of the more important should be mentioned.

### Little Museum for Young Moderns

At the Nelson Gallery of Art in Kansas City the children who have attended Saturday morning classes for three years and have somewhat outgrown story hours and craft classes have organized a "Little Museum for Young Moderns." The children have been given a part of the Gallery they may consider their own and in consultation with a staff member in charge of Junior Education, have organized a staff of junior director, curators, assistants, and others all chosen by the children.[32] Their exhibitions have been of two types: objects of interest with some aesthetic contribution brought by a child wishing to submit one of his own treasures or one from his family; the original work of one of the children or their contemporaries. The junior staff decides what theme shall be carried out for an exhibition; the children bring in the objects to be displayed, subject to the approval of the junior director; the children sort and study their material and often consult senior staff members for literature to aid in their research. The children realize the need for order and correctness and a record is kept by the junior registrar of every object submitted. The junior staff form their own publicity committee and appoint their captain of the guards who train other volunteer guards to explain the collection to visitors. Whenever the Art Gallery is open the Little Museum is open and the junior guards and attendants are on hand every Saturday, Sunday and Wednesday evening. Thus far the activity has attracted considerable attention from adults and the whole project has seemed to be one of the most worth while attempted in this museum.

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[32] M. Nelson, William Rockhill Nelson Gallery of Art. Personal Interview, August 30, 1937.

## Children's Science Fair

Another worth while activity for children of many ages has been that of the Children's Science Fair first held in the American Museum of Natural History in 1928 in cooperation with the American Institute of New York City and the School Nature League. The ten Science Fairs which have been held thus far have been more than incidents lasting for a week during the school year and visited by some thirty to forty thousand children. For weeks and months, groups of young people and individual children have worked during their spare time. Since many of the ideas for their exhibits originate in realms of learning portrayed by museum exhibits, many visits are made to certain halls in the museum. The Fair has helped in directing pupil activities which are rich in concrete science experience and it has also served as an outlet for various interests among city boys and girls. The results of some of this work have been reported at the Science Congress of Junior Clubs from high schools of the metropolitan area sponsored by the American Institute and held in the American Museum during the Christmas holidays. Some three thousand children have been successful each year in having their work selected for exhibition in about five hundred individual and group exhibits varying from health habits in the home through many phases of nature study and biology to advanced work in physics and chemistry. Each exhibit has a reality of experience for its producer, based upon the individual's own level of maturity and springing genuinely from his own background in pursuit of his special interests. His class instructor or the club sponsor of a group acts only in the capacity of a guide or specialist for consultation, and the responsibility for the work devolves upon the boys and girls. One hundred judges including famous scientists and lay members have carefully examined and appraised the efforts of these young people each year in an effort to make impartial awards which come from the fund appropriated by the State of New York for prizes to be given at county fairs. The

State has designated this as the fair for New York County. Although the law requires that prizes must be awarded in the form of money, this prize money has been spent by the recipients in the purchase of additional scientific apparatus and books, thus aiding further scientific work among the young people of the city.

Several other science fairs have been held in various sections of the country, patterned after the one held at the American Museum of Natural History. One of these was held in New Jersey, another at the Children's Museum in Duluth. Others have been planned for the coming year.

## Nature Contests

Still another successfully conducted activity for boys and girls visiting museums has been that of nature contests. At the Fairbanks Museum in 1918 a Bird Contest was initiated and held annually as a culminating activity of "Bird Games" in which the children voluntarily spent many hours studying birds in the museum and in the field. For the final contests which were conducted on three different age levels two hundred children presented themselves. In the highest division a twelve year old boy named seventy-four of the seventy-five birds shown in the first contest.[33] One of the best results of this bird study was the way in which each child appointed himself a protector of bird life so that the lawns, shrubbery and gardens in the town were safe places for nesting birds.

A more inclusive type of nature contest was sponsored by the Carnegie Museum in 1934 and initiated by members of the Biology Club of Western Pennsylvania Educational Association with the purpose of allowing school children of Western Pennsylvania to show any unusual ability they might have in the field of natural history. The method of procedure[34] was to supply

[33] Inez Addie Howe, Nature Study at the Fairbanks Museum, *Museum Work*, Vol. I, No. 3, December 1918. p. 96.

[34] Millie Ruth Turner, Lilacs or Groundhogs, *Carnegie Magazine*, Vol. IX, No. 3, June 1935. p. 88-9.

each entrant early in the year with a study list of objects in nature and at the contest held in May, to arrange on shelves in long lines for identification by each child numbered specimens representative of the animal and plant kingdoms as found in the local environment. This identification also included the correct spelling of the name. Each year the scores have been higher than those of the previous contest and there has been a marked improvement in a more intelligent use of museum exhibits and public parks.

Thus from the many museum educational activities for individual children which have been described it is evident that there has been a definite trend for more than a quarter of a century away from a formalized program in which the children were expected to act as young adults toward greater freedom in allowing children to carry on in the museum creative types of work based upon their own interests. The museum instructors have given story hours and shown film programs. They have acted as sponsors of many kinds of clubs. They have originated museum games and have guided classes where the attendance has been entirely voluntary. Other miscellaneous activities have been successfully tried. The effects of the activity upon the child and his special interests have been considered. Old methods have been discarded when found inadequate and new policies adopted to give the child greater opportunity to create directly from his own experience.

CHAPTER VII

# DEVELOPMENT OF MUSEUM FIELD TRIPS AND NATURE TRAILS

In their out-of-door educational activities, natural history museums are inducing their followers to return to the oldest type of museum—pleasant groves in the open, where those interested may stop, look and learn. Where this takes the form of woodland and meadow, lake shore or seashore, located near the home city of the museum or not too remote from it, one who is a practical student of nature has the opportunity to teach interesting facts about many living forms in their proper places. To secure the fullest enjoyment from such a walk in the open, most people need a good interpreter to call their attention to the things about them and thus act as a "seeing eye."

## *Field Trips*

Such work in the form of field trips is the earliest type of educational activity carried on by natural history museums and forms an integral part of the work of museum nature clubs. In many cases a museum club will conduct its winter meetings within the institution and begin its field trips as early in the spring as possible. The first record of museum field trips having been undertaken as an educational feature of a museum is found at the Buffalo Society of Natural Sciences, where Charles Linden, custodian of the museum, organized a Field Club in 1872 as a part of the Society's work.[1] His group was made up very largely of students from the high schools of Buffalo with whom Linden

[1] Henry R. Howland, The Educational Work of the Buffalo Society of Natural Sciences in Cooperation with the Public Schools, *Proceedings,* American Association of Museums, Volume 3, 1909, p. 74.

made weekly excursions for scientific observation and study. This work so awakened the community in the study of nature that six years later, when elementary science work was introduced into the work of the grammar schools, the Society had little trouble in getting the teachers to bring their classes to its museum and use its collections of birds, mammals, insects, rocks and minerals.

The next museum to organize field trips was the Carnegie Museum, which in 1899 was assisting the boys of the Andrew Carnegie Naturalists' Club with field study [2] of geology, entomology, botany, and mineralogy. Seven years later the Fairbanks Museum [3] began to conduct bird walks which proved very popular with the boys and girls. Some one from the museum met the group of children at the museum steps at seven o'clock and brought them back ready for school at nine, with fifteen to fifty birds to their credit. Frequently after school the children would come to the museum to examine closely one of the birds which had been seen during the morning trip. Their interest was increased by a small case containing mounted specimens of the newest bird arrivals placed in a prominent position near the entrance door. As an outgrowth of these bird walks a Junior Audubon Society was formed in the museum.

The Charleston Museum at this same time, was carrying on field work in bird study through the medium of a natural history society,[4] with groups of young people who were interested in the fauna of their sea coast. Bird trips were also popular at the Davenport Public Museum where in the spring, classes of the older children accompanied a museum curator to Government Island for the purpose of studying birds and their habits. This field work was augmented in 1925 by an annual May day bird concert trip at four o'clock in the morning at Credit Island where

[2] Carnegie Museum, Pittsburgh, Pennsylvania, *Annual Report,* Serial Number 5, 1899, p. 16.

[3] Delia I. Griffin, The Educational Work of a Small Museum, *Proceedings,* American Association of Museums, Volume 1, 1907, p. 140.

[4] Paul M. Rea, *Proceedings,* American Association of Museums, Volume 1, 1907, p. 57.

as many as one hundred people assembled [5] in 1926 to hear and see migratory birds passing north.

The Wisconsin Historical Society of Madison, Wisconsin, began in 1910 to conduct field trips, taking groups to Indian mound preservations and to wild life sanctuaries. The Kent Scientific Museum of Grand Rapids, Michigan, not only conducted field study trips with several thousand children a year from 1926 to the present, but also started in 1930 to plant trees as a conservation measure.[6] These groups planted 12,625 trees in 1934.

The Chicago Academy of Sciences found Lincoln Park favorable for conducting bird classes in the city. In Milwaukee, the Public Museum sponsored a science club in their work on two field problems during 1913.[7] One of these was a botanical survey of woods near the city which required the making of a typographical map and a close study throughout the year of the flora of the woods to record the location and time of flowering and fruiting of each species.

In San Diego, field trips were initiated in 1919 by the director of the natural history museum.[8] His purpose was to acquaint many of the winter visitors with the region's flora and fauna which were so strange to them. These trips rapidly increased in popularity and have shown by the large numbers attending them that they have been meeting a real need in the community. Attendance at the thirty-five nature walks and excursions conducted during 1926 was 3,567 persons. Each Saturday of the year, except during July and August, groups start from the museum on hikes to the seashore or in special parlor car busses, into the mountains for a study of nature. When the rains bring the desert flowers into full bloom, the parties drive out into the desert valleys accompanied by men from the museum to act as

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[5] *Museum News,* May 15, 1928, p. 2.

[6] Kent Scientific Museum, Kent, Michigan, *Annual Report,* 1934 (typewritten)

[7] Leon D. Peaslee, Oral Teaching at the Public Museum of the City of Milwaukee, *Proceedings,* American Association of Museums, Volume VIII, 1914, p. 61.

[8] Clinton G. Abbott, Director of the Natural History Museum, Balboa Park, San Diego, California. Personal Interview, August 27, 1937.

the interpreters of nature where needed. Among the field trips taken during 1937 were the following: Plants of the Chaparral; Laguna Mountains, an all-day trip of 140 miles to study plants and animals of the mountains; Birds of the Ocean Shore; Sweetwater Dam and Spider Study; Life of the Tide-Pools; Berry-bearing Shrubs; Winter Birds of Balboa Park; Fossil Collecting in Balboa Park; Flora of Mahogany Canyon; Plant Life of the Beach; and From Ocean to Desert, another all-day trip of about 180 miles, with such a large crowd attending that mimeographed sheets had to be distributed, describing points of interest along the route. During July and August special attention is paid to nature walks with boys and girls. In addition to the forty-odd Saturday field trips conducted yearly, there are other trips from the museum by affiliated clubs, as the Sunset Hikers who start every Friday evening at seven o'clock with lunch and flashlight, and the San Diego Reptile Club.

The active Roosevelt Field Club of the Buffalo Society of Natural Sciences which has enrolled more than 2,200 members in the first fifteen years of its existence, conducts ten or more Saturday trips each year, with field work transferred to its summer camp in the Allegany State Park during July and August.[9] The ideals of conservation have been instilled in the minds of the members who collect only fossils, rocks, leaves, mushrooms, certain insects and other forms of life which do not need to be conserved. The methods used in recruiting children to this club have been worked out so carefully that practically the entire public school population of the city is looked over annually to discover any children who may have displayed any special talents in, or love for, nature.

The Cincinnati Society of Natural History plans field trips with these specific objectives in mind: [10] to see and become familiar with our wild flowers, to understand how they grow and

[9] Ruth V. Weierheiser, *A Unique Nature Club,* 1935.

[10] Ralph Dury, Cincinnati Society of Natural History. Personal Interview, September 1, 1937.

why they need protection; to collect and become acquainted with insects; to understand how archaeologists work in order to piece together the life of early peoples from the fragmentary remains. It is hoped that each boy and girl who attends may find a hobby in one of these fields.

Field work plays an important part in the nature clubs of all the children's museums in the country. Out-of-door trips were started at the Brooklyn Children's Museum in 1912 and the annual report for 1917 [11] stated that about twenty field trips were conducted by the Museum for bird observation, insects, mineral and botanical collecting and for tree study. The children recorded observations of scientific interest in their notebooks, and collected specimens which they afterwards studied, identified, preserved, arranged, and labelled for their fall exhibit at the museum. Every second day during the summer of 1920 this museum conducted boys and girls into the surrounding country and there gave them instruction in observation and study of living objects. Each trip was anticipated by careful preparation in the museum and was followed by a day of studying and preserving the materials collected. These field trips have been continued each summer.

All day and half day field trips have been conducted also from the Children's Museum of Boston, the Springfield Museum of Natural History, the Children's Division of the Peabody Museum, the Children's Museum of Hartford, the Rochester Museum of Arts and Sciences, and the Cleveland Museum of Natural History. The Children's Museum of Indianapolis has ventured further afield in its trips and for the past eight summers has commissioned juvenile scientists to go on a field expedition. During the summer of 1933 a Prairie Trek [12] was successfully undertaken and since then a group has ventured into archaeological work in the Southwest.

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[11] Brooklyn Children's Museum, Brooklyn, New York, *Annual Report,* 1917.
[12] Arthur B. Carr, Annual Report for 1933-34, Children's Museum *Bulletin,* Volume 1, Number 6, Spring 1935, p. 4.

Field trips have not been entirely confined to museums of natural history for art museums have found that trips to nearby places afforded good sketching subjects. Outdoor sketching during July and August has been carried on by the Fitchburg Art Association in Massachusetts [13] and the Carnegie Institute of Arts.

*Nature Trails*

A variant of museum field trips was initiated during the summer of 1925 by Frank E. Lutz, curator of entomology at the American Museum of Natural History. Lutz established what he termed "Nature Trails" in a piece of open woodland about forty miles from New York City.[14] These trails were marked by means of small labels written in an entertaining, "chatty" style, to call one's attention to interesting things along the way. The first labels were very simple, followed by some more complex and then a summary, often in the form of a few questions. But at all times, the labels were intended to convey their information in an entertaining and often humorous way, with a bit of good psychology, as:

> A centipede was happy quite until a toad in fun
> Said: "Pray, tell me. Which leg moves after which?"
> This raised her doubt to such a pitch
> She fell excited in the ditch
> Not knowing how to run.[15]

The start of each Trail was very evident but the end was arranged so it was hidden by trees or shrubs, thus insuring each visitor's start along the trail in the right direction to give a definite continuity. The Training Trail had four main sections, one on botany, one on moisture-loving plants and animals, a third on entomology, and a fourth a summary of the three. There was

[13] Fitchburg Art Association, *Annual Report* for 1931. (typewritten)
[14] Frank E. Lutz, *Nature Trails—An Experiment in Out-Door Education,* Miscellaneous Publications Number 21, The American Museum of Natural History, New York, 1926, 36p.
[15] Ibid. p. 6.

also a Testing Trail where visitors could write out their answers and later have their papers scored. The fifty questions on this trail were concerned only with facts which had been covered on the other trail.

Tactile education was emphasized on these nature trails by arranging small exhibits which could be handled by the public. One of these consisted of some celluloid enlarged models of the front wings of the male cricket showing the apparatus by which it chirps. Even though these were much handled they were not abused and served their purpose through the entire season. All of the work on these trails has been fully described by Lutz in his pamphlet, *Nature Trails—an Experiment in Out-Door Education.*

### Palisades Interstate Park

In 1927 the Commissioners of the Palisades Interstate Park at Bear Mountain set aside twenty acres of wild woodland admirably fitted for establishing nature trails. The American Museum of Natural History was invited to undertake the development of the project and appointed William H. Carr to be the director. The work was very successfully carried on by Carr and after eight years the New York State legislature passed a bill which authorized an annual appropriation to insure maintenance of the Trails and the several museum buildings. So conclusively was the value of this out-door education demonstrated that the idea spread to many parts of the country and also to foreign countries.

At Bear Mountain, Carr devised many ingenious methods of telling an interesting story along the trails. Lettered guides were attached unobtrusively to objects in place. The objectives of the trails were threefold: [16] to encourage people in the open to observe with understanding, to enjoy periods of leisure and recrea-

[16] William H. Carr, Ten Years of Nature Trailing, *School Service Series, Number Eleven,* The American Museum of Natural History, 1937. p. 35.

tion intelligently, and to apply their newly gained knowledge to the advancement of both conservational and cultural education in their own communities. The identification of plants, animals, rocks and minerals is but a small part of the work, for as Carr states in "Ten Years of Nature Trailing":

> Our aims are much broader than this. Ecology and taxonomy here go hand in hand. Our Trailside Museum was devoted to the "Story of Interdependence" for the entire season of 1932. The subject of life histories vies in importance with means and methods of identification. We teach physiography in addition to geology and mineralogy, and archaeology as well as history. The subject of "woods etiquette" is not forgotten in our curriculum either—for human behavior is part of the story! It has always been our endeavor to build educational foregrounds and backgrounds in natural history simultaneously; to stress knowing as well as naming.
>
> Our teaching methods include the following principal types of approach:
>
> a. Visual: including trail and museum labels, exhibits and library (60% effective)
> b. Tactile: including all exhibits, indoors and out, that may be touched without moving, manipulated in place, or lifted and handled. (25% effective)
> c. Personal contact: including lectures, guiding trips and conversations with museum visitors, answering questions, et cetera. (15% effective)
>
> Percentages given above refer to relative numbers of interested visitors who avail themselves of the three means of subject approach offered.[17]

## City Parks

Not only has the idea of nature trails been used in other state parks and in other countries, but it has also been tried successfully in many city parks. The most notable work in city parks is that carried on in Cleveland. The Cleveland Museum of Natural History secured the cooperation of the Metropolitan Park Board in 1929 and established nature trails in four different parks within an average distance of fifteen to eighteen miles from the homes

[17] William H. Carr, Ten Years of Nature Trailing, *School Service Series, Number Eleven,* The American Museum of Natural History, 1937, p. 15-16.

of many of the city residents. These trails have been laid out and labelled similarly to the ways and methods used on the earlier trails by Lutz and Carr. Modifications have been made where desirable. The subject matter of the labels has been carefully selected to stress ecology and botany with some geology and a bit about insect life where the insects have left more or less permanent evidences.[18] This has been done with the aim of acquainting the visitor with the plants that live along the trail and making his walk over the trail an adventure between himself and the life found there without the mediation of an instructor.

Ohio's first Trailside Museum was opened in 1931. It was located along the trail in the North Chagrin Reservation of the Metropolitan Parks of Cleveland and soon attracted many people. A wild flower garden installed near the museum made a strong appeal both to adults and children. From one to two hundred people also attended regularly the Sunday afternoon talks given in front of the museum. Here they sat on logs to listen to Arthur B. Williams, museum naturalist, and others talk on subjects of natural history illustrated by material from the surrounding woods, stressing conservation and appreciation of growing things.[19] The success of this first Trailside Museum has been so marked that the work is being extended to other parks of the city.

The Natural History Museum in Cleveland has made further use of these trails by conducting early Sunday morning bird trips during the spring and tree walks during the autumn. Nearly seven thousand people participated in the six bird walks during the spring of 1937 when 164 species of birds were seen. These walks are carried on in seven different places and often entire families appeared at 6:45 Sunday mornings ready to start on the bird walk. After this was over, breakfast was cooked in the open, and later the family attended church services.[20] The experience

[18] Edmund Cooke, *Nature Trails in Cleveland,* p. 5-9.

[19] Cleveland Museum of Natural History, Cleveland, Ohio, *Annual Report,* 1932. (typewritten)

[20] Harold L. Madison, Director, Cleveland Museum of Natural History. Personal Interview, October 9, 1937.

of the leaders on these trips proved that as many as one hundred people could be taken on a bird walk and have the opportunity to see the different species of birds, providing a short talk was first given, explaining the necessity of each person refraining from conversation.

The Springfield Museum of Natural History has likewise made use of the advantages offered in a city park and has laid out trails leading to a Trailside Museum. Oglebay Park Museum at Wheeling, West Virginia, is still another museum which has been directing some out-of-door nature education.

### *Field Museums in Summer Camps*

Thus the establishment of the first nature trails by Frank E. Lutz and the wide distribution of his pamphlet, "Nature Trails," started a definite trend toward more out-of-door educational work by natural history museums. This was also increased by the establishment of the small field museums at summer camps. The first field museum was set up by B. T. B. Hyde in 1920 on the shore of Kanawauke Lake in the Interstate Palisades Park. During the next few years other small museums were erected in the five camping centers in this park of some 43,000 acres about fifty miles from New York City.[21] With the rapid growth of large numbers of privately owned camps for children and adults it became increasingly evident that more nature study in the open was needed, for it was customary to include on the teaching staff of each group a nature counselor whose duties included setting up a small camp museum and laying out nature trails.

### *Field Schools of Natural History*

Soon a few schools of natural history were formed, closely connected with the educational work in the National and State Parks for the purpose of training nature leaders and teachers. The Yosemite School of Natural History was the first to be estab-

[21] William H. Carr, op. cit. p. 6.

lished in a national park and the Allegany School of Natural History was the first in a state park. The latter was established in 1927 under the auspices of the Buffalo Society of Natural Sciences, in cooperation with the New York State Museum and affiliated with the University of Buffalo. It was designed to meet the need for outdoor experience and training in the study of natural history. The students and staff at this school enjoy the wholesome experience of living together in the forest with unusual educational facilities and stimulating associations.[22] The principle of instruction is to guide the student in personal observations in the field, supplemented by studies in the laboratory with a view of enabling him to develop powers of observation, thought and judgment. These schools have been attended by teachers in public schools and colleges, scout and camp leaders, park naturalists and others.

In cooperation with New York University the American Museum of Natural History has sponsored a Summer Field Course in Natural History under the direction of Farida A. Wiley of the museum's teaching staff. This was given during the summers of 1935 and 1936 at the Farmingdale Agricultural School on Long Island and consisted of two courses, each two weeks in length, of intensive field work in many kinds of areas—seashore, swampland, wooded areas and open fields.

### *Trailside Museums in National and State Parks*

The past fifteen years have seen a rapid development in the establishment of small museums in the national parks to serve as headquarters for nature guiding. In 1920 a small museum was constructed in Yosemite National Park. Later, through the efforts of the American Association of Museums, an educational foundation gave funds for the erection and equipment of a permanent building in Yosemite Valley.[23] Since then many other mu-

[22] Announcement, Allegany School of Natural History, New York, 1931, p. 5.
[23] Laurence Vail Coleman, *Contributions of Museums to Outdoor Recreation*, 1928, p. 23-4.

seums and observation stations have been constructed in the national parks and through the National Park Service there is a large corps of Park Naturalists available for conducting groups of visitors over trails to points of interest. Carrying the trailside museum idea still further, the committee in charge "conceived the plan of erecting shelters along the roads or trails at appropriate points and installing in each of them a few specimens with labels, a chart or two, and perhaps a model—all relating to natural features near at hand or in sight, and all elucidating these features just as labels, diagrams and supplementary models elucidate master exhibits under roof." [24]

The objectives of this work in the national and state parks have been stated recently by Hermon Carey Bumpus, chairman, Advisory Board, National Park Service as follows:

> Small museums, "trailside" and "shrines" located in the field, surrounded by, rather than containing the essential exhibit material, rustic places of study and reference, of record, of interpretation, and providing intelligible information about the phenomena of the immediate neighborhood, or the area as a whole, have already demonstrated their practicality and utility. When a tourist sees the work of a beaver he immediately becomes beaver-minded and forages for information about this perplexing creature. If the information is near at hand, he will grasp it. To provide information at a time and place where it will do the most good is the objective of national and state park museum workers. . . . . .
>
> Within the past decade, and largely because of the availability of Federal funds, trailside museums to the number of fifty or more have been constructed in national and state parks. Almost without exception and, fortunately, the purpose of these structures, large and small, has been to provide space for the recital of information concerning the phenomena of the neighborhood—recitals ultimately to be illustrated by wisely selected and appropriate objective material.[25]

The ultimate goal of this service has been given by Kenneth B. Disher, Associate Museum Expert, National Park Service, as

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[24] Laurence Vail Coleman, *Contributions of Museums to Outdoor Recreation,* 1928, p. 28-9.

[25] Hermon Carey Bumpus, Objectives of Museum Work in National and State Parks, *The Museum News,* Volume XV, Number 4, June 15, 1937, p. 7.

"a complete development of the subjects in each park and monument and a linkage of the stories of the different areas that will give the public an appreciation of the American story as a whole." [26]

The recently enacted Historic Sites and Buildings legislation which has provided for close collaboration between the National Park Service and the states in the designation, protection and preservation of the historically important bids fair to provide a medium for teaching history which may exert a decided influence upon the usual method of teaching this subject. At least, it is not too much to hope that these developments of relics of historical association will stimulate interest in history, early arts and crafts, and tend to bring about a re-evaluation of the pioneering virtues and American ideals that seem progressively remote from modern life.[27]

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[26] Kenneth B. Disher, The Future of Museums in National Parks, *The Museum News,* Volume XV, Number 4, June 15, 1937, p. 8.

[27] Albert H. Good, The Future of Museums in State Parks, *The Museum News,* Volume XIV, Number 13, January 1, 1937, p. 7-8.

CHAPTER VIII

# THE DEVELOPMENT OF EXTENSION WORK BY MUSEUMS

More than fifty years before Gesell recorded in a series of motion picture films the early age at which a young baby's desire to handle and to look at objects develops, a start was being made in a few museums to take advantage of this natural urge of children and provide objects which could be handled and studied in school classrooms.

## *Museum Collections for School Use*

The science museum in Buffalo, early in its history, prepared travelling loan collections of objects to be used in teaching elementary science in the city schools. This service and visits to the museum by science teachers with their classes, were the immediate results of a resolution adopted by the museum board on April 11, 1879, encouraging the tentative efforts of the city's department of public instruction to introduce science work in the elementary schools of Buffalo.[1] Thus definite cooperation was established between the museum and the city board of education.

Shortly after Albert S. Bickmore began his series of lectures to teachers at the American Museum of Natural History and the state appropriation enabled him to extend the work, he had cabinets of specimens prepared for many of the city schools from which the teachers had come. These cabinets contained mainly specimens of sea life and a few mounted birds and were placed in the schools as permanent exhibits.

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[1] Henry R. Howland, Historical Sketch, *Bulletin Number 6,* Buffalo Society of Natural Sciences, Volume VIII, 1907.

### Milwaukee Public Museum

No sooner had the Milwaukee Public Museum been opened, than its director began to think about providing specimens for "object-teaching in natural history" in the schools. He realized the importance of tactile education and felt that a museum as the exponent of the object, should extend its facilities to the schools through the loan of certain small objects and specimens which would aid in illustrating topics of study. The men who were influential in establishing this museum and directing its policies, were much interested in having their museum serve as a direct adjunct to the schools of their city. Not only were efforts made to have classes visit the museum as soon as it opened, but the second annual report, October 1, 1884, stated:

> As soon as a sufficient number of duplicates can be set aside, and space as well as furniture provided, a special "School Loan Collection" may be made, as an additional aid to schools, and an incentive for teachers to introduce a simple scheme of object-teaching in natural history in all the grades from the kindergarten upward. Teachers will need only a very moderate preparation for this modification of the curriculum of the primary and intermediate grades.
>
> It is becoming a necessity, no longer to be evaded, that those appointed to provide for the training of prospective educators, prepare them for such work.[2]

Again, in 1886, the fourth annual report stated: "In some cities of Europe a scheme of perambulating 'School Loan Collections' of objects of natural history is meeting with much favor. To prepare such aids to instruction in the schools would seem to be a commendable way of utilizing surplus material, provided there should be a demand for such collections on the part of the teachers." [3] In 1889, the director distributed some mammals, birds and minerals to the schools as gifts, rather than as loans. In October 1895, this museum established a series of loan collec-

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[2] Milwaukee Public Museum, Milwaukee, Wisconsin, *Second Annual Report*, October 1, 1884, p. 20.

[3] Milwaukee Public Museum, Milwaukee, Wisconsin, *Fourth Annual Report*, October 1, 1886, p. 10.

tions. These consisted of minerals and pre-historic relics. The following year fifty cases of the more common minerals were purchased by the museum for the use of the schools. A collection of ten familiar birds in fifty sets was also prepared by the museum taxidermist for the same purpose. Each bird was placed in a case by itself, with a short description attached to it for the convenience of the teachers.[4]

These collections were used to a considerable extent by both public and private schools, as soon as the principals were informed that they were available. This was done through a circular letter, announcing the collections which were then assembled and asking for suggestions for new material which might be needed. The suggestions received indicated a desire for mounted animals and industrial exhibits, such as a series showing the various stages in the manufacture of iron from the ore to some finished article. During 1903 the collections were increased through the addition of a series of Lepidoptera showing the common butterflies and moths of the region with an eight-page circular which was written to accompany each case of insects. This circular gave the main features of the metamorphosis of each specimen, its food plants, the damage inflicted by the injurious ones, the time of appearance, geographical range, and other items of interest. "This will enable the teachers to make intelligent use of the specimens though previously quite ignorant of the specimens furnished." [5]

At this time the school collections consisted of (1) mounted birds, each upon a pedestal sliding into a stiff cardboard box, upon the outside of which was pasted a descriptive label telling of the habits of the bird (as many as thirty-six species were included, with only a few of some and as many as forty-five of others); (2) twelve cases of mounted Lepidoptera consisting of ten butterflies and moths; these were protected by fixed

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[4] Milwaukee Public Museum, Milwaukee, Wisconsin, *Fourteenth Annual Report,* October 1, 1896, p. 12.

[5] Milwaukee Public Museum, Milwaukee, Wisconsin, *Twenty-first Annual Report,* 1903, p. 28.

glasses); (3) forty-six cases containing twenty minerals and twenty rocks accompanied by a fifty-seven page pamphlet written by authorities on the subject in which each specimen was treated; (4) seven cases containing fifteen archaeological specimens.

The initial preparation of a collection was not sufficient. The museum director endeavored to improve the selection of materials as rapidly as better specimens could be obtained. Thus the archaeological collections were entirely revised after a few years and other materials added to give a better idea of the mode of life of the Indians of that region prior to their intercourse with the Whites.

The schools sent in many more requests for the use of these collections than could be supplied, although every effort was made to provide more duplicates as rapidly as museum funds permitted. The director felt that the collections were beneficial to the community in spreading, in some slight degree, an interest in natural history among its many thousands of school children. The twenty-third report [6] stated that 126 separate loans were made during the year to fifty-four different schools, circulating 422 specimens of mounted mammals and birds besides the fixed collections of Lepidoptera, archaeological specimens, and minerals and rocks. It was impossible to determine before how many pupils these were used. In some schools they were used by a single grade and in others a single borrowing was used in every grade of the school and taken to other schools before it was returned to the museum. An exhibit of samples of the specimens prepared for school circulation was made in the department of education of the Louisiana Purchase Exposition where it attracted favorable comment and was awarded a silver medal.

This work of the Milwaukee Public Museum was somewhat in advance of the trend in education in Milwaukee as it was not until 1906 that the superintendent of schools assigned a specified bird and tree to each elementary grade as objects of special study

[6] Milwaukee Public Museum, Milwaukee, Wisconsin, *Twenty-third Annual Report*, 1905, p. 14.

for the entire year. This list included the common birds: robin, flicker, bluebird, red-headed woodpecker, meadow lark, cedarbird, yellow warbler, blue jay, and Baltimore oriole. Heretofore nature work of any kind had been discretionary on the part of the teachers and many had not availed themselves of the opportunities offered by the museum, while, judging from their borrowings,[7] others had given their pupils a fairly comprehensive view of bird life. This new departure resulted in bringing to the museum as borrowers a large number of these backward teachers, but at the same time it, to a considerable degree, limited the borrowings of the others to but one or a very few species of birds. "It is hoped that in the end this specialization will be found to have given results in line with Huxley's dictum, that it is better to know a great deal about one thing than a little about many." [8]

## Carnegie Museum

Entirely unaware that extension work in the form of circulating collections had previously been initiated in any other museum, Director Holland of the Carnegie Museum in 1900 conceived the plan of preparing a series of small collections of the commoner birds, mammals, insects and minerals, and placing them in neat and portable cases, correctly labelled and accompanied by a brief account of each species. A number of these cases was prepared for loans to schools for a limited time, after which they were to be transferred to other schools. In his annual report for 1900 the director stated his belief "that this plan, which, so far as we know, has not been attempted by any other institution of like character, will prove to be useful in widening the influence of the museum and cultivating accurate knowledge in the schools." [9] These collections were also found to be especially useful in connection

[7] Milwaukee Public Museum, Milwaukee, Wisconsin, *Twenty-fourth Annual Report,* November 1, 1906, p. 10.

[8] Ibid. p. 10.

[9] Carnegie Museum, Pittsburgh, Pennsylvania, *Third Annual Report,* Serial Number 7, 1900, p. 24.

with the vacation schools which were held during the summer months in Pittsburgh. This service has been continued throughout the century and has been continually improved and enlarged through the aid of an annual appropriation from the Pittsburgh board of education, so that all of the city schools may have the advantage of the collections.

## Philadelphia Commercial Museum

At this time in Philadelphia, the Commercial Museum endeavored to keep pace with educational demands and put up collections of commercial products, largely because teachers continually asked for samples to use in the classroom to illustrate their lessons.[10] More than a hundred of these collections were given to different schools and the state legislature of Pennsylvania granted money to put up more collections. At first this museum sent out loan collections which were transported from school to school and contained materials which correlated with the work in the different grades.

A large number of individual collections were put up, each representing the leading industries, institutions, habits and customs, and products of a country. These articles were placed in large canvas cases and labelled on the end with the name of the country which each collection represented. When a teacher was ready for her pupils to study about Mexico or Japan or Australia or Puerto Rico, she sent for the case containing the collection of that country. This was drawn out from the museum in much the same way that a book would be drawn from a library, with the added advantage that the museum conveyance delivered it to the school and called for its return at the end of the loan period of ten days.[11]

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[10] W. P. Wilson, Educational Work of the Philadelphia Museums, *Proceedings,* American Association of Museums, Volume 1, 1907, p. 135.

[11] W. P. Wilson, A Library Museum for Use in the Common Schools of the City, *Proceedings,* American Association of Museums, Volume 1, 1907, p. 150-1.

In the case labelled "Japan," a teacher found the materials in five divisions: (1) the principal industries and manufactured products of lacquer work, embroidery, cloisonné, porcelain, mattings, leather work, bamboo wares, metal wares, paper of many qualities, carvings in wood and ivory, painting and drawing, silk fabrics, cotton and woolen goods, toys and straw and chip braids; (2) the forest products of lumber, bamboo, lacquer and wax; (3) the farm products of rice, barley and other grains, beans, silk, tea, peanuts, lily bulbs, wax, persimmons, tobacco, rape, oils; (4) mineral products of copper, sulphur, manganese, coal, iron, lead, silver, gold, petroleum; (5) fishery products of dried and salted fish including bonita, anchovies, sardines, mackerel, salmon, fish oil, pearls, coral, fertilizers, cuttle fish, seaweed gelatin, and others. These industries in the shop, on the farm, or on the sea, were nearly all well represented in the collection by specimens as well as photographs. This collection accompanied by some historical and commercial information, enabled the teacher to make a more intelligent presentation of the study of Japan or any other country treated in a similar manner, than could be done through ordinary methods.

As the teachers invariably desired to keep the collections permanently, the museum changed its policy and gave the collections to the schools. This work has been continued since 1901 under an annual state appropriation varying from about $8,500 to $17,000, which has enabled the museum to reach even the smallest country school in the state of Pennsylvania.

At first the permanent collections were prepared as aids in the study of commerce in all of the leading high schools of the state. The materials used for this distribution came from the different countries of the world to represent more or less adequately an epitome of the commerce and trade of the world. Large photographs were included to show processes, customs, habits, and costumes of the people of the world. The back of each photograph was filled with information describing accurately the scene depicted and its relation to commerce and the coun-

try it represented. Maps were used to show distribution of products. Specimens of these products, classified and attached to accurate geographical and commercial information, were installed in cases built for the purpose in about 1,200 schools in the state. As each collection was presented under the state appropriation, it was to be the property of the school where it was installed. In 1907, the museum planned three smaller collections to be placed in the elementary schools throughout the state.

The aim in preparing these collections and placing them in the schools, was to broaden the work done in geography and commerce, stimulate nature study, and provide a nucleus around which progressive teachers might build up other collections of value in every branch of school work.[12] Since many of the country schools were without funds for building cases for these collections, the museum devised a compact cabinet fitted with glass covered trays which could be shipped and installed directly in any school. The trays containing specimens of a raw materials and manufactured articles, well arranged and labelled, could thus be removed and used in any classroom. The distribution of this type of cabinet began about February 1, 1909.

Each tray or drawer contained specimens to illustrate one subject; for instance,—one drawer showed the principal products of the corn plant with a section of an ear of corn, samples of different kinds of grains of corn, popped corn, corn flakes, corn syrup, hominy, corn meal, corn starch, dextrine, corn oil, corn rubber, glucose, corn pith, and corn whiskey in small sealed bottles.[13] Other drawers in the same cabinet contained a silk exhibit, rice, tea, coffee, chocolate, cocoanut, flax, cotton, sheep products, important forms of carbon and hydrocarbon products, and other materials. Immediately there was a large demand for this cabinet and several hundred have been prepared and distributed each year

[12] Philadelphia Commercial Museum, Philadelphia, Pennsylvania, *Annual Report,* 1905, p. 9.

[13] Charles R. Toothaker, Educational Work of the Philadelphia Museum, *Proceedings,* American Association of Museums, 1909, Volume 3, p. 60.

by the Philadelphia Commercial Museum with the money appropriated by the state.

Charles R. Toothaker, curator of this museum, under whose direction these cabinets were prepared, has tried constantly to revise these materials in accordance with any change in the course of study in the schools. When first planned, he found that the commercial and industrial phases of geography were comparatively untaught in many of the elementary schools. After a time, however, the distribution of the collections stimulated the teachers to better work and they found it easy to make the study more interesting and practical.[14]

When Toothaker noted a certain trend in education, he endeavored to keep pace with it and aid the schools by new collections as stated in the museum's annual report for 1916-1917:

> At the present time there is a widespread feeling among the best educational authorities that it is necessary to give greater prominence in the curriculum to the teaching of Domestic Science. Courses in Textiles and Home Economics are being developed and the schools are in great need of help along this line. The collections prepared by the Museum to aid in teaching commercial geography were not planned with reference to these new courses. New types of collections are, therefore, being planned for this special purpose. Consideration is being given to still other collections which may be of help to industrial and trade schools.[15]

When the course of geography was revised in 1915 and 1916, Toothaker made changes wherever necessary and introduced new specimens to bring the collections "up to date." [16]

Upon the theory that every school should have its own miniature museum, the Commercial Museum initiated a new type of service to schools through its cooperation with the University Museum in Philadelphia in 1930. This was to stimulate and aid schools in Pennsylvania to build up small museums for themselves. The Carnegie Foundation made a small grant to assist in

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[14] Philadelphia Commercial Museum, Philadelphia, Pennsylvania, *Report for 1916-17*, p. 12.

[15] Ibid. p. 12.

[16] Philadelphia Commercial Museum, Philadelphia, Pennsylvania, *Report for 1915*, p. 6-7.

this experiment. Specimens, projects and helpful suggestions were supplied to a number of schools, including several state teachers colleges. The work has met with a very favorable response and, according to a statement in the museum's annual report for 1931, is having an important influence on teacher training. The schools where these collections have been sent feel that they are, with the museums' help, doing some of the most progressive work in education that has been developed in the United States.[17] The first subjects were prepared to illustrate the evolution from the ancient hieroglyph to modern writing and printing, the history of clothing including the development of fibres and of the processes of spinning and weaving. In the work, emphasis was laid upon pupil activity and the learning about essential industries by direct handling of materials. Very helpful suggestions for schools wishing to build up a small "school museum" for themselves were printed in a small pamphlet written by Toothaker in 1937.[18]

### American Museum of Natural History

Although the American Museum of Natural History was one of the pioneers in the distribution of collections as more or less permanent acquisitions in many classrooms of the New York City schools to aid the teachers who had attended Bickmore's lectures, this plan was modified later as it was found that the specimens in these cabinets were not used to any extent and were sometimes entirely overlooked, especially when a new principal was assigned to the school. In 1903, George H. Sherwood, who at that time was assistant curator in the department of invertebrate zoology and in 1906 became curator of the museum's department of education, modified this policy by preparing a series of loan collections available upon request to teachers wishing to use the materials in their nature study work. Thirty-five cases

[17] Philadelphia Commercial Museum, Philadelphia, Pennsylvania, *Annual Report*, 1931, p. 8.
[18] Charles R. Toothaker, School Museums, *Pamphlet, Number 1*, 1937, p. 22.

of insects, twenty-five sets of mollusk shells, twenty sets of birds, five sets of anthropological implements, and eighty sets of invertebrates were available in 1903.[19] Each species of a collection was accompanied by an individual label giving common name, scientific name, and locality. Careful outlines were also prepared as teachers' aids in the use of the specimens. With each hand grasping the handle of a case, and often with a third case tucked under one arm, Sherwood made his way by trolley car and horse car to the schools of New York's Lower East Side where a genuine welcome was given him by the children who had never had any personal acquaintance with nature. Soon after schools opened in the fall of 1903 applications began to come in for the collections. The schools which had formerly used the collections placed in the school buildings, through some misunderstanding, thought that the museum would send the cases without application, so an announcement was sent to all the Manhattan schools, giving the conditions on which the collections would be lent.

The demand for these sets was so great that by the end of December, 120 sets were in use in the city and had been studied by forty thousand children.[20] The birds were the most popular, with the insects coming next, followed by minerals and woods. Additional sets were procured to meet the demands and at the end of 1904 more than 230,000 children had studied the materials. These were used by the teachers not only for nature study work, but also for drawing, written and oral English work, and to stimulate supplementary reading. Additional materials had to be prepared to keep pace with the demands. A horse and wagon assisted the man power in making deliveries to the schools. This in turn was displaced by an electric delivery wagon in 1907 when 725,000 children studied the collections. Later, a motor-

[19] The American Museum of Natural History, New York, N.Y., *Annual Report,* 1903, p. 26-7.

[20] The American Museum of Natural History, New York, N.Y., *Annual Report,* 1904, p. 27.

cycle was added and then came the Ford car. At present six delivery trucks are used each day for distribution of materials of many types, for loan periods of from one to three weeks, to the public schools of Greater New York City. The region is zoned into five districts and a special day assigned to each school for the delivery and collection of materials, all of which have been prepared with museum funds, without compensation from the city. The extent of the use of specimens and collections from this museum is indicated by the figures from the annual report for 1937 which show that 1,768 collections of 108,032 objects were delivered in that year to 705 schools where they were studied by so many children that 9,901,486 contacts were made through this single service of the museum.

Since the purpose of these circulating sets was to provide illustrative materials for the course of study in nature and to give authoritative data in regard to the specimens, considerable care was exercised in their selection. To meet changes in the curriculum, the character and contents of most of these collections have been modified from time to time and many new ones added. The first set of birds, called the "Bluebird Set," consisted of five birds: bluebird, phoebe, barn swallow, house wren and chimney swift; all birds whose nesting habits have been modified by their contact with man. Each bird was mounted on a small branch fastened to a base with beveled edges on the sides so it would slide into a groove provided for it in a compartment of the carrying case, holding it securely in place and yet enabling it to be removed easily. An individual label was on each base, giving a few facts which were supplemented by the manuscript for the teacher's assistance. In this were described the principal habits of these birds; their relation to each other and to man; the structure of their bill, feet, wings; their songs; and their nesting and feeding habits. A bibliography was added as the data in the manuscript were intended more as suggestions to the teachers regarding the possibilities in a study of these birds than as an extensive account of the birds themselves.

In 1906 the circulating collections which were available for loan to the schools and the grades to which each was adapted were as follows:

*Native Birds—Adapted for Grades 1A-4B*

Owl Set—containing owl, chickadee, nuthatch, song sparrow, kinglet

Blue Jay Set—containing robin, red-winged blackbird, oriole, meadow-lark, chipping sparrow

Bluebird Set—containing bluebird, phoebe, barn swallow, house wren, chimney swift

Tanager Set—containing scarlet tanager, red-eyed vireo, goldfinch, humming bird, pigeon.

*Insects—Adapted for Grades 2A-5A*

Containing Cynthia and Cecropia moths, monarch butterfly, et cetera, and typical representatives of the different groups of insects.

*Special Insects—Adapted for Grades 2A-5A*

Containing life history of Cecropia moth, development of monarch butterfly, life and work of honey-bee and household insects.

*Mollusks—Adapted for Grades 4A-5A*

Containing shells of about twenty-five mollusks, including specimens of the oyster, clam and chambered nautilus.

*Crabs—Adapted for Grade 5A*

Containing relatives of the common blue crabs.

*Starfishes and Worms—Adapted for Grades 4A-5A*

Containing about fifteen species of corals and their relatives.

*Minerals and Rocks—Adapted for Grades 4A-5A*

Containing twenty specimens of minerals and building stones.

*Native Woods—Adapted for Grades 2A-5B*

Containing elm, hickory, oak, maple, white birch, ailanthus, sweet-gum, sour-gum, chestnut, sycamore. Specimens show cross, longitudinal and oblique sections of the wood, characteristic bark, annual rings, et cetera.[21]

[21] George H. Sherwood, Cooperation with the Public Schools, *The American Museum Journal*, Volume XI, Number 7, November 1911, p. 243-4.

Later many collections of anthropological specimens were added, also other materials illustrative of the products and industries of countries, habitat groups of birds, insects, and small mammals, and miniature habitat groups designed to represent the every-day life of peoples in other lands. The latter were prepared to supplement the studies of pupils in the social sciences. Each habitat group was provided with interior illumination to enable the pupils to make detailed studies of the subject matter presented.

The method by which a teacher could obtain the collections was made as simple as possible. Return postal cards on which were listed the names of each collection were mailed to the principal of every city school at the beginning of the term. The principal then had only to check the collections desired and the sequence in which the deliveries should be made. On the first date indicated, a museum messenger appeared with the collection which was left for a period of three or four weeks if desired, or would be called for at the end of one week. Supplementary orders would be taken over the telephone and quick deliveries made, thus keeping the museum in frequent touch with the teachers and schools and enabling the workers in the museum's department of education to understand the needs of the schools more fully. It has also stimulated the use of material at a given time and has provided for emergencies arising when new material is needed. As changes have been made in the course of study for the city schools, it has been possible to keep pace with them and have new collections ready for distribution when a new syllabus has been issued in nature study, geography, history or biology.

### Chicago Academy of Sciences

In 1909 the city schools in Chicago began to have the use of collections prepared by the Chicago Academy of Sciences. After a study of loan collections provided by other museums, and a survey of the subject of nature study in the Chicago schools, it

became apparent that these collections to be of practical value, should be arranged in sets and accompanied by literature. Accordingly, the curator of the Academy arranged the birds in such groups as: "Winter Residents," "Summer Residents," "Birds of Prey," "Swimming Birds," and others. The same method, followed for other forms of life and also for the geographical materials, brought enthusiastic responses from the city teachers who helped to solve the question of transportation by using two boys from the upper grades of each school to carry the cases from the museum to their schools.[22] The use of these loan collections continued for several years until the development of the more extensive service from the Field Museum made it unnecessary to continue the work from the Academy of Sciences.

## Field Museum

In 1911, Norman Wait Harris created an endowment for the Field Museum which was to be used for the preparation of loan collections to be sent out into every Chicago school, thus bringing the children into some contact with the museum. The department bearing the name, "The N. W. Harris Public School Extension of the Field Museum" was organized in 1912 to look after the preparation of the loan collections. Although the idea was not new, the museum authorities felt that new life could be given to the work by changing the method of presenting the exhibition materials.[23] Portable cases were constructed, with depths depending upon the subject to be presented. Each case was equipped with hangers to suspend it on a stand furnished by the board of education. A sliding frame was provided to hold a label ten by seven inches. Thus two groups of pupils could read the labels and use the group at the same time. The labels were pushed back when the case was being transported from school to school or within a school. The plans first made and continued,

[22] Frank Baker, School Loan Collections as Prepared by the Chicago Academy of Sciences, *Proceedings,* American Association of Museums, Volume 4, 1910, p. 36.
[23] Stephen C. Simms, *Field Museum and the Child.* Chicago, 1928. p. 4-19.

were for the cases to contain mammals, birds, insects, fishes, reptiles, plants and other natural history subjects which the pupils would be apt to encounter in fields, parks and ponds in and around Chicago. In most cases the habitat method was used for exhibiting the specimens with backgrounds of enlarged and colored photographs of their environment. The cases of economic products showed the successive steps in the preparation of food products, the preparation and manufacture of materials for clothing, and other products. Prehistoric animals shown in models occupied other cases, also models of mines and other miscellaneous subjects.

The plan followed for the distribution of these cases provided for the routing of them from school to school. At the beginning of the school term two cases apiece were delivered to each school. After two weeks these were collected and two others left in their place according to a carefully prepared schedule which alternated the types of subject sent to the school throughout the year. A school might thus receive a botany and food case one week, followed by a zoology and textile case the next period, and a geology and a paper industry case after that, thirty-six in all for the school year. With the large number of subjects this arrangement made it possible for the same case to be scheduled to a particular school only once during the school life of a pupil. Besides these scheduled loans, teachers could secure other cases on special request and for this purpose, each principal was furnished with a list of all cases available.

The cases were also lent to various social organizations and clubs. Scheduled deliveries were made to community centers as well. After the close of the school year the cases were all returned to the museum for inspection and repair where needed.

The authorities of the Field Museum felt that through these circulating cases the museum was enabled to reach a larger number of children and more often, than could otherwise have been done; also that the cases provided pleasurable instruction and created a greater interest in and appreciation of nature.

## Charleston Museum

The Charleston Museum, under the direction of Laura M. Bragg, began in 1912 to circulate materials among the city schools. The following year they extended this circulation to the schools of the county and by 1920 were able to provide fifteen exhibits a year for each of these schools. By 1929 both white and colored schools throughout the county and in other sections of the state were assisted with these loans. The exhibits illustrated natural history, culture history, and industry.[24]

A new method of presentation was used in many of these exhibits. The "culture exhibits" dealing with life and activities in Holland, Egypt, or among the Cherokees, for instance, each depicted a scene from the every-day life of those people, the data being historically accurate and the whole presented in a "stage-set" form by an artist of the museum staff. Painted cardboard figures were securely fastened into an accurate representation of the surroundings with a curved painted background, for instance, Indian Fur Traders at a Hudson's Bay Company Trading Post. In a small compartment below the scene were placed specimens and objects such as small samples of different furs fastened to a removable base to permit handling by the children.

The nature exhibits were prepared for a regular nature study outline which was written by the museum to correlate with the elementary geography and nature requirements of the lower grades. The industrial exhibits supplemented the geography requirement, furnishing such exhibits as rubber, products of the cow, silk, wool, tea, and rope fibers. Each week exhibits were sent to the city schools, both public and private, white and colored, according to the regular nature study schedule in the lower grades and by request from the teachers in the upper grades. At present, these exhibits are sent by request only, to all grades. Every other week an exhibit is sent to white schools in Charleston

[24] Frances Barrington, Curator of Education, Charleston Museum. Personal letter, 1936.

County, the teachers asking for the one which will be especially helpful at that time. A special supervisor carries exhibits and libraries to the colored schools in the county.

### Other Museums

Among other museums of the country which have carried on a notable loan service of collections and specimens to schools, are the Newark Museum, the New Jersey State Museum, the Los Angeles Museum of History, Science and Art, the Wisconsin Historical Museum, the Oakland Public Museum, which was the first to start the work on the Pacific Coast, the Brooklyn Children's Museum, and the Rochester Museum of Arts and Sciences. During 1930 the latter museum arranged 298 extension exhibits illustrating topics connected with the social sciences as taught in the public schools. Some three thousand objects, ten thousand pictures, and 128 sets of lantern slides had to be collected and arranged for this purpose. During the first eight months 240,000 pupils in forty-eight schools were reached by the exhibits,[25] with a steady growth in the service each of the following years. The Berkshire Museum in Pittsfield, Massachusetts, where Laura M. Bragg is now directing the work, has prepared traveling exhibit cases which are sent to the county schools, following the plan instituted in Charleston.

## *Educational Museums*

When the Louisiana Purchase Exposition was held in St. Louis in 1904, the board of education of that city took advantage of the opportunity to give the children in the schools every possible benefit to be derived from it. F. Louis Soldan, superintendent of schools, appointed C. G. Rathmann, an assistant superintendent, to take charge of the Public School Exhibit which maintained a changing program of school activities throughout the period. It was while observing the enjoyment of the pupils

[25] Editor's Note, *Museum News,* February 1, 1931, p. 9.

who took part in this classroom exhibit and who wandered about the grounds under the guidance of their teachers, that Rathmann conceived the idea of trying to save some of the educational exhibits for them after the Fair closed.[26] Thus the product of Rathmann's vision, interest and effort opened in October 1905, as the first Educational Museum of the country. Amelia Meissner was the curator from the start and it is due largely to her devotion to the work that the museum has succeeded in its slogan, "Bring the World to the Child," and has made it possible to provide the schoolrooms of St. Louis with just the illustrative materials wanted, at just the time when they are wanted.

The announcement of the opening stated that some of the material had been divided into collections, each of which was to illustrate certain features of the work in geography, history, nature study, art, reading, and other subjects. Other collections were to be ready in a few weeks, such as collections of Missouri Birds, sets of apparatus for work in physics in the seventh and eighth grades, for physical geography, for oral geography in the third grade, and collections to illustrate geography and history of the various countries.[27] The collections consisted of objects and pictorial illustrations in the form of colored charts, photographs, woodcuts, stereographs, maps and lantern slides.

The objects which were too fragile and delicate for frequent transportation or too heavy and bulky remained as exhibits in the museum which the teachers were invited to visit and study. In addition, sample exhibit rooms of all museum objects were maintained for the teachers' benefit and designated as an "open catalogue." Order blanks were provided so the numbers of the collections desired could be indicated and then mailed in a stamped, addressed envelope provided. All materials ordered from the museum were delivered by the museum wagon and kept

[26] Amelia Meissner, A Brief Story of the Origin and Work of the Educational Museum of the St. Louis Public Schools, *Public School Messenger,* Volume 24, Number 5, June 30, 1927, p. 5-36.

[27] The Educational Museum of the St. Louis Public Schools, *Public School Messenger,* Volume V, Number 1, September 28, 1905, p. 1-8.

in the schools for seven days. On the same day of the following week the driver called for the collections. Complete catalogues were prepared, listing individual specimens and giving a few facts about each, thus serving both as a catalog and a handbook.

According to a statement by Rathmann,[28] the objects in the collections were handled, observed, and studied by the children, compared with each other and with such as had been treated in connection with other countries. The children determined how the products before them affected the life of the people, their intercourse with other nations, their wealth and rank, also how they decided lines of transportation, ocean trade, and other problems. Each child in the class selected an object, gathered all the information he could about it, and then presented the results to the class. "By means of the photograph, the lantern slide, and especially the life-like stereoscopic pictures, we take the children into the world; by means of the objects, we bring the world to them." [29] In nature study, Rathmann insisted that living specimens be used whenever they could be procured, but in the case of birds and some other forms of life, not easily obtainable or handled in the classroom, the museum provided the mounted specimens. At present, two trucks are needed for the deliveries to the schools. These aggregate daily ten thousand specimens and six thousand books. The following materials are now furnished by this museum to the schools: (1) specimens of the animal world; (2) minerals, rocks and ores; (3) materials used for clothing and shelter; (4) other natural products; (5) articles and models illustrating the life of the different peoples of the world; (6) apparatus for experiments in physics, physical geography and chemistry; (7) motion picture films, still films and film strips; (8) classified collections of photographs, stereoscopic pictures, lantern slides and colored charts; (9) pamphlets and booklets; (10) musical and literary records for the phonographs

[28] C. G. Rathmann, The Educational Museum of St. Louis, *Proceedings*, American Association of Museums, Volume II, 1908, p. 40.
[29] Ibid. p. 41.

in the schools; (11) music folios for orchestra and chorus work; (12) traveling library books; and (13) room libraries consisting of supplementary readers. In fact, almost any supplementary teaching aid material can now be obtained from this Educational Museum.[30]

The Exposition in St. Louis also furnished considerable material for another venture in a school-service type of museum. This was in Reading, Pennsylvania, where Levi W. Mengel, a science instructor in a boys' high school, discovered early in his teaching experience that the sciences were most readily taught through pupil participation and a tangible contact between pupil and subject.[31] While visiting the Exposition in 1904, Mengel discovered that several museum men were obtaining promises of exhibition material so he secured permission from his school superintendent to procure similar material and finally obtained more than two thousand specimens and many industrial products.

From then until 1909, Mengel spent most of his leisure hours arranging the materials in cases for display and distribution. His personal collections of natural science objects and anthropological specimens were added to these and in 1911, the new museum was turned over to the school board. This differs from the St. Louis Educational Museum in that it is a real museum of science and art, now housed in a beautiful building opened in 1928 and located in a park which is used as a laboratory for students of botany as it contains living specimens of all the wild flowers of the state. Thus from the work of one teacher, a splendid school-museum service has developed to aid education in Reading and in some of the county schools.[32]

Another Educational Museum which is largely the embodiment of the ideals of one man, William M. Gregory, is the one

[30] Amelia Meissner, Curator of Educational Museum, St. Louis. Personal Interview, August 31, 1937.

[31] Josephine Moyer, Geography in the Reading Museum and Art Gallery, *Education*, January 1935, Volume LV, Number 5, p. 299-304.

[32] Josephine Moyer, Instructor, Reading Museum and Art Gallery. Personal Interview, June 4, 1936.

established in Cleveland in 1912. Specializing in geography, geology and history, Gregory, as professor at The Normal Training School, now the School of Education of Western Reserve University, began many years ago to advocate the use of visual aids in education. He realized that the only way to demonstrate them effectively was to make available a supply of illustrative material suitable for use in the school room. Therefore, he started with a small room in the basement, during moments of spare time, to launch the Educational Museum of the Cleveland Public Schools. His aim for this museum was to supply pupils and teachers with illustrative material, carefully selected and organized so it would be an effective aid to actual school work.

When new courses of study were being formulated in Cleveland, Gregory considered carefully the visual materials necessary for the instruction in each unit and proceeded to organize enough duplicates practically to meet the needs of the teachers. These units were also listed in the printed course of study so each teacher might know what was available.[33] All types of visual aids, projection apparatus, and expensive scientific instruments, formerly purchased for only a few schools, are now included in this service to the schools. In spite of the many duplicates, the museum is unable to fill all requests received for these valuable teaching aids, reaching about 130,000 pupils in the Cleveland public schools.

Other educational museums have been established in certain cities in the United States, as Cambridge, Detroit, and Duluth. Each of these institutions, under the control of the school board and designated as Children's Museums, has been rendering a helpful service to the schools in its vicinity, combining extension work with museum classes.

### *Lantern Slide Libraries*

Other types of museum loan materials, previously mentioned in connection with the work of the educational museums, consist

[33] William M. Gregory, Personal Interviews.

of lantern slides, mounted pictures and photographs. The extensive use of slides by Albert S. Bickmore in his lectures to teachers throughout New York State, showed the value of this form of teaching aid. When the first collections were prepared by the St. Louis Educational Museum in 1905, lantern slides were included as loans along with specimens and objects. The Commercial Museum in Philadelphia in 1907 began to lend not only lantern slides arranged in a set with a regular lecture accompanying them, but also the stereopticon lantern, provided with electric, acetylene, or oil lamp, and screen for projection. These were sent out upon application to any school in the state and thus reached many small country schools in towns where lantern slides had never before been seen and gave to many thousands of country children and their parents as well, educational opportunities they would otherwise not have had.[34] The loan lectures were often used by teachers, not only for instruction in school hours, but also for entertainment to parents and friends, thus aiding in making the country school house a social center.

In 1911, the Metropolitan Museum of Art in New York City placed its collection of lantern slides and photographs at the disposal of lecturers and teachers in any section of the country east of the Mississippi River.[35] A small fee was charged as rental except to the public schools of New York City. In 1915 the collection had grown so that 34,219 slides were lent to 876 borrowers, including 19,247 to public schools in the city. Through this agency, the museum was brought into active relationship with the universities of the city and many educational societies throughout the eastern part of the country.[36]

At this same time, the American Museum of Natural History placed its large collection of lantern slides at the disposal of the public schools of New York City, providing for free deliveries to the schools, the same as for the collections of objects. At first

[34] Philadelphia Commercial Museum, Philadelphia, Pennsylvania, *Annual Report,* 1911, p. 9.

[35] Metropolitan Museum of Art, New York, N.Y. *Annual Report,* 1911, p. 40.

[36] Metropolitan Museum of Art, New York, N.Y. *Annual Report,* 1915, p. 27.

there was a comparatively small number of city schools equipped with stereopticon lanterns, so the circulation in 1919 amounted to only 80,468 slides in 1,470 loans.[37] These numbers, however, were quadrupled as soon as the slide librarian studied the subject matter of the slides and arranged them in groups, correlated with the courses of study required for the elementary schools. This new arrangement, suggestive of a talk to be given by the teacher, and with a list giving titles and some information about each slide, met with such enthusiastic response from the public school teachers that the applications at once far exceeded the number of slides available and the circulation jumped to 330,298 in 6,219 loans for 1922.[38]

When new courses of study were prepared in geography, nature study, history, general science, and biology, a vast amount of work was done in forming new groups of slides and having them ready for distribution to the schools as soon as the syllabus was placed in the hands of the teachers. An arrangement of the syllabus topics and all forms of extension aids offered to the schools by this museum was issued for each of the above subjects under the title "Visual Aids in Geography," or another subject designated. This close correlation of the work with continual modification and the addition of new material, brought many more demands for the lantern slides than it has ever been possible to fill, even though the year 1937 was marked by a circulation of 1,402,562 slides in 54,195 orders to 692 schools, making 17,454,-433 contacts with the public school children of New York City.[39]

The Milwaukee Public Museum and the Buffalo Society of Natural Sciences are two other museums which have taken care of a very extensive loan service of lantern slides and have provided for their free delivery, being assisted in this by the city

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[37] American Museum of Natural History, New York, N.Y. *Annual Report,* 1919, p. 59.

[38] American Museum of Natural History, New York, N.Y., *Annual Report,* 1922, p. 42.

[39] American Museum of Natural History, New York, N.Y., *Annual Report,* 1937. (typewritten)

appropriation. The Buffalo Museum during the school year of 1935-36 lent 403,625 slides in 13,648 sets and 905 stereopticons; 968 microscopic slides and 138 microscopes; and 83,636 charts, objects and pictures.[40] Among the latter, are attractive copies of the works of many of the great masters, with an appreciation of the picture and a biography of the painter on the back of each. Any museum visitor may borrow these pictures and hang them at home for the loan period of two weeks.[41]

When the Buffalo department of public instruction made the last revision in its geography syllabus, permission was granted to the slide librarian at the museum to have access to the new lesson plans with the privilege of suggesting additions and changes in the accompanying lists of visual material. The result of this cooperation was that practically every unit of instruction in geography for grades three through six now has one or more sets of slides listed among its supplementary or required teaching materials. Also, in keeping with the different methods of presenting the subject matter, many of the old sets of slides were revised and new material added.[42]

The number of museums in the country which have developed an extensive loan service of lantern slides is comparatively small as this type of work has usually been looked after by the public school system. Some museums have a rather small library of slides pertaining to their special collections which are available for loan to lecturers. The New Jersey State Museum has built up a fairly large slide library from which loans are sent all over the state. Some of the museums which circulate slides locally but not in large numbers are: Peabody Children's Museum, Brooklyn Central Museum, Grand Rapids Public Museum (Kent Scientific Museum), Hackley Art Gallery, Kalamazoo Museum

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[40] Buffalo Society of Natural Sciences, Buffalo, New York, *Annual Report*, 1935-36, p. 18-19.

[41] Buffalo Society of Natural Sciences, Buffalo, New York, *Annual Report*, 1928-29, p. 47.

[42] Buffalo Society of Natural Sciences, Buffalo, New York, *Annual Report*, 1927-28, p. 37.

and Art Institute, and the Worcester Art Museum. Some of the art museums are more apt to include in their loan service reproductions of fine paintings, engravings, and etchings, prints and photographs. Logan Museum of Beloit College in 1937 prepared for free distribution to Middle Western schools, thirteen plates of pottery of the Mimbres Valley, New Mexico. On the back of each plate is explanatory material. With the plates, a school may also borrow a travelling set of six bowls.

### *Art Museum Loans to Secondary Schools*

With a Carnegie grant received in 1932, the Worcester Art Museum prepared a series of circulating exhibitions based upon the average curriculum of the secondary schools, including the required reading lists for college entrance credit, complementing the work of the classroom and giving a cultural background for the humanitarian subjects studied in the secondary school. The finest color prints and photographic material available were assembled for this purpose and each exhibition was accompanied by comprehensive explanatory matter, a selected bibliography for the teacher and lantern slides relative to the subject. The following exhibitions were assembled: Art and Life in Ancient Egypt, the Homeric Poems, Greece in the Time of Pericles, Virgil and the Aeneid, Bible Illustrations from the Earliest Times to the Renaissance, Chivalry and Courtly Life in the Middle Ages, Mediaeval Life of the People, Mediaeval Minor Arts, the Bayeaux Tapestry, Shakespeare and Tudor England, Le Grand Siecle, The French Revolution, American Art of the Colonies and the Early Republic, Mohammedan Art, and Far Eastern Art.[43] These exhibitions were sent to boys' and girls' boarding schools in the greater part of New England, also to public high schools. Among the schools using the material were Exeter, Groton, Middlesex, and St. Marks. The Boston Museum of Fine Arts started a

[43] Minnie Goldstein, Report of Secretary for School Service on the Regional Program of Art Education of the Worcester Art Museum, 1936.

similar project for the schools within its own city and vicinity. Material and slides were selected for use which coordinated lectures and exhibits with class work in Latin, modern languages, history, English and art appreciation. Large photographs of works of art were assembled in permanent sets grouped around specific ideas. For each set a simple authoritative article with brief bibliography was written to be used as reference material by the teacher. With the assistance of a Carnegie grant it was possible to send a highly trained lecturer to introduce the sets in the schools and explain their use to the teachers. During 1936 this lecturer spoke to over six thousand students and acquainted many teachers and headmasters with the aims of the program. Among the sets used at that time were "The Life on a Mediaeval Manor," "The Development of the Monastic Ideal," "The Mediaeval Hierarchy," "Louis XIV and His Circle," and "Agriculture in Ancient Egypt." [44]

Similarly with a Carnegie grant, the Brooklyn Museum in 1932 and 1933, under the direction of Herbert J. Spinden, authority on Central American and Mexican archaeology, prepared portfolios of plates illustrating school work in geography, history and art. These have been circulated among the public, parochial, and private schools and their preparation would seem to belong peculiarly to the province of the museum.

## *Neighborhood Circulating Exhibitions*

A rather specialized type of loan service has been developed by two museums in the country in the form of neighborhood circulating exhibitions. The American Museum of Natural History in 1907 endeavored to make the institution of more practical educational value to the community by placing exhibits in some of the branches of the New York Public Library. The first exhibits arranged under the advice of the supervisor of Children's

[44] Boston Museum of Fine Arts, Boston, Massachusetts, *Annual Report,* 1936, p. 48-50.

Libraries, included an exhibit on Eskimo life and one on "Hiawatha," consisting of Indian materials. The collections were designed to stimulate the reading of books related to the subjects which were illustrated. The material was selected carefully with reference to the general character of the district in which the library was located. In a library where the Eskimo exhibit was placed the calls for books on the Arctic increased from zero to four hundred in less than four weeks.[45] This work has been continued for thirty years with similar results. Many of the exhibits have been placed in community centers, banks, and high schools. The loan of 23,260 objects during 1937 brought an attendance of 508,640 people who stopped to look at the materials and to read the labels accompanying them.

The Metropolitan Museum of Art started in 1915 to cooperate with the New York Public Library by exhibiting photographs of collections and objects in the museum galleries, in an endeavor to bring knowledge of the collections to the reading public of the city.[46] Twenty years later this museum, in the hope of giving its collections and services greater value in remote regions of the city, organized seven neighborhood circulating exhibitions grouped under the titles: China and Japan; Arms and Armor; Ancient Egypt, Its Life and Art; Oriental Prints and Textiles; European Textiles and Costume Figures; Ancient Greece and Rome; and The Near East. These were shown in settlement houses, colleges, public library branches, high schools, a small museum and other places. The collections included about 1,500 objects and in the first year of their use brought an attendance of over 380,000 people. A few special lectures were given by members of the museum's staff on types, periods, and races represented in the objects shown, as well as on the principles of color and design which they illustrated. A flyer with descriptive

[45] American Museum of Natural History, New York, N.Y., *Annual Report,* 1908, p. 20.

[46] Richard F. Bach, Neighborhood Circulating Exhibitions, *The Museum News,* Volume XIV, Number 12, December 15, 1936, p. 7-8.

text, bibliography, a picture of an object in the collection, and directions for reaching the main museum building was distributed free wherever the exhibition was held. In selecting the place for an exhibition, the museum endeavors to go into a region where but few do or can come to the museum itself and where hundreds of thousands have never heard its name. Such small exhibitions seem to have the advantage of informality and neighborhood goodwill. They also carry the educational service of the museum to the daily life of communities which would otherwise never be reached by the museum.

It has also been the custom of a small number of museums to send to the parks of the city some of their movable collections which illustrate the life to found there. This work was carried on by the Newark Museum as early as 1916.[47] The Chicago Academy of Science in the summer of 1937 was sending out travelling exhibits to the Open Air Centers in the city's parks. The Cincinnati Museum of Natural History also opened a branch museum at a playground conducted by the Cincinnati Recreation Commission for Negro children in a crowded portion of the city. The exhibits included minerals, insects, birds, fossils, mollusks, reptiles, mammals—surplus material which was changed at intervals.[48]

## *Motion Picture Films*

The use of the moving picture film in interpreting or illustrating museum collections, whether it shows the wild animals of a museum habitat group in their native surroundings or illustrates the character and atmosphere of Persian life and art, has been given a most encouraging beginning in a number of museums. This may have been inaugurated by the acquisition of films

[47] John Cotton Dana, Increasing the Usefulness of Museums, *Proceedings*, American Association of Museums, 1916, Volume 10, p. 85-6.

[48] Ralph Dury, Director, Cincinnati Museum of Natural History. Personal Interview, September 1, 1937.

brought back from museum expeditions and the comparatively few films made in the museum itself. Another important landmark in the relationship of museums to films has been made by the establishment of the Film Library of the Museum of Modern Art through the aid of grants from the Rockefeller Foundation.

## Film Library of the American Museum of Natural History

Comparatively early in the development of films, a small number of museums began to accumulate libraries of motion pictures which were used in lectures given in the museum and also circulated among other museums and to schools. In the subject matter covered by these films were topics on art, history, industry, and natural history. The American Museum of Natural History was a pioneer in the use of films for educational purposes as in 1907, Frank M. Chapman, noted ornithologist of this museum, was filming the life history of the duck hawk on Gardiner's Island. This film was used in Chapman's lectures. The following year he illustrated a lecture on Florida Bird Life with films he had taken in that state. In 1911 the museum was using motion pictures regularly in auditorium lectures given for groups of school children in the auditorium of the museum and in a few schools of the city. The gift from Paul J. Rainey, the famous African hunter, of his film on "Lion Hunting" formed the beginning of a reference library of motion picture negatives in this museum which was soon augmented by the Antarctic film taken on the Shackleton Expedition, several films on ceremonials of North American Indian tribes, other films from various museum expeditions, and the negative of African wild life taken by Martin Johnson. It soon became evident that the explorer must not alone be a specialist in his line but an expert camera man as well, for the films brought back to the museum were considered an important part of his collection in that they gave a clear and comprehensive picture of life and conditions in remote corners of the globe. All

of these negatives secured by museum explorers were added to the film library. This film library, now containing more than 750,000 feet of negative, was placed at the disposal of the museum's department of education to be edited into reels adapted for correlation with the school curriculum.

At first only occasional loans of thirty-five millimeter films were made to the schools in New York City from this museum and to schools in Pennsylvania from the Commercial Museum. The latter museum abandoned its attempt to circulate films after its three year trial from 1921 to 1923 but the American Museum in 1922, announced a definite free film service to the city's public schools, placing its films at their disposal and making free deliveries to the schools requesting films if they were equipped with a standard motion picture projector. Immediately there was a favorable response from the rather small number of schools which could then take advantage of this newer form of visual aid. However, when the school principals learned that free films, useful in geography, history, nature study and biology could be secured from this museum, they made a great effort to have their schools equipped with standard projection apparatus in a booth which would satisfy all requirements of the fire laws.

From a circulation of seventy-six reels shown to 18,287 children in 1922, the museum three years later lent 1,076 reels which were shown to 333,097 pupils. A great drawback to the more common use of the thirty-five millimeter film as a teaching aid was the necessity of providing a licensed operator and taking the prescribed fire precautions. This practically prohibited the classroom use of films and restricted their showings to assemblies where both teachers and pupils thought of the films more often as a form of entertainment than as an integral part of a lesson.

Another drawback in the circulation of films to schools was the lack of the right kind of subject matter in the films. For instance, it was almost impossible to find good films to show the common, every-day activities of the people in foreign countries, their industries and their children. This museum made a definite

effort to secure such films for its circulating library in 1925 when friends volunteered to go to France to take films of this character. They returned with films of Normandy and Brittany, Central France, the Pyrenees, and the Mediterranean Coast.[49] Another trip was made the following summer and later other films were taken in Egypt, Greece, and Palestine.

This museum kept pace with the changes in visual education for as soon as a few schools were equipped with a sixteen millimeter projector, it announced a free library of the narrow width films. At the same time, in 1928, the museum became a depository for films produced under the direction of the United States Bureau of Mines, the Canadian Government Motion Picture Bureau, and certain commercial firms. This resulted in the extension of its film circulation to schools and other educational organizations all over the country except where limited by the time required for long distances as to the Pacific coast states. The annual report of this work for 1937 shows a circulation of 34,700 reels to 1,706 borrowers in forty-five states, with an audience of 13,102,368 people reported at the 80,532 showings.[50] Thus from a small beginning in 1907, this museum has developed one of the large bureaus of free films in the country.

### Film Production by Metropolitan Museum of Art

Not only were subjects of natural history and the life of peoples in many parts of the world illustrated in films available from about six museums in the country in 1935, as announced in Circular Number 150, from the Office of Education,[51] but art museums also became interested in the educational possibilities of films about 1922. The Metropolitan Museum of Art has done the most extensive work of any art museum in the country in the pro-

[49] American Museum of Natural History, New York, N.Y., *Annual Report,* 1925, p. 80.

[50] American Museum of Natural History, New York, N.Y., *Annual Report,* 1937 (typewritten)

[51] Cline M. Koon, Sources of Educational Films and Equipment, *Circular Number 150,* December 1935, p. 10.

duction of films dramatizing its own collections. This work of producing its own films was begun in 1922, after considerable discussion as to the most practical method of relating film exposition to the museum objects, so that the film might become an important aid in the understanding of works of art.

George D. Pratt, one of the museum's trustees, explained this film work as follows in the Bulletin of the Metropolitan Museum of Art:

The use of the motion picture for educational purposes is one that is gradually being recognized as a most important factor in museum work.

The Metropolitan Museum of Art, realizing this significant use, started four years ago to make its own films. The motion picture screen can do for art as much as it has done for the drama, and even more. The Museum has only tapped the very beginning of the educational possibilities which motion pictures offer in connection with its activities.

Briefly to mention our present films, we have, first, those on Egypt. These bring before the audience Egypt with its ruined temples and carvings, and the native life of the country. Inserts of tomb paintings, depicting life 4,000 years ago, reveal to the onlooker that the customs of the people have changed but little during the intervening years.

How was armor used in ancient days? This is shown in another film, in which the characters appear wearing armor as it was worn in mediaeval times.

Greek art and mythology have been recorded in a film entitled The Gorgon's Head. The story deals with a student who has come to the Museum to study a Greek vase, but who falls asleep and in a vivid dream follows the adventures of Perseus as handed down to us in Greek mythology. The theme is admirably acted by a group of players headed by Edith Wynne Matthison and Charles Rann Kennedy, who volunteered their services to the Museum.

The American Wing, with the atmosphere of mystery that haunts those early rooms, affords great possibilities for the play of the imagination. Already one film portraying an incident in the life of a Colonial family has been produced.

French, Italian and Chinese art; the making of leaded glass as it was done in the thirteenth century—all are fields yet unrecorded but rich in possibilities. In fact, the field is so rich that it is hard to know where to begin.

A film, just completed, depicts the making of pottery. This was produced under the direction of Miss Maude Adams, assisted by Robert J. Flaherty. The scene is laid in a potter's shop in the middle of the last

century, with a potter at work on a kick-wheel. We are indebted to Miss Maude Robinson, of The Greenwich House Pottery, for her most helpful cooperation.

Thousands of people are looking for motion pictures which have artistic, instructive, and entertaining value, but the average motion picture producer does not show such films. . .

The Metropolitan Museum of Art is taking a more vital part each year in the educational activities of the city's life. Its priceless treasures showing the art and craftsmanship of other ages take on added interest when made to live again through the medium of motion pictures. Furthermore, unlike the collections, which may be seen only by the citizens of New York and its visitors, the motion pictures can go from state to state, spreading the influence of the Museum in places heretofore untouched.[52]

These motion pictures have indeed, gone "from state to state" on loans made for a nominal rental fee, and have been shown before groups in many of the smaller art museums of the country.

### Museum of Modern Art Film Library

Another notable work with films has been initiated by the Museum of Modern Art. Since the motion picture is so important as a form of contemporary art and is the only new form of art of modern times, in addition to having many social implications, it has been unfortunate that some of the earlier films were not preserved to form an historical record. It seemed that all of the early films would soon be lost irrevocably unless something was done to preserve at least the most outstanding examples. With the financial assistance of the Rockefeller Foundation, The Museum of Modern Art Film Library was established in 1935 for the purpose of collecting and preserving outstanding motion pictures of all types and of making them available to colleges and museums where it might be possible to study the film as art. Under the direction of John E. Abbott as general manager and Iris Barry as curator, work was begun on this Film Library in June 1935.

[52] George D. Pratt, *Bulletin Number 9*, The Metropolitan Museum of Art, Volume XXI, September 1926, p. 216.

A preliminary program was ready for circulation the next January under the title of "A Short Survey of the Film in America, 1894-1932." A second program was prepared for circulation under the title "Some Memorable American Films, 1896-1934." [53] The program given during 1937-38 included some representative Swedish films and others showing the influence of the film on aesthetics and society, as follows:

The Film in Sweden—The Outlaw and His Wife
The Atonement of Gosta Berling
The Swedish-American Film—The Wind
Garbo Speaks—Anna Christie
War In Retrospect—The Four Horsemen of the Apocalypse
Comedy and Buster Keaton—The Navigator
Realism and von Stroheim—Greed
The Musical-Talkie—The Love Parade
The Gangster Film—Little Caesar

Thus through the distinctive educational work of this Film Library there will be preserved for many years to come a record of the contribution which the film has made to art and it will be possible to refer to what has been done, to compare, and to trace progress or changes through *seeing,* instead of merely *reading* about the work of pioneers in the film world.

### *Extension Lectures*

Another form of extension work which has greatly increased the influence of museums employing it is that of lectures given to classes in schools and to adult groups outside the museum. Extra-mural lectures have been given for many years by some museums, such as those given by the staff of the Buffalo Museum before club meetings and in institutions such as the Seamen's Home, Association for the Blind, and the Ingleside Home. Noteworthy work in extension lectures is being carried on at present by Mrs. A. H. Young, educational director of the Seattle Art Museum.

[53] Museum of Modern Art, The Film Library, *Bulletin,* Volume 3, November 1935.

Mrs. Young travels all over the state of Washington to address club groups about this new museum, illustrating her talk with objects, lantern slides and films she secured while in the Orient.[54] Some of the extension lectures have taken the form of teacher-training as those which Bickmore gave to the student teachers at the normal schools of New York State in the 1880's and 1890's, also a plan which Charles Toothaker adopted in 1907 of visiting the teachers' institutes in every county in Pennsylvania to explain to the teachers themselves the merits of the collections sent out to the schools in the state and the best methods of using them.[55]

For more than thirty years museum representatives in some parts of the country have given extension lectures to children in schools. The curator of the Davenport Public Museum reported in 1906:

> Under the present system I visit each school once every three weeks during the fall and winter, giving from four to eight (usually five) lectures at each school during a single forenoon. My plan is to go from room to room, taking with me specimens from our museum for illustrating the lesson. In most of the schools I take the rooms two and two and am thus enabled to talk to from 250 to 400 pupils per day.[56]

In 1914 the American Museum of Natural History inaugurated lecture centers in certain schools of the city. The late William McAndrew, then principal of the Washington Irving High School placed the auditorium of his school, seating fifteen hundred, at the disposal of the museum for a series of illustrated lectures to be given to the elementary schools of the neighborhood. These same lectures were repeated in the assembly hall of public school 62, Manhattan, now Seward Park High School, also in public schools 30 and 42 of the Bronx.[57] The center established in the

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[54] Richard C. Fuller, Director, Seattle Art Museum. Personal Interview, August 19, 1937.

[55] The Philadelphia Museums, The Commercial Museum, *Annual Report,* 1907, p. 5.

[56] Davenport Public Museum, Davenport, Iowa, *Annual Report,* 1906, p. 197.

[57] The American Museum of Natural History, New York, N.Y., *Annual Report,* 1914, p. 46-7.

Washington Irving High School has been continued without interruption for nearly a quarter of a century.

The San Diego Museum of Natural History, with the aid of a small county appropriation, has been presenting a unique service of nature study lessons to the rural schools in the county since 1922. The supervisor visits the rural schools of San Diego County with a special carrying case filled with specimens. At each school he gives lessons in which he aims to acquaint the children with the objects of nature with which they are surrounded and to emphasize the economic importance of these objects. He leaves new specimens at the school and takes the old ones to another school so that new material is constantly coming before the children. To make it possible for the children to examine the natural history specimens carefully without too much damage, he devised a celluloid container for all perishable specimens in circulation, as birds and small mammals. The children have been encouraged to make nature study exhibits at the County Fair and have carried on useful activities such as the destruction of harmful rodents, as part of their special nature work.[58]

Another important work in lectures on geography and nature topics has been carried on by the Field Museum. In 1922 this museum was fortunate in receiving an endowment from Anna Raymond Nelson which has now been increased to over a half million dollars, to further its work of lectures to classes of children in the museum and in the schools. A single lecturer was sent out to the schools toward the end of 1925 but the demand grew so fast that there are now five lecturers assigned to the work. These lecturers give illustrated talks on topics studied in the classrooms and made concrete in certain museum exhibits. Both slides and films are used and often the lecturer includes a talk concerning the material shown in one of the loan exhibit cases which happens to be in the school at that time. The lecturer is sent to a school upon application of the principal who specifies

[58] Clinton G. Abbott, Director of San Diego Museum of Natural History. Personal Interview, August 27, 1937.

what topic is desired.[59] The topics given during 1936 in these extension lectures totaling 444 with an aggregate attendance of 165,757 were:

For Geography and History Groups

Glimpses of Eskimo Life; South America; North American Indians; Glimpses of Chinese Life; Native Life in the Philippines; Mexico and Its Southern Neighbors; The Romans; The Egyptians; Migisi, the Indian Lad.

For Science Groups

Field Museum and Its Work; Prehistoric Plants and Animals; Insects and Reptiles; The Story of Rubber; Coal and Iron; Coffee, Chocolate and Tea; A Trip to Banana Land; Birds of the Chicago Region; Animal Life in the Chicago Region; Trees of the Chicago Region; Wild Flowers of the Chicago Region; Animals at Home; Our Outdoor Friends.[60]

The museum feels that these visits serve to bring the institution to the schools and also stimulate the children to come to the museum to see the larger exhibits waiting for them there.

An illustration of a special lecture service from a museum being purchased by a board of education for the schools of a city exists in Grand Rapids, Michigan. Here the Grand Rapids Public Museum is paid to send lecturers into the schools to give talks on nature study. These talks are correlated with the season and include many special handcraft activities for the children.[61]

For the past eight years, F. K. Hinchman, supervisor of extension at the Southwest Museum in Los Angeles, has carried on a successful series of lectures on Indians which he has given on invitation only to schools in Los Angeles County. During the school year of 1936-37 he reached over eighty-eight thousand children with his talks on "Indian Homes," "Hopi Indians of

[59] Simms, op. cit. p. 20-34.

[60] Field Museum, Chicago, Illinois, *Annual Report,* 1936, p. 83.

[61] Frank L. DuMond, Grand Rapids Public Museum, Grand Rapids, Michigan, *Annual Report,* 1935 (typewritten)

Los Angeles County," "Plains Indians," "Some Indian Friends," and others.[62] All of these lectures were given to the school entirely free of charge by the Southwest Museum.

### *Museum Extension Service*

An interesting form of extension lecture service has also been developed through a cooperative plan between the Commercial Museum, the University Museum and the Philadelphia Academy of Sciences. The plan is called Museum Extension Service. A school or school district makes a contract with this organization to give lessons illustrated with actual specimens from the museum collections. Lessons are scheduled and a teacher goes to a suburban school in an automobile, carrying to the classroom many specimens from one of the museums. These lessons may be on geography, industry, commerce, ancient history, the life of man, botany, zoology, and other topics. The schools pay just enough to cover the costs and two teachers are kept busy during the year. From September 1936 to June 1936 this service reached 129,000 pupils in schools outside the city of Philadelphia, where trips to these museums could not be arranged.[63] In one year, this service increased from 350 classes to 1,700 classes, indicating to some extent, its popularity.

In general, therefore, extension work by museums of the country has developed along two lines: lectures in schools and before various organizations and loans of museum materials. These circulating collections at first consisted of objects, specimens, and models, usually accompanied by descriptions and suggestions to the teachers for their use. Mounted pictures and photographs were soon added to the list, followed by lantern slides and later, by motion picture films. Museums have nearly always made a definite effort to effect close correlation between the loan materials

[62] Mark Raymond Harrington, Southwest Museum, Los Angeles, California. Personal Interview, August 28, 1937.

[63] Commercial Museum, *Report,* New Orleans Meeting, The American Association of Museums, 1937.

and the required courses of study, thus insuring the greater effectiveness of their work. Museums have also endeavored to give the schools the kind of materials they want at the time they want them, so far as the supply will permit. From the very first, these loan collections were in considerable demand but as various types of visual apparatus were perfected and schools were better equipped to use more visual aids, there was a decided trend toward a greater use of museum materials. The museum exhibits, especially those which objectified certain abstract ideas difficult for the young mind to grasp, were eagerly sought after by instructors.

Both public and private schools have used these services. A few museums have specialized to some extent in loans to libraries and neighborhood centers. The loan of duplicate museum specimens which would stand transportation easily has been the most usual form of extension work, next to that of giving lectures to outside groups.

There is little evenness in the extension work thus far developed as this is necessarily so dependent upon the available time and energy of the museum staff, also the abundance of the collections and the acquisition of duplicate materials suitable for circulation. Some museums have developed large extension departments and circulate materials over a wide territory. This enables the institutions to reach many thousands of people who might never have the opportunity of visiting the larger collections in the museum. A few museums have adopted the policy of making no loans in their communities, thus hoping to bring more visitors to the museum to see the collections.

The cost of maintaining the extension work in the museums has been met in various ways: by the museum itself through donations from trustees or friends or from a special bequest designated for the development of this service; by annual state appropriations; by payment made by a city board of education or by a county school system or by the temporary assistance of a grant from an educational foundation.

Some recent noteworthy efforts in extension work may be found in the development of small school museums, special loan collections correlated with art, literature, and history for secondary schools, work in elementary science lessons with museum materials in county schools, and a film library designed to preserve as a form of art the outstanding films thus far produced and those which may be produced in the future.

## Chapter IX

# MUSEUMS AND THE RADIO

When the new art of radio broadcasting with its vast educational possibilities appeared on the horizon, some museums wondered if there were any place for it in their programs. Their institutions had always been the exponents of the *visual* idea and had endeavored to teach people how to observe rather than how to listen. To depart from visual to aural instruction would be going about as far as possible from the museum idea of objectifying teaching. Yet the possibility of talking about museum collections and activities to thousands of people by means of the radio and of using the museum as a cooperating agency in broadcasting, offered too great an opportunity for museums to fail to take advantage of this new medium.

## *Early Broadcasts*

Thus a few museums which were favorably situated with regard to broadcasting stations began to give occasional talks in the early days of broadcasting. In 1923, the curator of the Brooklyn Children's Museum, Anna B. Gallup, gave three broadcasts from WEAF, describing the work of the museum.[1] The Smithsonian Institution also made arrangements with the Radio Corporation of America for a number of fifteen minute broadcasts from Station WRC. The first of these talks was on "The Smithsonian Institution, Its History and Functions," given by Austin H. Clark. Seven other talks were given by heads of other departments.[2] In 1924, the San Diego Museum of Natural History

[1] Brooklyn Children's Museum, Brooklyn, N.Y. *Annual Report,* 1923.

[2] Smithsonian Radio Talks, *Museum News,* Vol. VI, No. 4, November-December 1923, p. 134.

gave a few broadcasts.[3] This same year, the American Museum of Natural History, at the request of Station WEAF, undertook a series of Friday afternoon talks on natural history for children. At first these were given as an experiment but proved so successful that the station asked to have the number of stories doubled.[4] The following year staff members of this museum gave a series of forty-two broadcasts on natural history subjects designed to interest adult listeners.[5]

The Field Museum, in 1923, inaugurated two radio programs, one for adults and one for children.[6] In this series the museum used a new device originated by the Chicago *Daily News* in 1923, called the Radio-Photologues,[7] correlating the radio talk with pictures published in the current issues of the "News." This method was also used by the Chicago Historical Society on "Fire Day" in commemoration of the great conflagration in 1871. A special Fire Day Photologue was issued to illustrate a talk broadcast on the same day by the librarian of the Society.

The following year the Art Institute of Chicago gave half-hour radio talks to schools where sets of lantern slides illustrating the talks had been sent.[8] This same year, the Metropolitan Museum of Art in New York, at the request of Station WNYC, began a series of radio broadcasts on various subjects connected with the work of the museum.[9]

It began to be evident that the radio could give museum collections a voice; that radio talks from art museums might create for listeners the atmosphere in which an artist worked and might make the characters of his pictures live; that natural history

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[3] San Diego Museum of Natural History, San Diego, California, *Annual Report,* 1924.
[4] American Museum of Natural History, New York, N.Y. *Annual Report,* 1924, p. 130.
[5] American Museum of Natural History, New York, N.Y. *Annual Report,* 1925, p. 85.
[6] Field Museum, Chicago, Illinois. *Annual Report,* 1925.
[7] Radio Photologues, *Museum News,* Vol. III, No. 10, November 1, 1925, p. 2.
[8] Lantern Slides Supplement Museum Radio Talk, *Museum News,* Vol. IV, No. 10, November 1, 1926, p. 2.
[9] Metropolitan Museum of Art, New York, N.Y. *Annual Report,* 1925.

museums could make their exhibits more alive if they introduced some natural sounds, such as calls of wild animals or the sound of drums and other musical instruments used by certain tribes of primitive peoples.[10] These methods were used to some extent in radio broadcasts from the Metropolitan Museum, the Cleveland Museum of Art, the Cleveland Museum of Natural History and the American Museum of Natural History in 1929.

Two years previous to this the Cleveland Museum of Art had inaugurated a regular radio program of bi-weekly talks, one for adults and one for children and had installed wires in the museum building for remote control. By this means, as stated by I. T. Frary of this museum, "a series of special organ programs was arranged for reception in the public schools in cooperation with the music department of the school system. Following this experimental year broadcasting was dropped, except for occasional programs, but after a year of silence it was resumed from the studio of Station WHK. Members of the museum staff were given auditions and those whose voices qualified were afforded opportunity for voice training," [11] for it was recognized that the first and most lasting appeal to a radio audience is the voice. So the staff members of this museum were given the opportunity to acquire the proper method of using their vocal cords to produce the soft, easy voice so necessary for a pleasing effect over the radio.

## *Cooperation with Newspapers*

Following the oft-quoted adage evolved by a Chinese sage hundreds of years ago—"One picture is worth ten thousand words," the rotogravure editor of the Buffalo *Courier-Express* believed that there were many people who would welcome a series of popular educational programs over the radio accom-

[10] F. H. Lumley, Radio Programs for Museums, *Museum News,* Vol. XII, No. 18, March 15, 1935, p. 6-8.

[11] I. T. Frary, The Radio: Recent Experience at Cleveland, *Museum News,* Vol. XIII, No. 6, September 15, 1935, p. 7-8.

panied by a pictorial rotogravure, each forming a complete unit and a visual and aural correlation of education and entertainment, somewhat similar to the method used by the Chicago News in 1923. The result was his new feature entitled Roto-Radio-Talks which started in 1929. Concurrently with the appearance of a page of rotogravure pictures in the Sunday *Courier-Express,* a thirty minute talk was given at six o'clock that evening by some staff member of one of the three museums in Buffalo, the Buffalo Museum of Science, the Albright Art Gallery, or the Buffalo Historical Society. The subjects selected for these Roto-Radio-Talks had popular appeal and were given attractive or interesting titles, such as—"Fall in Love Intelligently by Observing the Laws of Heredity and Environment." In the main caption of the rotogravure page the title was enlarged upon as: "Why are some people good-looking and others mentally brilliant? Why are children sometimes unlike their parents? In other words, how do the living things of earth inherit their peculiar characteristics? Tune in Station WKBW at 6 o'clock tonight to hear Dr. Burkholder who will speak on these vitally interesting subjects." [12] Paul R. Burkholder was curator of biology at the Buffalo Museum of Science.

A Roto-Radio-Talk broadcast on December 21 by the director of the Albright Art Gallery was: "The Influence of Christ on Art." A series of talks broadcast by the director of the Buffalo Historical Society on "The History of Western New York" included: "Niagara Falls in Picture and Story," "Life and Customs of the Iroquois Indians," "Old Fort Niagara," "Historic Spots of the Niagara Frontier," "Birch Bark Canoe to Steamers."

A representative of the *Courier-Express* selected the pictures and arranged the layout for each unit around which a member of the staff of one of the three museums wrote and broadcast the story. To determine whether the readers of this paper desired

[12] Merle D. James, Reaching the Public Through Roto-Radio, *Museum News,* Vol. IX, No. 19, April 1, 1932, p. 6-7.

to have the talks continue, the paper published three coupons on consecutive weeks, asking listeners to tell whether they preferred a page of general news pictures or desired the talks to continue. Out of hundreds of coupons returned only three showed anything but the most enthusiastic approval.

In 1932, the Buffalo Museum of Science, which was then giving five different series of radio programs over three different stations, opened a "Listeners' Room," fitted up with a fine receiving set and facilities for note-taking. The programs given by the museum at that time included talks on the museum, travel talks, outdoors in Erie County, the stars, and children's story hour.[13]

In cooperation with a Newark newspaper and radio station, the Newark Museum sponsored semi-monthly programs on current events. A radio talk pertinent to pictures in the roto section of the Sunday paper was broadcast on Sunday mornings. In the afternoon at the museum, there was a gallery talk on the same subject. This museum now "has a regular program announcing its varied services; its exhibits, crafts, classes, lectures, and musical events." [14]

Other museums have taken advantage of newspaper cooperation for reaching the public over the air. Among these is the Carnegie Museum which, through the cooperation of Station WCAE, Pittsburgh *Sun-Telegraph,* gave its first radio talk on February 3, 1930. The talks continued over this station into 1935, and resumed during 1936 over Station KDKA, have been devoted to the different phases of natural history within the fields of activity of the museum. They were given in simple language to make them intelligible both to adults and children. The following program was presented in the spring of 1935 and on the printed announcement several books were listed for additional information on the subject of the broadcast:

[13] Buffalo Expands Its Radio Work, *Museum News,* Vol. IX, No. 17, p. 2.
[14] Frank Ernest Hill, *Listen and Learn,* American Association for Adult Education, New York, 1927, p. 176.

How the Carnegie Museum Contributes to the Constructive Use of Leisure—Jane A. White
Prehistory and the Present—John J. Burke
Social Contacts with the Invertebrates—Stanley T. Brooks
How the Winter Junior Naturalists Use the Museum—Warren R. Witz
Our Earliest Flowers—O. E. Jennings
Dependence of Man on the Invertebrate Kingdom—Stanley T. Brooks
Bruin Stretches—J. Kenneth Doutt
A Day at Camp—Reinhold L. Fricke
In the Little Brook—Arthur W. Henn
What Plants Make Sugar—O. E. Jennings
Feeding Insects—F. K. Miller [15]

A San Francisco newspaper and a department store in 1936 gave the M. H. de Young Memorial Museum regular radio time for two programs. These consisted of a series of art and applied art talks over Stations KYA and KPO and a children's story hour over Station KGO. The children's program was an excellent means of providing creative work for museum story hour groups as the children appeared at intervals on the program with their own dramatizations of folklore or stories they had written. All of these programs were related to art subjects and museum exhibitions. The cosmopolitan population of San Francisco also made it possible to present music from many countries.[16]

### *Experiments with Radio Talks*

The Metropolitan Museum of Art in cooperation with the Brooklyn Central Museum and the American Museum of Natural History, in 1930 tried an experiment similar to that tried by the Chicago Art Institute in 1926, of giving for secondary schools a series of radio talks illustrated by lantern slides. Sets of slides were prepared and distributed by the museums to different high schools in New York City which were equipped with receiving

[15] Carnegie Museum, Radio Educational Program for 1935, Spring Series.
[16] Etha Wulff, Curator of Education, M. H. deYoung Memorial Museum, Personal Interview, August 22, 1937.

sets. At the given hour, the pupils in the schools listened to the talks while the illustrative material was projected on the screens.[17] This proved satisfactory where the proper synchronization was made between the speaker's voice and the slides but any mistake in projection resulted in an almost total loss of the educational value of the program as the students' attention was distracted by the mistake.

In 1929, the Metropolitan Museum of Art began broadcasting regularly over four different stations, giving between seventy and eighty talks each year.[18] The Brooklyn Central Museum in 1934, tried to correlate three series of talks with radio broadcasts as an experiment to determine how many persons the broadcasts would bring to the museum. A serial story hour for children was also broadcast from the museum before an audience of children.[19] The Brooklyn Children's Museum broadcast during the summer of 1936 a weekly drawing lesson and an animal story. The children were asked to sketch a simple object, selected by the teacher, while listening to the first part of the broadcast. A weekly exhibition of these drawings was held at the museum and a selected exhibition of drawings submitted throughout the summer was held in September.[20]

The Cleveland Museum of Natural History was among the first of the museums to give weekly broadcasts which continued without a break over a number of years. Starting in 1926, the staff of this museum gave a weekly program for six years over Station WHK. Occasional broadcasts were made in 1932, among them one of unusual interest as it was said to be the first broadcast of the songs of wild birds. The broadcast was a "Sun-up" feature of Station WTAH. Microphones were placed in an orchard near the transmitting station, twenty miles from the city. These picked up and amplified the bird songs with striking suc-

[17] Metropolitan Museum of Art, New York, N.Y. *Annual Report,* 1930.
[18] Metropolitan Museum of Art, New York, N.Y. *Annual Report,* 1929.
[19] Brooklyn Central Museum, Brooklyn, N.Y. *Annual Report,* 1934.
[20] Brooklyn Children's Museum, Brooklyn, N.Y. *Annual Report,* 1936.

cess. Edmund Cooke of the museum contributed a short talk introducing the feature and identified the more distinct songs as they were heard.[21] Beginning in 1934, this museum has broadcast weekly over Station WTAM fifteen minute talks in a series called the "Armchair Explorers' Club." [22]

### *Museum Radio Programs*

This same year a national program of weekly art broadcasts was arranged through cooperation of the Art Institute of Chicago and the Metropolitan Museum of Art with the American Federation of Arts, the National Advisory Council on Radio in Education, and the General Federation of Women's Clubs. Financed by a grant from the Carnegie Corporation of New York, broadcasts were made over a nation-wide network every Saturday evening. The first series, prepared by the two museums mentioned, covered American art to 1865 while the second series prepared with the cooperation of the Museum of Modern Art, covered the period from 1865 to the present.[23] This latter series was re-broadcast over KOA in Denver by staff members of the Denver Art Museum who had also, for several years, given a monthly radio announcement over KLZ which donated the time.

The Ohio State Museum made use of the local University station at Columbus to give broadcasts in connection with the Ohio School of the Air in 1932. The Fleming Museum connected with the University of Vermont at Burlington, gave many broadcasts over their local station and Station WDEV, the Waterbury *Record* Station.

The Cleveland Museum of Art in 1935 was finding an informal type of program very successful. The method of preparing the scripts was thus described by I. T. Frary:

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[21] Cleveland Museum of Natural History, Cleveland, Ohio, *Annual Report*, 1932.

[22] Cleveland Museum of Natural History, Cleveland, Ohio, *Annual Report*, 1935.

[23] National Program of Art Broadcasts Planned, *Museum News*, Vol. XI, No. 13, January 1, 1934.

The scripts have been prepared by having the participants (who are usually artists and others not connected with the museum) discuss the subject informally while a stenographer takes notes. The notes are then edited and typed copy given to each person. A rehearsal is then held at which the preliminary script is read through and changes made, the whole being taken down verbatim directly on a typewriter. This final script is subject to further revision—first by the speakers individually, and secondly as a group at a final rehearsal. This method gives a spontaneity to the broadcast that is more difficult to attain when the writing is done in cold blood, and impromptu comments often add zest that has made these programs decidedly popular with the radio station.[24]

Another type of program which was successfully given from this museum was a series of dramatizations which was also a cooperative undertaking between the museum, a group of writers, the actors, and Station WTAM.

These plays of thirty minutes duration are known as "Art Museum Dramas" and are produced under the direction of William A. D. Millson, a member of the faculty of the Department of Speech, Western Reserve University. Mr. Millson has organized a group of authors called the "Cleveland Radio Guild," whose members present the plays prepared by the "Writers."

Every possible assistance is afforded these groups by the museum, in suggesting subjects, in providing facilities for research, and in checking, typing, and mimeographing the scripts.

A wide variety of subjects has been covered in this series of dramatic broadcasts, among them being episodes from the lives of El Greco, Bach, Rembrandt, Titian, George Bellows, Paul Revere, and Marie Antoinette; also miscellaneous subjects such as "The Lace Makers" and a series of readings from Tennyson's "Idylls of the King." [25]

Thus the museum may prove to be an important supplement in broadcasting.

The Boston Museum of Fine Arts first gave a series of radio broadcasts in 1935 over the Yankee Network and a second series in which other museums in New England shared the programs according to the following:

"The Ancient Buildings of New England and the Society That Protects Them"—George Francis Dow, Director, Museum of the Society for the Preservation of New England Antiquities, Boston

[24] I. T. Frary, *op. cit.* p. 7.
[25] Ibid. p. 7.

"Arts and Crafts of New Hampshire"—Maud Briggs Knowlton, Director, The Currier Gallery of Art, Manchester

"Maya Art and Architecture"—Alfred M. Tozzer, Curator of Middle American Archaeology and Ethnology, Peabody Museum, Harvard University, Cambridge

"Chester Harding"—John Lee Clarke, Jr., Director, Springfield Museum of Fine Arts, Springfield

"A Museum of Fine Arts as a Source of Inspiration for the Needleworker"—Gertrude Townsend, Curator of Textiles, Museum of Fine Arts, Boston

"Winslow Homer in the Addison Gallery"—Charles H. Sawyer, Curator, Addison Gallery of American Art, Phillips Academy, Andover

"New Accessions to the Collections in the Museum of Fine Arts"—George H. Edgell, Director, Museum of Fine Arts, Boston [26]

The Layton Art Gallery of Milwaukee has made frequent use of the radio and also the Detroit Institute of Arts. The latter, in 1935, initiated a new series of Sunday afternoon radio talks on "The Human Side of Art," designed to bring into the home an interpretation of what makes great art, and the romance of history and personalities behind it. Any listener wishing a short illustrated resumé of the talk could obtain it by sending a stamped, self-addressed envelope to the museum.[27] This device of testing to some extent the size of the radio audience has been used by other museums also and it has been found that "bait" of almost any kind will cause many letters and cards to be sent in, regardless of the type of program presented.

The American Museum of Natural History has often given out maps, printed resumés of the broadcast, and other materials in the various programs which it has presented since its first broadcasting in 1924. Many programs have been given by this museum over Stations WABC, WOR, WJZ, WHN, WQXR, WEVD, WBBC, and others. In 1934, the public listening to the broadcast over Station WOR at six-thirty on Saturday evenings were invited to visit the museum on the following Saturday afternoon at three o'clock at which time they were taken to the exhibition hall pertaining to the talk of the week before. The

[26] Museum of Fine Arts, Boston, Mass., Program of Second Radio Series, 1936.
[27] Radio Talks on Art, *Bulletin*, Detroit Institute of Arts, Vol. XV, No. 1, October 1935, p. 11.

titles of this series of broadcasts were as follows: "Give a Man a Horse," "The Inside Story," "Wooden Wireless," "Big Bad Wolf," "Bamboo Bungalows," "Jumbo," "Monkey Business," "Dog Days," "The Cave Man's Art," "The Old New World," "Fortunes in Stone," "Cedar Bark Preferred," "Visitors From Space," "Dinosaur Eggs," "Crawling Death," and "Man-eating Sharks." The groups, small in number at first, gradually increased to over two hundred at a time which proved too unwieldy for the one available docent, John R. Saunders, who had also given the broadcasts. This large number caused the tours to be discontinued temporarily. The titles "Man-eating Sharks" and "Crawling Death" attracted the largest groups of "radio-tour visitors" who were taken to the Hall of Fishes and the Hall of Reptiles.

For the past eight years programs have been given regularly over the Municipal Broadcasting Station WNYC by representatives of the Department of Education of the American Museum of Natural History. The plan followed has been to give several series of five talks each, more or less related in subject matter, as were these three series given by John Saunders and Robert Coles in the fall of 1936:

THE AMERICAN INDIAN

Origin of the American Indian
Distribution of the American Indian
Material Culture of the Coastal Algonkians
The Indians of New York and Vicinity
Archaeology of Long Island

THE ANIMAL KINGDOM

Man's Friends Among the Insects
Food Fishes
Some Snake Stories
When Birds Travel
Dog Heroes

THE EARTH AND THE STARS

The Antiquity of Astronomy
The Celestial Sphere
The Solar System
The Story of Eclipses
The Pleasures of Astronomy

During the fall of 1937 this museum was giving radio programs over Stations WNYC, WHN, WQXR, WOR, WEVD, and one over Station WABC and the Columbia Broadcasting System. The latter program was entitled "New Horizons" and consisted of a series of radio interviews with world-famous explorers, given at 6:30 on Monday evenings. Illustrated printed matter was sent out to aid the listeners and give a resumé of the broadcast. Another coast to coast program over Station WOR was entitled "This Wonderful World," and used volunteers from the crowd of adults and children visiting the museum at 12:15 on Saturday mornings. Questions on natural history which had been sent in during the previous week from all over the country were drawn from a drum and the answer given by the visitor. If incorrectly answered, correct information was given by the museum representative. For this program the broadcasting station supplied the theme music, the announcer, and the specialist who acted as "master of ceremonies" to give the running comments and keep the program moving at a rapid tempo. The museum representative from the department of education was responsible for the selection of questions and the accuracy of information given, supplementing wherever the answerer failed.

The Federal Radio Project in its program "The World Is Yours," given over the National Broadcasting Company's network in 1936, 1937 and 1938, tells of the work of the Smithsonian Institution in Washington, D.C. The program uses appropriate music and is well dramatized, bringing in a museum guide, "Old Timer," several visitors, and conversation with museum specialists to show the application of scientific information to everyday

uses. The public response to this program alone has been estimated by the Radio Project to be one million persons. A survey of 10,000 listeners "made by the Radio Project Office showed that these comprised students in schools and colleges (2,273), professional men and women (1,651), skilled and unskilled workers (1,156), and clerks, farmers, social workers, invalids, and many others." [28]

Other museums which joined the ranks of broadcasters in 1937 were the Oriental Institute of Chicago which gave a series of programs on archaeology in the spring and the Rochester Museum of Arts and Sciences which put on a program entitled "The Hobby Club of the Air" on Sunday evenings [29] and another, "The Romance of Old Indian Days" on Monday evenings. Both programs used Station WHAM.

### *Use of Short Wave Broadcasts by Museums*

A new and very important use of the radio by museums has been inaugurated within the past few years by the broadcasting from expeditions in the field. When Lincoln Ellsworth, a trustee of the American Museum of Natural History, was in the Antarctic on an expedition to advance science, his radio enabled him to communicate with the outside world much of the time. During the total solar eclipse in Peru on June 8, 1937, the description of the entire phenomenon was broadcast from one of the five field locations of the Hayden Planetarium-Grace-Peruvian Expedition. By means of the short-wave transmitters, a field party of a museum expedition can now keep in touch with the base of the expedition or with the museum at home, as described in the *New York Times* of November 21, 1937.

While strong, clear signals are heard on the dial's 14.38 megacycle mark from the MacGregor Expedition's Station OX2QY in Greenland, another research party, the American Museum of Natural History Expedi-

[28] Frank Ernest Hill, *Listen and Learn,* American Association for Adult Education, New York, 1937, p. 96-7.
[29] Ibid. p. 176.

tion, led by Dr. W. H. Holden, flashes a northbound wave up from the savannas of British Guiana.

This new portable transmitter, VP3THE, located, according to reports, some 500 miles inland near the Essequibo River, is now testing with amateurs on 133.74 megacycles between six-thirty and seven-thirty in the evening. On occasion, too, this station works within the twenty-meter phone band.

As the operator of VP3THE talked recently with amateurs in the West Indies, it was learned that the new station would be operated for the next three months while some of the members of the expedition study the various diseases of the native Indians, and the other members, working in the interests of the American Museum of Natural History, collect data from the abundant tropical plant and animal life in British Guiana.[30]

Thus it is possible that many of the educational programs of the future will be using the short-wave areas which are now being used in an experimental way.

On the whole, stations are willing to grant free time to good educational broadcasts from museums if such programs can be presented at an hour of the day which is not popular enough to be sold to commercial firms. At least, there are many untried possibilities for museum broadcasting which await testing in the future.

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[30] The New York *Times,* November 21, 1937, Section 11, p. 12X.

## Chapter X

# THE EDUCATIONAL STAFF OF MUSEUMS

The basic function of the American museum is to educate and to educate it is not sufficient merely to have collections and trust to the efficiency of the "cafeteria method." It has become necessary, therefore, especially in the larger museums, to have a special staff assigned to the interpretation of the collections and the results of the museum's researches so that the entire community may benefit from them. "It is significant that the great expansion of museums came with the realization of this educational obligation to the people." [1]

In the first part of their development, the directors of many museums were too engrossed in acquiring and housing their collections to pay much attention to the educational needs of their institutions. Very few were guided by the doctrine expressed by G. Brown Goode that a people's museum should be primarily a collection of ideas illustrated by well-selected specimens.[2] Teachers and ideas did not seem so important as fine buildings and glass cases. Educational expenditures including adequate salaries for able museum teachers, were too intangible in form to attract many bequests. Thus when educational work was started it was usually with the assistance of existing personnel with versatile talents who were required to assume this additional work rather than to employ an individual especially well qualified by training and actual teaching experience. Sometimes such a person was already a member of the staff and, as in the case of Bickmore at

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[1] Paul M. Rea, The Functions of Museums, *Proceedings,* American Association of Museums, Vol. VI, 1912, p. 52.

[2] G. Brown Goode, A Memorial, together with a Selection of his Papers on Museums and on the History of Science in America. *Annual Report,* the Smithsonian Institution, U.S. National Museum, Part II, 1897, p. 220.

the American Museum of Natural History, proved by his leadership and instruction a real inspiration to large groups.

However, enthusiasm, earnestness, and willingness made up for much of the lack of previous training. Museum workers who were by native ability well adapted to continue in this educational division, soon found that when they correlated their work closely with the required courses of their local school systems they could present such an attractive program to the schools that the demands on their time far exceeded their capacity to care for them. Yet this work was only that of supplementing the existing agencies of education and the museums did not tap the real possibilities in education nor try to assume any real leadership or to act as a creative agency of education among all the people of their communities.

The early type of museum worker, in charge either of the entire museum or of the educational division, has been well described by the late Edward S. Robinson as "a scholarly gentleman of versatile talents administering the organization, keeping peace among the trustees and city council, cultivating possible patrons, thinking up new types of exhibits and new releases for the papers. Now and then he may find time for a little personal lecturing or for an occasional learned article." [3] There are many museums in the country where this type of individual may still be found.

## *Qualifications Desirable*

However, there are other museums which have built up an educational staff, well trained academically and pedagogically. The academic training required in each of these museums is a college degree with the addition of teaching experience. The latter is not always required but preferred, except in two instances,

[3] Edward S. Robinson, University Training and the Museum Worker, *Museum News,* Vol. XIV, No. 9, November 1, 1936, p. 7-8.

where the director stated that he wished to do his own training. In addition to the required academic training, most museum directors realize that nothing is of greater importance than that the individual have the right type of personality. Wherever the educational work of a museum is outstanding, it is very evident that the selection of the personnel has depended more upon the individual having a fine personality than mere academic training.

Museum instructors must not only be persons of real culture and good training, but they must have broad vision and an unusual amount of initiative. They must be able to think clearly and express themselves with accuracy in an entertaining and inspiring manner. They must be dynamic enough to arouse both interest and thought on the part of those instructed so that each person will become an active participant in the work. They must be creative workers and act as pioneers in continually thinking out and presenting new methods. They must have an understanding of psychology and know how to meet the average man and woman as well as groups from the schools. They must be quick to sense the special needs of each group and alert to realize the full possibilities of a situation. They must realize that educational methods are changing and that instruction based upon museum materials requires imaginative planning. They must have the ability to see educational values in museum exhibits and how these possibilities may be adapted to the work required by groups of differing age levels, for the work presented must be based upon the collections. Considerable initiative is required to work out different methods of presentation so each group may receive the best type of instruction. "Whether the teaching procedure be accomplished through a lecture method, museum game cards or group discussion, the docent must have that necessary teaching personality which can stir stagnant energies, stimulate dormant activities, sustain the interest and challenge the attention of the pupils." [4]

[4] Nita M. Feldman, The Museum Teacher, *Museum Service,* Vol. 10, No. 4, April, 1937, p. 76.

Museum instructors must also have the ability to stimulate their groups to observe carefully original materials and to develop ideas from their observations. The ability to stimulate pupils to a true appreciation of fine art is necessary, especially among instructors in art museums. They should also be able to furnish inspiration to teachers for the presentation of art, history or science in the schools and encourage students of special ability to work further with original materials.

There are many instructors working in the educational divisions of museums throughout the country who have wholly consecrated themselves to the work and are willing at all times to adopt new ideas and to change methods, with the thought of rendering real service to the schools and to the communities back of every plan offered.

A few museums allow staff members time for the necessary research, consultation and follow-up work but in the majority of museums the day's schedule is so crowded that such work is done outside of the regular nine to five o'clock day. In the larger institutions, frequent staff meetings are held to provide opportunity to discuss problems, exchange ideas, learn about new exhibitions,[5] and to report on the latest developments in the educational field so all the instructors may be aware of contemporary tendencies.

## *Salaries*

Most museums have a closed salary schedule but where the salaries are available, they indicate a range of from $900 to $3,600 a year for the position of museum instructor. These rates are from $300 to $1,200 lower than for a somewhat comparable position in the local school system with a vacation of four weeks during the entire year instead of the twelve to fourteen weeks given to public school and college instructors. The

[5] Walter H. Siple, A Museum Director and His Staff, *Museum News*, Vol. XIV, No. 1, May 1, 1936, p. 6-7.

exception to this is in the case of the educational museums which are staffed by regular employees of the local school system with the director of education rating the same salary as a school principal and the instructors being given the salary of teachers in the school system, their salaries depending upon the level of their instruction and the length of their service.

## *Training Courses*

Since museum instructors must use facts to explain objects as their basic method, it is obvious that a regular liberal arts college course will not provide all of the training which is necessary. The power to interpret the objects in museum collections requires a thorough knowledge of their significance and in art museums especially, an appreciation of their artistic quality that is to be acquired only from familiarity with originals.[6] The college course should give the needed foundations in science, history and art, also in aesthetics, but specialized training in museum methods is necessary for graduate students who have had the broad general background of college training.

The first special training course for museum curators which was given in 1908 at the Pennsylvania Museum and School of Art in Philadelphia, included visits to and surveys of all the Philadelphia Museums, followed by practical work at the Pennsylvania Museum. The latter included no work in methods of teaching as this was before the establishment of educational departments in museums. This course was abandoned after the first year.[7] A similar course was offered in 1913 at the Farnsworth Museum of Art of Wellesley College and repeated for three years. In 1928 it was given once more, using the same course of study as was previously offered but now this has been changed to include a study of museum educational work.

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[6] Report of Committee on Training for Art Museum Workers, *Proceedings*, American Association of Museums, Vol. XI, 1917, p. 14-15.

[7] E. T. Booth, compiler, *Apprenticeship in the Museum*, Newark Museum, Newark, N.J. 1928, p. 5.

In 1918, a report of a committee of three appointed by the American Association of Museums to consider the training of art museum workers stated that fourteen museums were giving instruction in museum work but these still included no training in museum teaching.[8] The first museum to conduct an apprentice class which covered all phases of museum work, including that of museum instructors, was the Newark Museum. The first class was started in October 1925, and was held for eight months. This proved so successful that a new class has been formed each year, consisting of about six to ten young men and women from many parts of the country. In accepting the candidates for this course, Katherine Coffey, its director, endeavors as far as possible, to follow the criteria given by the late John Cotton Dana, former director of this museum: "This worker will be an intelligent person, preferably young, who has added, by apprenticeship, to a native good sense and sympathy and a sound formal education a certain skill in social manner and in the task of so introducing dead objects to fairly sensitive human beings as to make that introduction stimulative, suggestive and even educative to those human beings who form, of course, the museum's visiting public." [9] The applicants accepted are college graduates under thirty, who wish to take up museum work as a profession and who meet the other qualifications given above.

In 1929, the Buffalo Museum of Science was the only other museum giving a course of training for museum work which included educational work. This course continued for sixteen weeks and included school and junior service, adult education and organized group service, library, exhibition technique, research, visual education, photography, administration, publicity and publications. The fee charged was fifty dollars at first, plus the cost of books and materials.[10] This has since been changed to one

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[8] E. T. Booth, compiler, *Apprenticeship in the Museum,* Newark Museum, Newark, N.J. 1928, p. 7.

[9] John Cotton Dana, Introduction, *Apprenticeship in the Museum,* Newark Museum, Newark, N.J. 1928, p. 1.

[10] Training for Museum Work, *Museum News,* Vol. VIII, No. 3, June 1, 1930, p. 9-10.

hundred and sixty dollars with the opportunity for students completing the course to serve as apprentices with a salary of ten dollars a week for sixteen weeks.[11]

Beginning in 1927, and continuing for three summers, Teachers College, Columbia University, gave a summer course designed to acquaint teachers with modern museum ideals, principles of installation, and methods of using museum loan materials. This, however, did not cover the more specific needs of museum instructors.

In 1925, Harvard University, under Paul J. Sachs, director of the Fogg Art Museum, inaugurated a one year course in art museum work and museum problems open to graduate students enrolled in Harvard University and Radcliffe College who had majored in the Fine Arts. This course included very little of the educational work in museums.[12]

The Museum of Natural History, University of Iowa, under the direction of Homer R. Dill, director, has given courses for about thirty years which include museum methods, museum accessory work and other techniques for preparation of habitat groups but nothing concerned with educational work.[13]

About ten years ago the University of Rochester started a course in science museum methods by Edward J. Foyles, director of the Museum of Natural History. Two courses are now offered. The first includes the history of the development of museums from early times, lectures on the administrative, curatorial, and educational work of museums, with laboratory work for demonstration and practice in preparation technique. Two lectures and one laboratory period each week are given with six university credits. The second course gives further training in some phase of museum work in which the student wishes to specialize. Opportunity for practice in the educational work of museums is

[11] Courses in Training for Museum Work, *Museum News,* Vol. XIII, No. 5, September 1, 1935, p. 6-8.

[12] Ibid. p. 6.

[13] Ibid. p. 7.

provided in the excellent Museum of Natural History connected with the University and also at the Rochester Museum of Arts and Sciences.[14]

At the University of California, Berkeley, in 1929, E. W. Gifford, curator of the Museum of Anthropology, began a course in science museum methods as part of the university curriculum. Advanced students in anthropology and other scientific studies were admitted. Although the work is intended to equip students for the anthropological museums, the course covers the educational work and other phases of museum work, as practical exercises in classification; cataloguing; care, restoration, installation, labeling, and display of specimens; loan collections, school lectures; demonstrations." [15]

The Syracuse University, Natural Science Museum, the University of Michigan, Princeton University, Department of Geology, New York University, Fine Arts Graduate Center, and the University of Wisconsin, Department of Art Education, under Charles E. Brown, director of the Wisconsin State Historical Association, have also given courses in museum administration without paying special attention to the educational methods in museums.[16]

The newest training course for curators and museum executives was inaugurated at the Brooklyn Central Museum in 1935. This includes practical experience in the operation of a museum and also some work in educational methods. Six interneships with one-year fellowships of two thousand dollars ($2,000) were granted by the Rockefeller Foundation for 1935-36 and again the two following years. One of the students during 1937 and 1938 was a young woman from China who planned to put into practice in a museum in her own country, some of the methods she learned during the course.

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[14] Edward J. Foyles, Director of Museum of Natural History, University of Rochester, Personal Interview and Observation of Work, May 21, 1937.

[15] E. W. Gifford, Curator of Museum of Anthropology, University of California, Berkeley. Personal Interview and Observation of Work. August 25, 1937.

[16] Courses in Training for Museum Work, *Museum News,* Vol. XIII, No. 5, September 1, 1935, p. 6-8.

*Recent Government Aid*

During the past three years Federal funds under the N.Y.A. and W.P.A. have enabled many museums to employ young people who have thus been given the opportunity to learn much about museum methods and techniques. In the educational departments of museums they have assisted in preparing exhibits for school children,[17] have taught classes, assisted with museum games, given instruction in the school classrooms in the form of preparatory lessons, and aided in the work connected with the loan collections. Those who are endowed with a dynamic personality and possess a working knowledge of the objects in the museum's collections as well as an unusual amount of initiative have enabled the museum to extend its work as a creative agency of education among all the people in its community.

[17] Alice Bodwell Burke, Compiler, Youth, Activities of Libraries and Museums, Prepared by Committee on Youth Problems, Office of Education, *Circular No. 153,* Washington, D.C., November 1935, p. 26.

CHAPTER XI

# REACTIONS TO THE EDUCATIONAL WORK OF MUSEUMS

One might expect to find many favorable reactions to any educational work which has grown as rapidly as that conducted by museums, which now makes millions of contacts each year with people of all ages and all classes. It is evident that the yearly increase in attendance at the various types of educational programs of museums, offerings which are upon an entirely voluntary basis, indicates a favorable response to the work. From all walks of life, expressions of appreciation have come, each indicating genuine approval by the individual, from that of the little boy who exclaimed at the close of his visit, "Gee, that was worth my thirteen cents!" meaning the cost of his carfare to the Cleveland Museum of Natural History, to the late Viscount Grey of Fallodon, who said, "I would cross the Atlantic Ocean for the sake of spending four hours in the American Museum of Natural History."

## *Response to Adult Education Program*

In the field of adult education, however, museums have had a response to their programs which might be considered only mildly favorable if measured in terms of the total population of their communities or even if compared with the crowds attending movie playhouses and sports events. There is a definite public indifference to the cultural advantages offered by museums. Certain groups will respond with enthusiasm, as shown by the fact that the Metropolitan Museum of Art in 1936, conducted over sixty thousand persons in their gallery trips, that during the autumn of 1937 the response to a series of gallery talks given

by this same museum at eleven o'clock on Saturday mornings on "The Development of Furniture Styles" was so heavy that the talk had to be repeated on a second day, that over five hundred adults participated in the Carnegie supported course in Art Appreciation offered at the Cincinnati Art Museum and that about one thousand individuals registered for the Saturday morning courses at the Toledo Art Museum.

To the great mass of people, however, the term "museum" remains an unknown quantity and the functions which these institutions are able and willing to perform in raising the general aesthetic, scientific, or technological levels of their community groups remain unheeded except by a relatively small proportion of the inhabitants. As T. R. Adam has stated:

> Neither museums, universities, or any service institutions can create a general demand for adult education. Their true function is to satisfy such demands when and if they arise. The primary responsibility for maintaining intellectual development and vigor in the mass of citizens in a democracy lies with the groups granted economic, political, and social power in order to advance the interests of the community. . . . Museum education, whether in art or science, stands ready to fill some of the gravest cultural gaps in our civilization. It is capable of providing adult citizens with access to primary sources of knowledge concerning their own environment in ways that are not open to any other institutions. Yet the instrumentality of museums is readily ignored by the groups entrusted with the advancement of our national culture..... There is little enthusiasm among established power groups in the community for educational instruments that might give the masses of the people facilities to form their own cultural, economic, or political opinions from a first hand study of unvarnished facts.[1]

It is true that there are thousands who attend definite museum programs each year; that there are other thousands who seek certain types of assistance from a study of museum collections and many who have questions which they feel must be answered by museum experts. A gardener, perhaps, wishes to find out more about the Japanese beetles that are destroying his plants; a collector of spiders wishes to see if his new specimen will match

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[1] T. R. Adam, *The Civic Value of Museums,* American Association for Adult Education, 1937, p. 100-2.

one in the museum's collection; a designer of silk fabrics wishes to secure a design from certain pheasants; an artist to study the baskets of the Northwest Coast Indians for a magazine illustration; a fisherman to compare the museum's specimen of tuna fish with his memory of one he caught some time ago. All these people with their diversified interests form only a small proportion of the numbers who could be assisted by these institutions. It is true that increased memberships, increased attendance figures at all educational programs, and much friendly publicity show favorable reactions but it is also evident that the facilities of the museums are not being supported and used to the fullest possible extent for the furthering of adult education.

### *Reactions to Teacher Training Work*

In the field of teacher training museum efforts were rewarded with favorable responses from the very beginning. Albert Bickmore found his teacher groups continually increasing so it was necessary to seek larger auditoriums in which to give the lectures. Tangible evidence of the value of the work was given Bickmore by Thomas Hunter, president of the City Normal College, who stated to him after the end of the third season of lectures:

> You know that at this time of the year, examinations are made of the various classes in the public schools by the officials of our Board and that these reports are forwarded to the City Superintendent, and that our custom is that teachers shall be advanced in accordance with these statements which show the efficiency of the work they are doing for the city. I know personally nearly every teacher who attends your lectures and Mr. Jasper and I have been reading the reports of the examinations of the classes under these teachers. This is the important result that we have learned, namely, that these classes stand several per cent higher than the classes which have been studying the same subjects under other teachers who have not been under your instruction and several per cent higher than their previous classes ever did before your lectures began.[2]

The result of this was that both Jasper (city superintendent of schools) and Hunter worked for the passage of a bill by the

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[2] Albert S. Bickmore, Autobiography (unpublished). p. 62-3.

state legislature which gave financial support continuously for twenty years to Bickmore's lectures for teachers. Charles R. Skinner, state superintendent of public instruction, referred to the educational influence of the Bickmore lectures in an address made in 1900 as follows:

> From every state in the Union come requests from State Superintendents of Public Instruction for advice as to how they may secure the advantages which we enjoy. From every nation in the world come inquiries of the same nature. I have been shown a very interesting letter of inquiry from India, where the very purpose which this instruction serves here was presented as an educational influence upon the people of the country.
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> Not long ago Doctor Bickmore took this system in all its phases to exhibit at Paris. . . . He brings home from Paris a gold medal for the educational system which has made this Museum famous. . . It is through this system, exemplified as it has been by what has been done for free lectures in this great city, that it is possible to carry this work all through the cities and villages of this great State. How to properly educate the masses of the people is the great educational problem before us all today . . . and the more we contribute to the education of the masses of the people, the more we can send education into the homes of our pupils, the more we shall contribute to their happiness and to the uplifting of city, state, country and the world.[3]

Courses for teachers-in-service given in various museums throughout the country have attracted those instructors who are the most aware of the advantages which these institutions offer. They are the ones who realize that fuller knowledge of original materials will help them in their work. A great many expressions of gratitude to the museum instructors have been written by teachers who have felt that they profited from a certain course. It is unnecessary to quote more than one or two examples.

> I wish to take this opportunity to thank you for the most interesting and valuable course of lectures I have ever attended. After each session, I went away feeling that I had learned something that I could apply directly in my daily teaching.

[3] Albert S. Bickmore, Autobiography (unpublished) p. 136.

The course has shown me how to make my nature study teaching *alive*. It has shown me the service I can receive from the Museum, advanced my general knowledge of birds, flowers, trees, insects, and seashore life and has taught me how much I have to learn about nature.[4]

Many favorable statements have also been made concerning the work carried on in the training of student teachers. During the autumn of 1937 the writer received letters from three graduates who had taken the museum course for student teachers the previous year, stating that the new position which each was holding had been secured because of his special training at the museum. Later, letters were received which gave specific instances of ways in which the museum training was being applied to make the individual's work more effective and successful.

### *Appreciation of Teachers, Parents, and Pupils*

Reports from museums state that each year brings an increased attendance of classes. Where these classes are brought by their instructors during school hours, an increase in numbers may simply indicate a greater awareness on the part of school administrators and supervisors of the value of the work. It gives little indication of the response from the individual pupils concerned. In most cities a class visit to a museum requires considerable initiative on the part of the individual teacher. After deciding upon the visit and making arrangements with the museum, she must secure written permission from the parents of each pupil, permission from her principal and school superintendent, and collect from each child the money for the car-fare. If such visits did not prove valuable in the work the instructor would not repeat them term after term and try to come more often each term.

When the children who have been in the museum classes show the results of their visits in their art work, compositions, oral reports, and construction work, such responses would seem to indicate that definite value had been received from the work. Teachers of slow groups and opportunity classes often report that they are able to carry on their work only because of the con-

[4] Personal letters received by the writer.

crete aids provided by the museum. These are especially valuable, they state, when their groups have language difficulties. Many museums report that large numbers of the children from the school classes return to the museum on Saturday afternoons and Sundays with their parents and other members of their families, showing that the work has interested the child to such an extent that he wishes to show others what he has seen and enjoyed.

Many letters of appreciation written by the parents of these children also indicate the value of the work, as "My twin daughters have been taken into a realm of real wonderland through your instruction which has presented nature in such a systematic, efficient, and interesting way. I am pleased to note, when we take trips together, whether to the ocean or hills, how their power of observation has developed. They see and hear things which I am deaf and blind to, until pointed out by one or both of them." [5] Another mother wrote to the director of the San Diego Natural History Museum: "Through their nature study work my boys are happily busy at a worth while activity and have no time for undesirable ways to develop." A school principal in the same city wrote: "Nothing which the school does is more important than your work of acquainting children with their natural environment."

Angelo Patri expressed his feeling about museums and their work for children in a letter written to the editor of *Museum Work* as follows:

To the Editor:

Indeed I am interested in museums. I'm interested in them because they do so much to make learning a delightful experience for the children. So much of instruction is just sounding words that children are not to blame when they turn their backs upon us. But a museum. That's different..... The lovely interesting things of the museum are more powerful than any story. They tell their own story and the word story

[5] Director, O'Rourke Institute of Natural Science, San Diego, Calif. Personal Letter.

may come after and welcome. Welcome now because there is an idea and a clear association and a sharp memory to make it thrill with life.[6]

He also wrote in a syndicated article:

THE MUSEUMS

You can't learn anything without experiencing it. Of course, words are an experience but unless they are backed by a real, substantial concrete happening they are not very enlightening. To the groping human mind there is nothing so reassuring, so illuminating as THINGS. . . . .

School is too often a place where you hear a whole lot, see a very little and feel almost not at all. Yet it is through our hands that we have pulled ourselves up to the present level of growth. Eyes and ears are not nearly enough, and words alone are too empty to be of any value. There must be THINGS.

Children love things. They make the mind so comfortable with their very bulk. Words and sounds are so thin to the intellect. No school that is a school can thrive without the help of the museum full of the THINGS that are behind its words.[7]

The following letter of appreciation typifies many hundreds which are received by museum workers all over the country:

We wish to thank you for your splendid talk and gallery guide on "Puppetry" for our fifth grade. It was marvelous of the Museum to do so much for us and we greatly appreciate your cooperation.

If you could have seen our two bus loads (eighty) happy children—and heard their comments on the trip home—comparing their drawings and planning what figures they would make and how they could make them "like those in the Museum," I am sure you would have been repaid —partially, anyway! Your talk on Puppets and Their Use in the Daily Life of the Far East will be so helpful in the geography the children are studying, and the demonstration of the Shadow Figures so inspirational for their art work! We are doubly grateful.

You were kind enough to say that you would be interested in our problem. I enclose the outlines of the historic background upon which we will base our shadow play. Remember that *every child* will wish to make *one* figure! Each one must be as beautiful as your Javanese figures! We work in our Art Period, each Wednesday until February when we

[6] Angelo Patri, Letter to Editor, *Museum Work*, Vol. VII, No. 2, p. 63.
[7] Angelo Patri, The Museums, *Museum Work*, Vol. VII, No. 2, p. 64.

plan to give our play. Our Art Supervisor wishes me to thank you in her behalf. You were so wonderful with the children we only hope that schools from far and near may hear the talk on Puppetry.[8]

Many teachers of the handicapped children send in letters which indicate the reactions of their pupils to museum instruction. The following report from an instructor who brought to a museum a sight-saving class containing children of different grades illustrates this:

The first and second grades in my class were studying about various animals before we went to the Museum. There we saw these same animals in their natural habitats. The children were permitted to touch some of the animals and the instructor imitated their calls, making it all very real to the children. On our return to school a new interest in animals and in reading about them was awakened. The children knew now how the animals really looked and how they lived.

The third and fourth year groups were given a talk about the Eskimos. The fourth year class had started the study of Eskimo life and were much interested in the igloo and its construction, the dog team, the kayak, and the fur clothing. The inside of the igloo, showing just how the family lives, made a lasting impression. The children reported what they had seen to the children in the normal classes who became eager to visit the Museum. My children built a model of an Eskimo village in which the third year children assisted and are asking now when they can learn more about these people. My fifth year children were studying about coal mining so the talk at the Museum, with the different kinds of coal, the model of a mine and miners at work was most helpful. These children who live in apartment houses had never before thought about where their winter heat comes from but after the museum visit they went into their cellars to see what kind of coal was being used and brought samples of it to school.[9]

Another report indicates how museum visits may stimulate a child who has hitherto been almost untouched by the regular school work:

Boy—I.Q. 77—Aged 10.

Never left his block. Worked in his father's junk shop after school, sorting rags. Foreign language spoken at home. Couldn't seem to learn

[8] Teacher in Rutherford, N.J. School. Personal Letter to Marguerite Newgarden, American Museum of Natural History, November 21, 1935.

[9] Personal Letter to Writer, June 4, 1937.

to read and *didn't care to.* Nervous, emotional, quarrelsome, violent temper. Interested when he heard of trip—anything to get away from school. Frequent trips taught him the way to the Museum. He went alone, walked, and even hitched. Loved to model in clay and make wooden things. Saw nature room, became interested in terraria, aquaria, and their contents. He asked questions and still more questions. We started a terrarium in class. He began to realize his handicap in not knowing how to read signs and in being unable to find out more about the things that interested him. He learned to read simple instructions about how to make things. Confidence grew. Found his way to Bronx Park. He loved animals. One summer he went to camp and brought home a turtle and other nature material. Learned to care for it. In a garden book, read how to make a pool. Made one in the yard of junk shop. Boy now reads fluently. The class learned to respect his opinions. His appearance is neater. (To go to places he had to dress more carefully.) His manner and facial expression have changed. His great delight now is to visit the Museum.[10]

## *Responses from Individual Children*

Without question, the truest reactions may be found where the attendance of children is entirely voluntary on the part of each individual as it is in the after-school and Saturday classes. Some museums report so many applications for this work that it has been found necessary to make a selection or to accept members in the order in which applications are received and to turn away the late comers. The Brooklyn Children's Museum reported that their afternoon classes for children are so popular that they find it necessary to turn away yearly some five hundred applicants. The Children's Museum of Boston found that their educational programs drew such crowds that they were forced to find larger quarters to accomodate them. The Springfield Art Museum, Missouri, reported that each week during the museum season, children preferred to come to the art meetings on Saturday mornings rather than to attend a free movie show. The Junior Section of the Los Angeles Museum for the vacation month of August 1937, had an attendance of 23,487 children, including only a few adults.

[10] Personal Letter from a Teacher of a Sight Conservation Class, New York. June 4, 1937.

The principal of a New York City school wrote to the Metropolitan Museum of Art concerning the value of the Sunday Story Hours at which attendance was entirely voluntary, that they "create a fine environment for the children; enrich their ideas; help them in both written and oral expression; correlate with their study of history, geography, and literature; their ethical effect is valuable in that they cause the children to appreciate the fine and the beautiful." [11] An assistant superintendent of schools also wrote about these Story Hours:

> The value of the attendance by the children at these Story Hours is in evidence on many and really unexpected occasions. Children have shown that they know how to see beauty in connection with their school work, but particularly have I noticed this in their Oral English Expression. The children have obtained material for thought during these Story Hours and teachers have had an opportunity to utilize the experiences of the children, especially in developing free and full expression of thought; in other words, material for expression has been provided in such a manner, as to arouse interest, attention, and close observation. This is especially emphasized by the fact that the stories are followed by concrete application as shown by the opportunities given to the children to observe in the Museum the objects which are dwelt upon by the Instructor. The Museum's influence comes back to me through the interest and enthusiasm of principals, teachers, and, above all, through the children.[12]

The staff members in the Detroit Institute of Arts find that over a period of years they have a growing audience for their exhibits, and artistically a more alive audience as time goes on. There are also many instances reported where museum work has stimulated definite interests in certain children who have followed along these lines for their life work. As examples there might be mentioned Ned Burns, acting director of the National Parks Museums, whose miniature habitat groups may be seen in several museums of the country; also Carol Stryker, director of the Staten Island Zoological Park. The work in the Staten

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[11] Anna Curtis Chandler, School Children and the Art Museum, *American Magazine of Art,* Vol. IV, No. 10, October 1924, p. 512.

[12] James Lee, Story Hours for Boys and Girls, *Bulletin No. 9,* Metropolitan Museum of Art, Vol. XXI, September 1926, p. 208.

Island Public Museum influenced these young men along the lines they are now following in their adult lives. The Brooklyn Children's Museum has records of many careers in science having been started among the boys and girls who spent much of their leisure time in this museum. Through arousing a desire to know more the child was induced to investigate more thoroughly and thus a real continuing interest was developed. Art museums likewise have many instances of similar results from their work. The Baltimore Museum of Art reports that a large number of children who have been stimulated and inspired by the Saturday work at the museum have gone to art school later for more specialized training.

E. E. Blackman, director of the State Historical Society of Lincoln, Nebraska, paid tribute to the assistance given him as a boy, when he said at the second meeting of the American Association of Museums, following a report on the educational work of the Davenport Academy of Sciences:

> I want to bring before this meeting something of the result of those talks given by Mr. Pratt years ago in the Academy of Sciences of Davenport. As a boy, ten years old, I lived in that community, and the delight of my life was to listen to the talks delivered by that grand old man. From the little start which I received there, together with the interest which was aroused by Mr. Hall, a gentleman who collected largely for the Academy, my interest has always continued in that line of science, and especially in art galleries. I attribute my later work to the seed sown at these lectures by Mr. Pratt.
>
> I want to say that the far-reaching value of such things cannot be estimated in dollars and cents. You cannot estimate the satisfaction which I have received from the power to study my surroundings during my many years of school life. If I succeed in building up a museum in the State of Nebraska which shall be a monument in that state, the credit must be given to that grand old man, Mr. Pratt, who gave these talks in the Academy of Sciences.[13]

There are so many intangible results from the educational work of museums which cannot be measured unless, as stated by

[13] E. E. Blackman, *Proceedings,* American Association of Museums, Vol. 2, 1908, p. 67.

Anna Billings Gallup, former director of the Brooklyn Children's Museum, its effects can be traced on the development of each child that has come within the influence of the museum for any length of time.

But when a blind boy tells us that he feels as though he had entered a new world ever since he has been allowed to take the stuffed animals in his hands; when a bright-eyed youngster, returning from the country, convinces us, by his discriminating accounts of his summer pleasures, that his enjoyment was enhanced by knowledge acquired at the museum, when a boy from Columbia University assures us that his first real interest in botany resulted from the spare moments he, as a high school lad, spent in our botany room we feel that there is reasonable ground for encouragement.[14]

## *Appreciation of Museum Loans*

Then there are the reactions expressed in the form of letters by grateful teachers and others who have been aided by the museum loan collections. The following letter was sent from the West Seattle High School to the University of Washington Museum:

We appreciate very much your making it possible for us to make this interesting study of textiles from our Southwest and from the Philippines. The study extended into four of my art classes. The weaving class made a careful study of particular matters of technique, materials, and sources of dyes. A committee from that class acted in charge of the exhibit before the Spanish Fiesta which provided the setting for the exhibition. They added information in the discussion. The lending of these textiles to us made a very happy and instructive experience which has permeated practically the whole school.

The principal of the Lincoln School of Teachers College wrote regarding the loan of a motion picture film from the American Museum of Natural History:

We wish to thank you for permission to use "Simba" in our elementary school. You have no doubt seen the sincere joy and rapt attention which children give to it! We showed it in two sections on consecutive mornings.

[14] Anna Billings Gallup, The Work of a Children's Museum, *Proceedings*, American Association of Museums, Vol. I, 1907, p. 144.

The first half inspired a fifth grade group to compose the words and music to an "Elephant Song," which the children sang at the opening of the second morning's showing. An exhibit case of wild animal books and models was prepared by one boy, while another is planning an "African Game" for next week. Yesterday the bulletin board blossomed with "Martin Johnson" clippings.[15]

The value of loan collections to the schools may also be indicated by the reports which showed that only two museums had sufficient materials to meet the demands received from the schools in 1936.

In 1908, Rathmann, assistant superintendent of St. Louis schools, reported that the four assistant superintendents and three primary supervisors all visited the schools and observed the results of using illustrative materials in connection with geography, history, nature study and English. These school officials were unanimous in declaring that the interest of the pupils had increased greatly in these subjects since the materials had been used in the classes.[16] The loans made to branch public libraries in New York City have also brought many expressions of gratitude from the librarians and have greatly increased the numbers of books read along the subject of the exhibit. As a result of a loan of Arctic materials made to a library in the borough of The Bronx the requests for books on the Arctic increased from zero to four hundred in the first month.[17] Loans made occasionally to other institutions likewise bring forth letters of appreciation. A Brooklyn savings bank wrote: "We appreciate having your fine collection of beautiful shells for display. They are attracting a great deal of attention from the people in this vicinity who have asked our employees many questions about your Museum and its collections." [18]

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[15] Rebecca J. Coffin, Elementary Division, Lincoln School, Teachers College, Columbia University. Personal Letter, January 13, 1934.

[16] C. G. Rathmann, *Proceedings,* American Association of Museums, Vol. II, 1928, p. 43.

[17] American Museum of Natural History, New York, N.Y., *Annual Report,* 1908, p. 20.

[18] Lincoln Savings Bank, Brooklyn, New York. Personal Letter. June 1937.

### *Reactions to Field Trips*

The reaction of the public to museum field trips with the attendance entirely voluntary indicates real enjoyment on the part of the participants. Otherwise, such trips as those given by the Cleveland Museum of Natural History early Sunday mornings would not attract groups of one hundred and more at each of the seven different stations for the study of birds. Field trips given by other museums have proved just as popular. The rapidity with which the idea of nature trails spread over the entire country, into national parks, state parks, and city parks with thousands visiting them, indicates a very favorable reaction toward this type of nature instruction which was inaugurated by the American Museum of Natural History.

### *Response to Radio Programs*

Radio broadcasts have brought considerable fan mail to museums which indicates to a certain extent the reaction of listeners to the program presented. The writers of these letters express their reactions sometimes favorably, sometimes with adverse criticisms, but at all times very frankly. In a few instances a good response followed an invitation to listeners to visit the museums to see the special exhibits described over the air. The amount of radio mail usually depends, however, upon whether or not something will be sent to those who enclose a stamped, addressed envelope.

### *Appreciation in Form of Financial Aid*

Although reactions most commonly received by museums are in the form of spoken or written expressions of appreciation with occasional criticisms, there are certain instances where direct financial support has been given because of the educational work. The Worcester Natural History Society reports that the Kiwanis Club, women's clubs, garden clubs and others have made dona-

tions in view of their educational program. The Duluth Children's Museum reports that a group of fifteen citizens formed themselves into a committee to raise money and help in the support of the museum. The Charleston County Teachers Association approved the work of the Charleston Museum to such an extent that they voted to support a measure for an appropriation for further school-museum cooperation. Ellen Scripps gave a substantial sum to further the nature study work of the San Diego Natural History Museum; Felix Warburg for several years, gave financial support to the educational work of the American Museum of Natural History; Norman Wait Harris and Anna Louise Raymond endowed very liberally the educational work of the Field Museum; the Rockefeller Foundation and the Carnegie Corporation have given financial support to many phases of educational work while in its experimental stages. The Federal Government has been generous in its allotment of W.P.A. workers to various museums where much of the educational work would otherwise have been discontinued during the depression.

During the past fifteen years several museums have found good friends among those whom they have been serving with loan collections. When the lending department at the Newark Museum was closed for lack of funds, teachers wrote and spoke in protest. Borrowing was resumed in almost as great volume as before when the department was reopened after three years. When a budget cut crippled the service which teachers had been securing from the Rochester Museum of Arts and Sciences, the teachers and children and even parents delivered collections and returned them to the museum. Five teachers also volunteered their services as clerical assistants.

Since 1916, even during the depression, the Pittsburgh Board of Education has paid the car-fare of the eighth grade children to visit the Carnegie Institute during school hours. This amounts to about three thousand dollars ($3,000) a year. If the Board and the teachers did not react favorably to the program the car-fare would surely not be forthcoming. The Grand Rapids Pub-

lic Museum found during the depression that their citizens were not so generous and slashed their budget heavily, yet the board of education continued its financial support of the lectures on nature study given by the museum in the city schools. When financial difficulties came to the Buffalo Museum of Science with a severe budget cut for 1936 so that the museum had to be closed much of the time, citizens came to the rescue and volunteered to act as guards in order to have the museum opened every Sunday afternoon. Throughout this time, however, the school busses continued to bring classes to the museum each morning of the school weeks and practically as many lantern slides were lent as in previous years.

The Children's Museum of Hartford reports that the legislature of Connecticut in 1935 made it legal for the city to appropriate funds for the upkeep of the museum and that the citizens voted an appropriation in 1935 and 1936 which amounted to nearly half of the museum's budget, thus indicating their approval of the work. The Commercial Museum in Philadelphia has also continued to receive its annual appropriation from the state to carry on its work of giving collections to the schools.

From the foregoing discussion, it may be seen that reactions to the educational work of museums have on the whole, been very favorable. Many cannot be expressed in a tangible form. So far as attendance figures indicate, the rapid increase at every type of program offered shows appreciation. That this appreciation is not entirely lip service is proved by the fact that in many parts of the country direct financial aid has come to the museum as a result of a successful educational program. There are indications of fine cooperation between the schools and the museums although there is still a lack of an awareness on the part of the entire teaching force of the various types of educational service which their museums offer. There is also a definite public indifference to the cultural advantages of museums and a disregard of the extent to which their facilities might be used in furthering adult education.

## Chapter XII

# EVALUATION OF MUSEUM EDUCATIONAL WORK

A scientific evaluation of the educational work of museums has not been given as much attention by the officials of the museums who are in immediate charge of this work as "common-sense" evaluations. The latter have been made continuously since the museums first offered a definite educational program and modifications in the work have been effected where a change was indicated. No museum is offering today exactly the same program as was offered twenty or thirty years ago. Many museum leaders have endeavored to keep their fingers on the pulse of the educational world and modify their programs to keep pace with changes in the schools. In some cases, especially in advocating an emphasis upon the use of concrete teaching materials and creative activities for children's clubs, museums have been somewhat in advance of educational trends. In other instances it may be that the methods of some of their instructors have kept pace with the general run of school instructors but not with the latest methods used in progressive schools. In the majority of museums, new educational activities have been offered even before there was a demand for them from the schools. Sometimes, however, the demand has come from the children themselves.

## *First Scientific Investigation*

Thus the rapid development of the educational work of museums in the country during the period from 1915 to 1930 took place without the assistance of much scientific experimentation to determine the efficiency of the various procedures. The first attempt to subject any phase of the work to scientific testing

was undertaken at the Cleveland Museum of Art in 1923-24 by Katharine Gibson, museum instructor.

The purpose of the Gibson investigation was to determine, if possible, for what type of child the lesson plan then most in vogue was best fitted. The experiment depended upon the fact that the children in the Cleveland public schools were given intelligence tests and classified as X classes, high, Y classes, those testing next high, and Z classes, those testing lowest. The instructors at the museum felt that the Z classes presented an unsolved problem, so they planned to give all fifth grade classes a test and to compare the scores obtained. In this way they hoped to secure some check on what the museum lessons were accomplishing for all groups as well as to determine some accurate information about the value of the work for the Z classes.[1] Heretofore, they had been unable to secure any accurate measure of accomplishment from the classes which were usually receiving only one museum lesson a year. They could only judge what had been accomplished by the response of the children during the lesson or a bit of "follow up" work with the teachers.

The procedure was to give the children, following their museum lesson, a talk in the galleries which was designed to serve as background for answering a set of questions. These questions had been carefully prepared to make history or English more real through an acquaintance with the concrete. After the gallery talk "the children were permitted to wander about the gallery a few moments, to see things in their own way and ask their own questions. They were then reassembled and the mimeographed sheets and pencils given out to each child." [2] The questions were read to the children who then wrote their answers and gave the papers to the museum instructor. A short discussion of each question followed so that each child might leave with the correct idea, if possible. In the testing of two thousand

[1] Katharine Gibson, An Experiment in Measuring Results of Fifth Grade Class Visits to an Art Museum, *School and Society,* Vol. XXI, No. 544, May 30, 1925, p. 658-62.

[2] Ibid. p. 660.

twenty-four children in forty-nine classes from twenty-six schools, "a record was kept of whether the class was X, Y, Z, or mixed; of the home environment; of the class average; and of the highest and lowest grade in each class." [3]

The total average scores showed an unexpected result in the fact that the averages for the Z group (lowest in intelligence tests) were so much higher than had been anticipated. The factor which entered into this result was the use of concrete museum objects which obviated the necessity of the child having to construct complex mental images.[4] This was another example of a fact determined in various experiments elsewhere that concrete objects are adapted for use in teaching backward children.

The scores showed that the contributing factor of home environment was important and one to be considered, but that it was not the determining factor. Racial differences also proved to be a subordinate element.

A brief study in retention was also made by giving the same questionnaire to five classes two months later. These questions were answered by the children without any previous discussion. The first and second scores were then compared and the correlation between them determined. The results showed that the Z child did not drop so much in the second score as might be expected and thus tended to bear out the one outstanding feature of the experiment, that the Z child stands relatively well in his museum work. It must be realized, however, that the tests are an incomplete measure of the child's reactions to the museum and to the museum materials. They test, to some extent, the child's ability to "comprehend new facts, to connect what they have already learned in school with new material, and to observe museum objects." [5] But in no way, do they measure a child's enjoy-

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[3] Katharine Gibson, An Experiment in Measuring Results of Fifth Grade Class Visits to an Art Museum, *School and Society,* Vol. XXI, No. 544, May 30, 1925, p. 660.

[4] Katharine Gibson Wicks, Personal Interview. October 9, 1937.

[5] Katharine Gibson, An Experiment in Measuring Results of Fifth Grade Class Visits to an Art Museum, *School and Society,* Vol. XXI, No. 544, May 30, 1925, p. 662.

ment and aesthetic appreciation which are considered the chief aims of such a museum visit.

The fact that the Z averages were high and the X by comparison low, would seem to indicate that the methods used in the museum lessons were better adapted for the Z than for the X child. This suggested a continuation of the general experiment for further study of methods to find one which would be successful for the bright child and permit him to function normally.

## *Second Scientific Experiment*

Accordingly, in 1924-25, various lesson plans were tested by a common-sense method, preliminary to a new experiment for children of average and high mentality. The same materials were used in each method. These materials of instruction were selections of several hundred children and were objects which were of particular interest and enjoyment to them. Other objects were included which the staff felt should be remembered after a visit to the Egyptian gallery. These were often the same as the selections of the children. No material was used which "failed to win either the spontaneous or the cultivated interest of the child." [6]

In the experiment the same set of questions was used, irrespective of lesson plan. These questions were devised to test the child's response to something he had experienced, either intellectually or aesthetically. The test was to determine, if possible, the accuracy of the child's observation, the concepts and conclusions he had formed from his observations, and the aesthetic responses he had made to the selected objects. The plan also included a study in retention. It provided for a repetition of the test questions about three months after the same children had been tested at the museum. It was also hoped that a third test could be given to the same children after an interval of three years, providing the children could be located.

[6] Marguerite Bloomberg, *An Experiment in Museum Instruction,* The American Association of Museums, New Series, No. 8, 1929, p. 9.

Each of the lesson plans used was developed in the hope of making a reality the two fundamental objectives: first, to have the children enjoy the works of art directly; and second, to have them integrate their acquaintance of art with their knowledge of history and life in general. Eight of the different plans tested were chosen for the experiment which was carried out in 1925-26.

Plan I: Accepted Method. The teacher presented all material, the pupils discussing and asking questions.

Plan II: Interest as Guide. Each child followed his own inclination, searching out where his interest led.

Plan III: Question and Investigation. The interest of the child was stimulated by pertinent questions which enticed him to investigation.

Plan IV: Fairy Story Method. The imagination of the child was stimulated by the creating of an atmosphere of romance wherein the museum objects could find a place.

Plan V: Comparison with Greece. The life and art of Egypt were compared with the life and art of Greece.

Plan VI: Lantern Introduction. A background was provided by slides shown at the museum immediately before going into the gallery.

Plan VII: One Day—Schoolroom Preparation. The background by slides was provided in the schoolroom one day before the museum visit, the museum teacher instructing. When the child reached the museum he followed his own individual interest.

Plan VII: One Week—Schoolroom Preparation. This plan differed from the preceding only in that the museum instructor went to the schoolroom to present the background one week preceding the coming of the class to the museum. The procedure upon arrival at the museum was the same in both cases.

Plan VIII: Drawing Method. Interest of the child was stimulated by pertinent questions which he was asked to answer by drawing.

Plan IX: Instructive Story Method. The story of a scribe whose possessions are in the Egyptian Gallery was told in order to furnish a realistic background.[7]

The variation of the plans was based upon the material used and the extent of freedom given the child. Plans VI, VII: One Day and VII: One Week used lantern slides in addition to the Egyptian objects of the museum but with a difference in the time-interval between the presentation of the slides and the museum gallery lesson. Plans IV and IX used an introductory story. Plan V included a second museum gallery for comparison with the Egyptian. In regard to the freedom of the child, in Plan I he was led and directed by the teacher throughout. Plans VII: One Day and VII: One Week were variations of this method. In Plan II the child's own interest led. Plans III and VIII directed the child's interest along definite lines.

The results showed that no one plan stood out as superior to the rest. For the X child Plan II had the least merit, V next; with Plans VII: One Week preparation best, followed by III; VIII; and VII: One Day preparation. The correlation between intelligence and achievement in the Immediate Tests was "markedly present" for all the superior plans, with the exception of VIII which was a little low.

Plans III, VIII and VII: One Day were markedly superior in this order for the Y child. Plan VI ranked the lowest of any plan. There was little correlation between the mentality and accomplishment, in any plan, for the Y child. This indicated that none of the methods used had stimulated the higher Y's in accordance with their ability.

Plan II which gave complete freedom to the child and brought forth the greatest enthusiasm proved to be the least suited to the mentality of the X child and was also inferior with the Y's. The child's interest was stimulated, but not directed, became scattered.

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[7] Marguerite Bloomberg, *An Experiment in Museum Instruction*, The American Association of Museums, New Series, No. 8, 1929, p. 14-16.

Plan V evidently presented a greater variety and quantity of material than could be used by the child as it proved next to the lowest in value for the X child.

For the Y's, Plan VI was the least successful. This failure, the report states, might have been due to any one of four factors. The time spent in the gallery was shortened by a half hour and the questions tested the child's reaction to gallery objects rather than to slides shown. The interval between the showing of slides and the museum material was not long enough. Thirdly, the child's interest was directed at every point. Fourthly, the real objects seen in the gallery may not have seemed as interesting as their enlarged representations on the screen.

Neither of the two story plans showed sufficient superiority to be considered valuable for use. The story seemed to direct the child's attention away from the museum objects rather than to them as sources of knowledge and aesthetic stimulation.

The most successful plan for the X child was VII: One Week—Schoolroom Preparation. The slides used in the classroom seemed to arouse interest which increased as the time passed and made the child more eager for the museum visit. The one day's preparation was not so successful with these bright children but was third in importance with the Y's, indicating that their interest did not hold over for so long a period. In spite of the combination of advanced preparation with an inferior teaching plan, a high superiority resulted which showed that this added instruction was advantageous.

The plan which ranked second in importance for the X's and first for the Y's was Plan III, in which the children were given the list of questions upon entering the gallery. Their interest was thus immediately challenged and directed without being hampered. The discussion of the questions also brought an attention not secured in any other plan. It also provided some repetition which was needed by the Y child. This plan also ranked superior in the Delayed Test which was given three

months later. This surprised the instructor as the children had shown so much keener enthusiasm for Plan II.

Plan VIII which asked for the children's response to the questions in the form of drawings, ranked third for the X's and second for the Y's. The instructor had hoped to test out the value of drawing in securing a heightened reaction from the child but when two individual points were compared, one response asked for by writing, and the other by drawing, the results were practically the same. However, there was no way of knowing how much the child was hampered through a lack of skill in drawing or an inability to express his thoughts in words. Neither was there any testing of his emotional response which may have been enhanced through the act of drawing.

In her general conclusions Bloomberg stated [8] that since the final scores of even the best teaching plans were only average for even the brightest children, too much material had no doubt been presented at a single lesson in all of the plans. If accuracy was one of the aims, it was better to attempt less and secure greater clarity. That the preparation by "introduction" and "difficult words" made little difference, may have resulted from its presentation when the child had no interest in the explanation. Enthusiasm of the children did not always mean accomplishment. One major result was the unusually high score for the Delayed Test in all plans which seemed to indicate clearly the value of the use of visual material. A second major result was the value of preparation in the classroom before the museum visit. Finally, the results showed definitely the advantage of less instruction on the part of the teacher and more investigation on the part of the children.

## *Scientific Studies in Museum Education at Buffalo*

With the aid of the Carnegie Corporation empirical studies of the value of various methods of museum instruction begun in

[8] Marguerite Bloomberg, *An Experiment in Museum Instruction,* The American Association of Museums, New Series, No. 8, 1929, p. 24.

the Cleveland Museum of Art were continued in 1929 under the direction of Edward S. Robinson in the Buffalo Museum of Science. This was only a part of a comprehensive research program financed by the Carnegie Corporation and designed to discover methods for making museums of all kinds into more effective educational centers. The entire program was initiated through the influence of Clark Wissler, who understood and appreciated the empirical point of view and method of experimental psychology. In 1925, the late Edward S. Robinson, professor of psychology and the director of the Institute of Human Relations, Yale University, was secured to carry out a series of sample studies relating to the reactions of the museum visitor. Following the first report made by Robinson,[9] a number of museums volunteered to serve as subjects of more intensive studies. The Buffalo Museum of Science was one of these.

At the Buffalo Museum, Charles W. Mason and later Nita Goldberg Feldman served as staff psychologists to set up and direct the experiments having to do with the relative educational effectiveness of various methods of instruction and of other circumstances of the formal visits of school children to the museum. Robinson gave the work his general supervision in its earlier stages but in 1932, Arthur W. Melton, who was supervising another study,[10] divided this responsibility, reorganized the findings, and wrote the final report.[11]

## Aim of General Plans

The number of different educational techniques which were subjected to experimental comparison was limited so that each technique might be examined more thoroughly in the available time. The general plan had as its aim the progressive improve-

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[9] Edward S. Robinson, *The Behavior of the Museum Visitor,* American Association of Museums, New Series, No. 5, 1928, p. 72.

[10] Arthur W. Melton, *Problems of Installation in Museums of Art,* American Association of Museums, New Series, No. 14, 1935, p. 269.

[11] Arthur W. Melton, Nita Goldberg Feldman, and Charles W. Mason, *Experimental Studies of the Education of Children in a Museum of Science.* American Association of Museums, New Series, No. 15, 1936. p. vi+ 106.

ment of the effectiveness of the museum visit. The method of experimentation used throughout was a variation of the method of control groups. Since each school had to be treated as a unit in the studies, the schools included in the various experimental groups were equated in terms of the average E.Q. rating of the children. This was done by obtaining the median E.Q. of the children in each of the city schools and matching the schools in terms of this median E.Q. rating. The groups of children were also equated in terms of nationalities represented. The differences in teaching ability of the docents were provided for by having the children of each school taught by at least four different museum instructors or docents.[12]

## Methods Used

The method used in measuring the effect of the museum visit was to test the answers given by the pupils to questions about the objects and ideas presented in the museum visit. This had to be judged in terms of the relative amounts of information possessed by the groups of pupils instructed in the different ways as the absolute scores represented both prior knowledge and knowledge gained during the visit. The information tests were of the objective type, either of the true-false or the multiple-choice type. Every effort was made to make the tests adequate instruments for the measurement of the amount of knowledge possessed by the children at the end of the museum visit. This was done through sampling the ability of the children to reproduce the ideas presented during the visit. Thus the validity of each test rested in the adequacy of this sample. In devising the tests, a thorough study of the materials presented in the formal lectures and in the hall instruction was made so that only those sub-topics which were used by all docents could be included. The results were summarized under sub-topics with the relative

[12] Charles W. Mason, Personal Interview at Buffalo Museum of Science, May 22, 1930.

amounts of time spent on each sub-topic by the different docents. The test questions were then apportioned to the various sub-topics according to the "table of specifications." To test the possibility of the questions fixating the effects of the visit, in each of five different investigations of other factors, one group of children was given the test in the museum and a second test one week later in school, and another group was given the delayed test in the schools but was not given the test in the museum.

The results showed that the tests given in the museum did not always produce higher scores on the delayed test, so it was concluded that the tests were not necessarily a teaching aid. The conclusion was that the test at the end of the museum visit did not hinder the performance on a delayed test and that it might be a valuable aid to the fixation and retention of the new knowledge.

### Specific Problems First Studied

Since the formal visits arranged for the classes of the fifth, sixth, seventh, and eighth grades in the Buffalo Museum of Science made no provision for integrating the museum lesson with the particular needs and preparation of each class, it seemed that special preparation which could be given in the schools before the visit might remove some of these disadvantages and therefore, should be investigated. Accordingly, the Buffalo experiments were concerned with three aspects of this question: (1) Is any type of preparation effective in increasing the value of the museum visit? (2) Are certain types of preparation for the museum visit more effective than others? (3) Is there an optimal time relationship between the preparation in the school and the museum visit? The answer to the first question was always in the affirmative, so a study was made of the comparative effectiveness of the preparation in the school.

The first type of preparation studied was the silent reading lesson. The form used was an adaptation of the forms regularly used in the schools. The "experimental conditions were ar-

ranged so that comparisons could be made between the effectiveness of (1) no preparation for the museum visit, (2) the preparation as provided by the silent reading lesson and vocabulary drill without the silent reading test, and (3) the preparation as provided by the silent reading lesson, vocabulary drill, and the silent reading test." [13] The results from the fifth and sixth grade children showed that the silent reading lesson with the silent reading test was the most effective of the three methods.

A second experiment was devised to test the effectiveness of visual material as preparation for the museum visit. The visual material used was in the form of pictures of museum objects which were used as a game for fifteen minutes, following the silent reading lesson and test. As shown by the scores on the immediate and delayed tests, the use of this visual material was much more effective as preparation for the museum visit than the silent reading lesson and test alone.

The third experiment was planned to determine the time interval which would give maximal effectiveness to the preparation. The average test scores from the groups of seventh and eighth grade children in the experiment showed a continuous decrease as the interval between the preparation for the visit and the visit proper increased. One day was the most effective interval.

The generalizations drawn from these experiments were:

(1) A silent reading lesson and a test on the material read had a marked positive effect on the amount known by the children at the end of the museum visit, when given in the school not more than one week before the actual museum visit. (2) The test on the silent reading lesson is a valuable teaching device, and the effect of it is evidenced in the amount the children know at the end of their museum visit. (3) The use of pictorial materials and the game card technique in conjunction with the silent reading material increases the effectiveness of the preparation for the museum visit. (4) The preparation for the museum visit is more effective when it occurs one day before the visit than when it occurs

[13] Arthur W. Melton, Nita Goldberg Feldman, and Charles W. Mason, *Experimental Studies of the Education of Children in a Museum of Science,* American Association of Museums, New Series, Number 15, 1936, p. 25.

two days, one week, or two weeks before the visit. There is evidence that the preparation has some effect even though it precedes the museum visit by as much as two weeks, but the conservative estimate is that an interval longer than one week reduces the effectiveness of the preparation to the vanishing point.[14]

## *Comparative Values of Auditorium Lectures and Hall Instruction*

When these investigations were started in the Buffalo Museum of Science, it was customary to give the visiting group of children a thirty-minute illustrated lecture on the subject of their visit and then have the docents take them into the museum halls for the remainder of their work.[15] Another experiment was therefore devised to test whether the children received more benefit from the lecture than they would from spending the lecture time in the halls.

The first investigation of this formal lecture was concerned merely with the effect of shortening the lecture time and tested the relative effectiveness of thirty-minute and fifteen-minute introductory formal lectures. No advance preparation was given in the schools and all children were given a true-false test at the museum. Two different methods of hall instruction were used by the docents: the museum game cards and the lecture-type presentation. This was done to determine whether the differences discovered were a function of the method used in the museum halls or of the formal preliminary lecture. The evidence from this experiment was clearly in favor of a shortening of the formal introductory lecture. The average scores obtained from a delayed test given three months later were also superior where the pupils had been given the additional time in the museum halls. Therefore, the conclusion was drawn that some of the time usually spent by children in listening to an introductory

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[14] Arthur W. Melton, Nita Goldberg Feldman, and Charles W. Mason, *Experimental Studies of the Education of Children in a Museum of Science,* American Association of Museums, New Series, Number 15, 1936, p. 31-2.

[15] Observation of Classes in the Buffalo Museum of Science on May 22, 1930.

lecture might more profitably be spent in direct contact with the museum exhibits.

Since the shortened period for the introductory lecture was the more effective, the question arose as to whether the lecture should be dispensed with entirely. An experiment was devised to test this. The children of the fifth and sixth grades were given either a fifteen-minute introductory lecture or no lecture at all before their visit to the museum halls with the docents. All of the children were given a silent preparatory reading lesson and test one week before the museum visit. The results showed that the fifth grade children profited by the fifteen-minute introductory lecture but that the fifteen minutes additional time in the halls were as effective for the sixth grade children as the fifteen-minute lecture. Thus there may be a relationship between the educational level of the children and their need for some amount of formal lecturing. If this is true the formal introductory lectures could be omitted with grades above the sixth.

To test this, another experiment was devised to study the effect of eliminating the formal introductory lecture in the visits of the seventh and eighth grade pupils. In this experiment, half of the pupils were taught by lectures given by docents in the museum halls and the other half by a discussion method, where leading questions by the docent regarding the exhibits and their significance invited and encouraged participation of the pupils. For half of the pupils a fifteen-minute introductory lecture was given and none to the others but all were given the silent reading test in school one week before their visit and the test one week after the museum visit. None of the differences obtained were statistically significant so the conclusion was drawn that the formal introductory lecture was an unnecessary feature of a museum visit for grades higher than the fifth.

In view of this finding, it was thought that the formal lecture might prove valuable if given at the end of the visit as a summary rather than at the beginning. Accordingly, in another

experiment, a comparison was made of the effectiveness of the fifteen-minute formal lecture given at the beginning and the same lecture given at the conclusion of the museum visit. Fifth and sixth grade pupils were used for this experiment with two different methods of instruction by the docents: the discussion method and the lecture-talk in the museum halls. Tests previous to the visit and one week after were given. The differences in the scores were small but indicated that the formal lecture was more effective at the conclusion of the visit whenever the discussion method was used by the docents.

Therefore, the general conclusions to be drawn from this series of experiments show that children of the sixth, seventh, and eighth grades learn more when they spend the usual introductory lecture time in further study of the museum exhibits, emphasizing the effectiveness of direct contact with the exhibits in the museum. The fifth grade children, however, need a short introductory formal lecture of fifteen minutes in length. If the docents lecture to the children in the museum halls, a formal lecture is equally effective for the fifth and sixth grade pupils whether placed at the beginning or the end of their museum visit; but it is more effective as a summary if the discussion method is used in the halls. The limitations of these experiments did not warrant a conclusion that all formal illustrated lectures are less useful than direct contacts with the exhibits. The conclusions are true only for the particular type of exhibit investigated.

### Relative Effectiveness of Methods of Instruction

Another series of experiments tested various methods of instruction used in presenting museum exhibits to groups of children. The three methods tested were those employed in the preceding experiments: the customary method of straight lecturing on the exhibits by the docent; the use of game cards of questions which directed the children's attention toward pertinent facts and the discussion method which used leading questions for

discussion to which the children responded with their own ideas after looking at the exhibit. Both of these variations from the customary method encouraged an active study attitude. An attempt was made to have all docents use the same "lecture" and "discussion" method by prescribing the pattern of all lectures and the leading questions for the discussion. All questions were printed on the game cards so they were uniform.

The first experiment to study methods was concerned with the relative effectiveness of lectures and of game cards with children of the fifth and sixth grades. For the fifth grade children there was no statistical significance in the average scores and the data were interpreted as showing high probability that the lecture method was actually superior to the game card method. For the sixth grade pupils, however, the immediate and delayed test scores were higher when the children used the game cards. Thus, on the basis of this experiment, the most effective tour for sixth grade children is one in which there is no introductory lecture, or at least not more than fifteen minutes in length, and then they learn about the exhibits by discovering the answers to printed questions by themselves. A similar experiment tried with pupils of the seventh and eighth grades showed that the game cards were neither more nor less effective than the lectures by the docents.

Another experiment which tested the relative effectiveness of the lecture method and the discussion method in the museum halls with children of the fifth, sixth, seventh, and eighth grades justified the conjecture that, under the conditions of the experiment, the lecture method is more effective than the discussion method for children of the lower levels of educational maturity.

The concluding experimental comparison of the lecture and discussion methods used all the seventh and eighth grade pupils who visited the museum during the school year 1934-35. It was the most extensive study and gave a basis for future studies in the field. The immediate objective was to determine whether the children of these grades were actually different in their reactions to the lecture and discussion methods. The scope was broadened by including the scholastic ability of the children among the experimental variables. The averages of the test scores showed that the discussion method was superior to the lecture method for the instruction of both seventh and eighth grade children. The important major implication of the findings was that seventh grade children may profit from the discussion method in the museum if the subject matter is suited to the method. Therefore, the relative effectiveness of the two methods depends on the type of material presented. For the eighth grade children, the discussion method proved better in the case of the two types of material presented. It was furthermore found that the extent of the superiority of the discussion method did not vary with the scholastic ability of the children.

From these experimental results a few general statements were made. First, that the fifth grade pupils always learned more when the docents lectured to them in the museum halls than they did with the other methods. Second, there was evidence in favor of the statement that the relative effectiveness of the discussion method, as compared with the lecture method, increases as the educational age of the children increases.

### Importance of Docent's Ability

During this period of experimentation in the Buffalo Museum of Science from 1929 through 1935, it became increasingly evident that one of the major determinants of the degree of success of the educational program was the ability of the museum docent or instructor. The questions which received particular attention were: (1) Is the ability of the docent more important than the

other factors in the program of museum education which have been subjected to experimental evaluation, even though the museum authorities have selected the docents with the greatest of care? (2) Do the methods used by museums for selecting their docents permit relatively incompetent individuals, i.e., individuals who are consistently less effective in their teaching than others, to obtain and continue in such positions? (3) Is there a marked difference in the relative competence of a docent in the teaching of different subjects? (4) Is there a marked difference in the relative competence of a docent when she is teaching by the lecture method and when she is teaching by the discussion method? [16]

The evaluations of teaching ability which were made at Buffalo were by-products of the other investigations thus far described and were based on the test scores of the children taught by them in the museum halls. The analysis of the docents' ability as a factor in the effectiveness of the museum visit rested on the data collected during the extensive study with the seventh and eighth grade children, nearly 12,000 in number. These children were taught by five docents so the number "was sufficiently large to minimize chance inequalities of the groups." [17] However, other factors than the docent's teaching ability might have influenced the average scores so the measures were considered relatively crude. Yet they were so discriminative that certain specific conclusions were formulated. The difference between the average test scores showed that "the differences in the effectiveness of their teaching may overshadow the differences in the effectiveness of the museum visit which may be attributed to the other factors in the situation, such as the method of instruction used, and probably the use of preparation in the schools, the use of illustrated formal lectures," [18] and other factors.

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[16] Arthur W. Melton, Nita Goldberg Feldman, and Charles W. Mason, *Experimental Studies of the Education of Children in a Museum of Science,* American Association of Museums, New Series, Number 15, 1936, p. 63.

[17] Ibid. p. 66.

[18] Ibid. p. 66.

The average rank of each docent, a measure of her relative effectiveness, was used in obtaining answers to the other questions which were listed. In this way it was shown that the effectiveness of a docent is often conditioned by the subject matter taught so "it is much more important that a docent be capable of teaching a particular subject than it is that she be capable of teaching in a particular manner." [19]

It may be reasonably conjectured that the most important factor in museum teaching is the docent's ability; also that this ability makes a greater difference between the amounts children will learn than can be produced by any manipulation of other circumstances of their museum visit. Another conclusion drawn was that the amount of familiarity with the subject matter might often be a prime determinant of success in teaching. Thus an important work for museum directors of education is to devise tests which will measure adequately their docents' teaching ability.

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[19] Arthur W. Melton, Nita Goldberg Feldman, and Charles W. Mason, *Experimental Studies of the Education of Children in a Museum of Science,* American Association of Museums, New Series, Number 15, 1936, p. 69.

## Chapter XIII

# GENERAL CONCLUSIONS

The pioneer period in museum educational work may now be considered as completed. For more than a half century museum curators have shown their desire to have their institutions meet a many-sided responsibility. Museums of art, history, and science have been carrying on their guardianship of the cultural heritage of men. They have preserved the best of man's work in art and science. They have brought together evidences of the age-long history of the earth. They have presented in concrete exhibits many complex scientific principles so clearly that a great mass of information is now available to all the people which otherwise could be known by only a few specialists. They have provided an extensive educational program in an endeavor to have their exhibits fulfill the greatest educational possibilities.

Many types of educational work have been developed in different museums during the first part of the century. The period has been one of continual growth and evolution of methods. Some educational offerings have been discarded in favor of others which were judged to be of greater worth. Those which proved of service to the community have been retained but have undergone continual modification to meet the changing needs of the educational world.

A marked trend in museum work for adults has been toward a program which would include greater activity and participation on the part of adults with a closer study of the original objects acquired by the museum. In no instance has the general public in a community begun to realize and take advantage of the maximum educational value of its museums. A problem which should be cared for in the immediate future is for the museum

to assume leadership in this adult field, even to the organizing of new groups which have common interests allied to the exhibits of the museum.

Another problem in adult education which museums have considered is that of teacher training. For some time school instructors have realized the advantage of having a skilled interpreter of museum exhibits to give them a clearer insight into the teaching possibilities of these original materials. The value of this has been demonstrated in many special museum courses which include much needed training in careful observation of objects and are designed to aid teachers-in-service as well as student teachers. A commendable recent trend in these courses has been to have them accredited by some college or university, thus raising their academic level.

There has been an increasing awareness on the part of some school instructors of values which may result from museum visits but there is need for still closer cooperation between schools and museums to make these visits of even greater value to the children. With the first visits of classes to museums the necessity arose of developing teaching techniques especially adapted to the exhibits in the museum. Methods have evolved gradually and in general, have followed the trends in the educational world, keeping well to the fore in emphasizing pupil activity. There is need, however, for closer cooperation among museum instructors themselves, so that methods successfully developed by one may be tried by others. A field of museum teaching which might well be expanded is that with the specially gifted and also with the handicapped children.

The trend in the extensive program offered to individual children has been toward more creative types of work and greater freedom in the form of clubs and other activities. More attention should be given to a study of child psychology by the museum instructors who are responsible for this program so that still greater possibilities in this work with children may be realized.

Through the establishment of nature trails, museums have encouraged a greater interest in a study of life out-of-doors. Field trips, often initiated through club activities, have also proved worth while. Extension work along many other lines has brought museums into closer contact with their communities but there are opportunities for still greater development in the formation of school museums and more small neighborhood museums with frequently changed exhibits. Museum broadcasts also possess possibilities for mass education which thus far have scarcely been tested.

No matter how well organized an educational program a museum may have, the work cannot be carried on without the assistance of carefully trained personnel. Scientific investigations have proved that while some methods of instruction in a museum are more effective than others, the most important factor in the educational work is the ability of the museum instructor. The mere fact that concrete experience exists is no guarantee that it will be functionally related and that this relationship will be apparent to the visiting pupils. It is the task of the museum instructor to present an interpretation of this concrete material at the pupil's level of development so he can project his experience into the situation until it becomes real to him. Then meaningful generalizations may emerge. To be successful in this type of instruction requires a well trained, experienced teacher who can easily and quickly adapt himself to many levels of instruction and who is alert to all educational possibilities in the museum's materials and exhibits.

The great task before the modern museum today is to learn how it can serve best. To be of real service to all the people in its community the museum must have a broad scope in its program and its personnel must have wide vision, a keen understanding of the rapidly changing modern conditions, and a sympathetic realization of its possible service.

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## APPENDIX

### Museums in the United States Studied by the Author

*Alabama*

Birmingham Public Library: Museum, Birmingham
Alabama Society of Fine Arts, Montgomery

*Arizona*

Casa Grande National Monument Museum, Coolidge
Gila Pueblo, Globe
Museum of Northern Arizona, Flagstaff
Grand Canyon Observation Station, Grand Canyon National Park
Petrified Forest National Monument Museum, Holbrook

*California*

Berkeley Art Museum, Berkeley
Museum of Anthropology, University of California, Berkeley
Mae Loomis Memorial Museum, Lassen Volcanic National Park, Mineral
California State Exposition Building, Los Angeles
Los Angeles Museum of History, Science and Art, Los Angeles
Southwest Museum, Los Angeles
Oakland Art Gallery, Oakland
Oakland Public Museum, Oakland
Snow Museum, Oakland
Fine Arts Gallery of San Diego, San Diego
Junipero Serra Museum, San Diego Historical Society, San Diego
O'Rourke Institute of Natural Science, San Diego
San Diego Museum, San Diego
Natural History Museum, San Diego
California Academy of Sciences, San Francisco
California Palace of the Legion of Honor, San Francisco
M. H. deYoung Memorial Museum, San Francisco
San Francisco Museum of Art, San Francisco
Henry E. Huntington Library and Art Gallery, San Marino
San Joaquin Pioneer Historical Museum, Stockton
The Yosemite Museum, Yosemite National Park

*Colorado*

University Museum, University of Colorado, Boulder
Colorado Museum of Natural History, Denver
Denver Art Museum, Denver

Colorado State Museum, Denver
Mesa Verde National Park Museum, Mesa Verde National Park
Rocky Mountain National Park Museum, Estes Park

*Connecticut*

Children's Museum of Hartford, Hartford
Wadsworth Atheneum and Morgan Memorial, Hartford
New Haven Colony Historical Society, New Haven
Peabody Museum of Natural History, New Haven
Peabody Museum of Natural History, Children's Department, New Haven
Gallery of Fine Arts, Yale University, New Haven
Webb House, Wethersfield

*Delaware*

The Society of Natural History of Delaware, Wilmington
The Wilmington Society of the Fine Arts, Wilmington

*District of Columbia, Washington*

Army Medical Museum
Corcoran Gallery of Art
Howard Gallery, Howard University
National Academy of Science: Exhibit
Pan American Union: Exhibit
Phillip's Memorial Gallery
Smithsonian Institution
Freer Gallery of Art, Smithsonian Institution
National Gallery of Art, Smithsonian Institution
United States National Museum, Smithsonian Institution

*Florida*

John and Mabel Ringling Museum of Art, Sarasota

*Georgia*

Telfair Academy of Arts and Sciences, Savannah

*Illinois*

Art Institute of Chicago, Chicago
Chicago Academy of Sciences, Chicago
Chicago Historical Society, Chicago
Chicago Museum of Science and Industry, Chicago
Field Museum of Natural History, Chicago
Oriental Institute Museum, Chicago
Working Museum of History, Northern Illinois State Teachers College, De Kalb
Laura Davidson Sears Academy of Fine Arts, Elgin
Elgin Audubon Museum, Elgin
Evanston Art Center, Evanston
Illinois State Museum, Springfield
Springfield Art Association, Springfield
Museum of Natural History, University of Illinois, Urbana

*Indiana*
Temple of Fine Arts, Evansville
The John Herron Art Institute, Indianapolis
Children's Museum of Indianapolis, Indianapolis
Wayne County Historical Society, Richmond
*Iowa*
Davenport Municipal Art Gallery, Davenport
Davenport Public Museum, Davenport
Museum of Natural History, University of Iowa, Iowa City
*Kansas*
Mulvane Art Museum, Washburn College, Topeka
Wichita Art Association, Wichita
*Kentucky*
The Baker-Hunt Foundation Museum, Covington
J. B. Speed Memorial Museum, Louisville
*Louisiana*
Isaac Delgado Museum of Art, New Orleans
Louisiana State Museum, New Orleans
*Maine*
Acadia National Park Museum of Stone Age Antiquities, Bar Harbor
Museum of Fine Arts, Bowdoin College, Brunswick
*Maryland*
Baltimore Museum of Art, Baltimore
Maryland Academy of Sciences, Baltimore
Maryland Historical Society, Baltimore
Municipal Museum of the City of Baltimore, Baltimore
Walters Art Gallery, Baltimore
Washington County Museum of Fine Arts, Hagerstown
*Massachusetts*
Attleboro Museum of Art, Attleboro
Boston Society of Natural History, Boston
Children's Art Centre, Boston
Children's Museum of Boston, Boston
Isabella Stewart Gardner Museum, Boston
Museum of Fine Arts, Boston
The Cambridge Museum for Children, Cambridge
Fogg Art Museum, Harvard University, Cambridge
Germanic Museum, Harvard University, Cambridge
Botanical Museum, Harvard University, Cambridge
Museum of Comparative Zoology, Harvard University, Cambridge
Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge
Longfellow House, Cambridge
Fitchburg Art Association, Fitchburg
Holyoke Museum of Natural History and Art, Holyoke

Smith College Museum of Art, Northampton
The Berkshire Museum, Pittsfield
Plymouth Antiquarian Society, Plymouth
Essex Institute, Salem
Ropes Memorial, Salem
Joseph A. Skinner Museum, South Hadley
Museum of Natural History, Springfield
Farnsworth Museum of Art, Wellesley College, Wellesley
Worcester Art Museum, Worcester
Worcester Natural History Society, Worcester

*Michigan*

Museum of Classical Archaeology, University of Michigan, Ann Arbor
The Cranbrook Museum, Cranbrook Foundation, Academy of Art, Bloomfield
The Cranbrook Institute of Science, Cranbrook Foundation, Bloomfield
The Edison Institute of Technology, Dearborn
Detroit Institute of Arts, Detroit
Detroit Children's Museum, Detroit
Grand Rapids Art Gallery, Grand Rapids
Grand Rapids Public Museum, (Kent Scientific Museum), Grand Rapids
Kalamazoo Museum and Art Institute, Kalamazoo
The Hackley Gallery of Fine Arts, Muskegon

*Minnesota*

Children's Museum, Duluth
Sibley House Historical Museum, Mendota
The Minneapolis Institute of Arts, Minneapolis
The Walker Art Galleries, Minneapolis
Museum of Natural History, University of Minnesota, Minneapolis
Saint Paul Institute, St. Paul

*Missouri*

The William Rockhill Nelson Gallery of Art, Kansas City
St. Joseph's Museum, St. Joseph
City Art Museum, St. Louis
Missouri Historical Society, Jefferson Memorial and Lindbergh's Trophies, St. Louis
Educational Museum of the St. Louis Public Schools, St. Louis
Springfield Art Museum, Springfield

*Montana*

Glacier National Park Museum, Glacier National Park

*New Hampshire*

The Currier Gallery of Art, Manchester

*New Jersey*
Hopewell Library-Museum, Hopewell
State Industrial Safety Museum, Jersey City
Montclair Art Museum, Montclair
Newark Museum, Newark
New Jersey State Museum, Trenton

*New Mexico*
Aztec Ruins National Monument Museum, Aztec
Gran Quivera National Monument Museum, Gran Quivera
Laboratory of Anthropology, Santa Fe

*New York*
Albany Institute of History and Art, Albany
Wells College, Department of Fine Arts: Museum, Aurora
Albright Art Gallery, Buffalo
Buffalo Historical Society, Buffalo
Buffalo Museum of Science, Buffalo
Arnot Art Gallery, Elmira
The New York Botanical Garden: Museum, New York
National Museum of Heads and Horns, New York Zoological Park, New York
Poe Cottage, New York
Van Cortlandt House Museum, New York
Brooklyn Children's Museum, The Brooklyn Institute of Arts and Sciences, Brooklyn
The Brooklyn Museum, The Brooklyn Institute of Arts and Sciences, Brooklyn
Lefferts Homestead, Brooklyn
The American Museum of Natural History, New York
American Numismatic Society, New York
Museum for the Arts of Decoration, New York
Fraunces Tavern, New York
The Frick Collections, New York
Museum of the American Indian, New York
Hispanic Society of America, New York
The Metropolitan Museum of Art, New York
The Cloisters (Branch, Metropolitan Museum of Art), New York
Morgan Library, New York
Morris-Jumel Mansion, New York
Museum of Modern Art, New York
Museum of the City of New York, New York
The New York Historical Society, New York
New York Museum of Science and Industry, New York
Art Galleries, New York Public Library, New York
Roerich Museum, New York
Roosevelt House Library and Museum, New York

Whitney Museum of American Art, New York
Conference House, Tottenville
Public Museum, The Staten Island Institute of Arts and Sciences, St. George
Bear Mountain Trailside Museums, Palisades Interstate Park
Rochester Museum of Arts and Sciences, Rochester
Memorial Art Gallery, Rochester
Museum of Natural History, University of Rochester, Rochester
Syracuse Museum of Fine Arts, Syracuse
Natural Science Museum, Syracuse University, Syracuse
Philipse Manor Hall, Yonkers
Yonkers Museum of Science and Arts, Yonkers

*North Dakota*

State Historical Society of North Dakota, Bismarck

*Ohio*

The Akron Art Institute, Akron
Taft Museum, Cincinnati Institute of Fine Arts, Cincinnati
Cincinnati Art Museum, Cincinnati
Cincinnati Society of Natural History, Cincinnati
The Cleveland Museum of Art, Cleveland
The Cleveland Museum of Natural History, Cleveland
Educational Museum, Cleveland Public Schools, Cleveland
The Western Reserve Historical Society, Cleveland
Ohio State Museum, Columbus
Johnson-Humrickhouse Memorial Museum, Coshocton
Dayton Public Library Museum, Dayton
Dudley Peter Allen Memorial Museum of Art, Oberlin College, Oberlin
Toledo Museum of Art, Toledo
Butler Art Institute, Youngstown

*Oregon*

Sinnott Memorial, Crater Lake National Park, Crater Lake
Oregon Historical Society, Portland
Museum of Art, Portland

*Pennsylvania*

Erie Public Museum, Erie
Pennsylvania State Museum, Harrisburg
Academy of Natural Sciences of Philadelphia, Philadelphia
Betsy Ross House, Philadelphia
Carpenter's Hall, Philadelphia
The Commercial Museum, Philadelphia
The Benjamin Franklin Memorial, The Franklin Institute, Philadelphia
National Museum, Independence Hall, Philadelphia
The Pennsylvania Museum of Art, Philadelphia

The University Museum, University of Pennsylvania, Philadelphia
Department of Fine Arts, Carnegie Institute, Pittsburgh
Carnegie Museum, Pittsburgh
Reading Public Museum and Art Gallery, Reading
Everhart Museum of Natural History, Science and Art, Scranton
Wyoming Historical and Geological Society, Wilkes-Barre

*Rhode Island*

Howard Gardner Cushing Memorial Gallery, Art Association of Newport, Newport
Park Museum, Providence
Rhode Island Historical Society, Providence
Rhode Island School of Design: Museum, Providence

*South Carolina*

The Charleston Museum, Charleston

*Tennessee*

Brooks Memorial Art Museum, Memphis

*Texas*

Witte Memorial Museum, San Antonio

*Utah*

Zion National Park Museum, Zion National Park

*Vermont*

Robert Hull Fleming Museum, University of Vermont, Burlington
Fairbanks Museum of Natural Science, St. Johnsbury

*Virginia*

Mt. Vernon, Mt. Vernon-on-the-Potomac
Valentine Museum, Richmond

*Washington*

Mount Rainier National Park Museum, Mount Rainier National Park
Seattle Art Museum, Seattle
H. C. Henry Art Gallery, University of Washington, Seattle
Washington State Museum, University of Washington, Seattle

*West Virginia*

Oglebay Park Museum, Oglebay Institute, Wheeling

*Wisconsin*

Beloit Historical Society, Beloit
Neville Public Museum, Green Bay
Wisconsin Historical Museum, Madison
Layton Art Gallery, Milwaukee
Milwaukee Art Institute, Milwaukee
Milwaukee Public Museum, Milwaukee
Oshkosh Public Museum, Oshkosh

*Wyoming*

Yellowstone National Park Museums, Yellowstone National Park

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