A NEIGHBORHOOD BRANCH

for the

NEW ENGLAND MUSEUM OF NATURAL HISTORY

Thesis for the degree of Bachelor in Architecture

Massachusetts Institute of Technology, Feb. 1944

Signature redacted
"It's all right. I'm just illustrating a point."
140 Mt. Vernon St.
Boston, Mass.
February 7, 1944

Dean Walter R. McCormack
Chairman of Thesis Committee
School of Architecture, M.I.T.
Cambridge 39, Mass.

Dear Dean McCormack;

In accordance with the requirements for the Degree of Bachelor of Architecture, I submit herewith a thesis report entitled "A Neighborhood Branch for the New England Museum of Natural History".

Sincerely,

[Signature redacted]

Katharine B. Adams
ACKNOWLEDGEMENTS

The best acknowledgement one can give one's faithful and friendly teachers is reflection of their enthusiasm and honesty in attacking a problem in one's own work.

For guidance in this thesis I particularly thank Prof. L.B. Anderson. Miss Margaret Baker, Director of the New England Museum of Natural History, has been a helpful, stimulating consultant.

Thanks are also due to Prof. Blake of M. I. T. and Mr. E. H. Kane, Alumni Secretary of M. I. T., and Miss F. W. Stiles of the Rotch Library of Architecture, and Mr. Dwight Strong of Dorchester House.
STATEMENT OF GENERAL PURPOSE

The purpose of a museum is educational and cultural service to the community through the cultivation of a wide-spread appreciation and understanding of the enveloping world. In order to render effective service of this kind, the formation of the 'museum habit' is of primary importance. Modern practice admits that concentration is a developed taste, and makes it easy and direct for the public to approach its material, in both the physical and intellectual sense. A local museum devoted to education is the answer.

From a scholar's point of view, it is no less important. Coleman says, 2

"The future of big museums is undoubtedly in scholarship, but this would be difficult to support unless public relations and school services, now developed at a disadvantage in a central building, are extended through neighborhood centers where contacts with the people would be close, where attendance would become habitual and casual, where there would be no museum fatigue, and where evening hours would involve no problem of lighting and operating a vast plant......(Branches) should be service stations requiring only educational materials. Without a main museum to draw upon for administration and material, neighborhood museums cannot carry on. Conversely, it may even prove to be true in the long run that without branches the great city museums may not be able to operate successfully."

Ideally, a branch museum should support itself through small but numerous donations, membership and special attendance fees. Actually, educational need is apt to correlate with financial need, and this is especially true when the branch is located in a suburb of a large city rather than
in an independent town. In this case it has been assumed that the branch, thought of as one of several 'sub-stations' of Boston's New England Museum of Natural History, would have its deficit made up by either an outright endowment, or, as is more probable, contributions by members of the parent museum.

It is fairly typical that about one-third of a museum's membership should consist of heavy financial supporters who uphold it out of a sense of duty, but sometimes have a discouraging effect through a lack of interest in new ventures. Another one-third are active members: scientists, students, teachers, and the like, who may contribute something under $100, and the remainder are members who are grateful for the facilities but can only give a little, $3., say. The first category has shrunk since the late and acquisitive 1800's but it is the one that would lay down the cash for something spectacular like a new museum building; the latter groups are the ones that would enthusiastically support a neighborhood branch. This trend dictates initial as well as operating economy.

DISCUSSION OF ALTERNATIVES

Several ways have been tried or suggested for taking the museum to the people. The simplest is the trailer museum, such as the one started in the South by Hornblower through the New England Museum. The name is self-explanatory, and its advantages in travelling a route with periodically
changed, well-selected exhibits are obvious: the arousing of popular interest and its satisfaction by a trained demonstrator; aid to the small rural school; and means of pre-testing popular reaction towards establishment of a small museum in a given place; and small cost. Its mobility, however, proves to be its limitation when a continuous local program is to be founded.

The trailside museum is an appealing and economical teaching medium, making use, as it does, of live material in an atmosphere of outdoor recreation. Although very instructive to the city vacationist, it lacks a continuous force because it is difficult by the localized nature of the material to do much analytical teaching, and because an extensive tract that does not involve a special trip out of the neighborhood is infrequent. Bear Mountain has a trailside museum maintained by the American Museum of Natural History. In Boston, the Arboretum would lend itself to such a use.

Dioramas -- simulating small scale artificial trailside museums -- are proving an excellent aid to visualization of animals in their natural surroundings, and are far less expensive and bulky than habitat groups.

An independently operable wing devoted to museum purposes on an existing community building, such as a YMCA or settlement house, has much to be said for it. Each division would benefit by the people attracted to the other.
Initial outlay is cut by the sharing of lecture rooms, and hobby shops, and maintenance is also lowered by common services. Cost for land may be sidestepped, although it is a question whether there is likely to be enough to permit outdoor display. Mutual policies would need to be clearly defined, and mixed public and private ownership avoided. It is understandable that a museum might shy away from such a delicate position.

All in all, a neighborhood branch offers the best opportunity for a clear-cut statement of a desirable program, and it is such a building that will be here studied.

SELECTION OF SITE

Location is the prime physical factor in the success of a branch. The neighborhood must evince need thereof; it must offer a good likelihood of response in both interest, and active, growing support. Within the neighborhood, the location must be such that it is accessible and attractive to footgoers, drivers and local commuters, and, conversely, a good point of departure for fieldtrips. The site itself should be free of nuisances, such as excessive vibration, hazardous traffic, noise, smoke and odors, with sufficient area to allow most-used rooms to be on one floor. Additional garden space is useful as well as agreeable.

For this case a 'guesstimate' was made with the aid of existing material which is here included, less for its
own value than as a hint as to how one might proceed.

The southern and western parts of the City of Boston have been growing at the expense of the rest. South Boston, North and South Dorchester and Roxbury are already densely enough populated to deprive children of opportunities for independent outdoor exploration.

'Play ground inadequacy' and the relative lack of branches of certain city-wide youth or recreation agencies were taken together to mean a call for recreation equipment.

In the absence of the experimental data gained by a trailer-museum, relative response was here compounded of the rate of juvenile delinquency plus the percentage lack of library cards among local youth. Response is important, because if the pioneer branch fails, the others of the city chain suffer, or are never built. Local schools furnish a source of support and an aim of service to the branch, and are of great importance.

Unfavorable economic response was gauged from the combined inability to pay rent and stay off unemployment and public relief rolls. Complete immediate response and support is unlikely in any Boston section, save, perhaps the Back Bay.

(Where juvenile delinquency is unusual, however, vandalism becomes a problem)
Of these districts, North Dorchester has the least equipment, a seemingly average response, and slightly better than average economic conditions.

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<tr>
<th>EQUIPMENT</th>
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<th>S.Dorch.</th>
<th>Roxbury</th>
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<td>Youth Agencies</td>
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<tr>
<td>per popul.</td>
<td>16</td>
<td>21</td>
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<td>% library cards, youth</td>
<td>6</td>
<td>11</td>
<td>9</td>
<td>1</td>
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<td>Juvenile delinquency</td>
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<td>Combined rent, unemployment and relief</td>
<td>9</td>
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Relative ranks of inadequacy are taken from Chapin. '1' indicates the most deficient, '14' the highest standard of the 14 Boston districts.

Besides, North Dorchester has not the natural history facilities that Roxbury and South Dorchester have in Franklin Zoo and the Children's Museum, and that South Boston has in the Marine and Columbus Parks.

The site picked, on Dorchester Avenue in the block bounded by Ellet, Adams and Leedville Streets, is but a short walk from the local center of Fields Corner. Nearby schools are numerous and new—evidence of a large child population. The local transit is good; Dorchester Avenue is easy for drivers to find; a bus every 15 minutes makes a five cent circuit through Dorchester's three local centers,
and it and another local bus connect with major transit lines. It is a decided disadvantage, incidentally, for a branch to attract an unmanageable amount of non-repeating visitors.

The site is satisfactory in physical respects also, being nuisance-free, buildable, and containing 68,600 sq.ft. The front is zoned for local business, the back for multiple dwelling. There are two old frame houses on it at present, one of which is about due for condemnation.

Ordinarily, a city land-grant would be the best solution for the site problem, but, as has been pointed out, this area is deficient in recreation space, and it would not be proper to diminish a park site still further. Nor can one predict where a tax foreclosed property will occur. This land, however, is not expensive -- $20-25,000 is a fair estimate according to the 1930 assessors' map.

There is one substantial handicap in the use of this site; Dorchester House, after six months study, has, I find, acquired it for its new $350,000 building.
DIRECT FUNCTIONS of the branch museum: to create awareness of the physical world's structure, with the interrelationship of its plant and animal life, and the social world's dependence upon it by....
Learning by Doing

Uses of correct classification

Individual and group project work and setting up of exhibits, clubs, hobbies, simple experimentation and demonstrations, analysis through classification, etc.

"I'm Edmund J. Murchison of 222 Morton Street! A horrible mistake has been made!"

Peter Arno

The New Yorker
displays arranged in museum or garden, slides and movies, field trip program, etc.

"Well, that's how it is, men. You just rub two dry sticks together."

Peter Arno

The New Yorker
"Here comes the mother, ladies and gentlemen—and, boy, is she burned up about something!"

Robert Day  The New Yorker
...and thereby providing a healthy interest and an energy outlet for children, and greater understanding for adults in this scientific and land-alienated day.

"Well, it looks like a buttercup to me."

Robert Day

The New Yorker
EXHIBITION

"The museum's aim...is to arrange a fraction of its material so that its impact will knock even the most casual spectator into the middle of eternal life and awaken his sense of beauty."

".....the average time taken by the visitors (of the Peabody Museum of Natural History at Yale) for reviewing the history of life on earth during the past 500,000,000 years was 21.40 minutes." 7

That leaves four courses open to the curator:

1. he can say, "Only the interested benefit", and let the rest go;

2. he can condense the exhibit so that its key displays can be well assimilated in 21.40 minutes;

3. he can arouse so much curiosity, and make returning so easy that the visitor will come back;

4. he can attempt to prolong the stay by the avoidance of so-called 'museum-fatigue' and by successful competition with other leisure-time activities (or inactivities).

1. There is no class of 'interested' people, as opposed to the indifferent. Melton's study shows that the curve is.......
The curator's concern must be rather to shift the curve to the right. The aim of the branch museum has already been stated; the scholar is best served by the encyclopedic parent museum. The curator must, therefore, work at attracting attention to his exhibit. Changing exhibits of current and local interest are essential to his program. It also ties in with the use of......
2. Key displays

street display window, elaborate or startling group with explanatory material on the side, etc.

"It doesn't take much to collect a crowd in New York."

Charles Addams

The New Yorker
A spectacle alone, however, is not enough, especially for the child. The noun 'experience' is empty without the verb 'experience'. One needs to handle, classify, relate in terms of own experience—LEARN.

"You'd think George and Ella would try to patch things up for the children's sake."

Helen E. Hokinson

The New Yorker
Now we need pertinent examples, and a learning order in their presentation. The gallery takes on magnitude and direction. A large gallery might be organized in this fashion:

- classification
- chronological
- story
- parallel development
- illustration and key display

The knowledge of the presence of detail explaining the eyecatchers helps whet the

3. desire to see more. As for making it easy for the visitor to return, the very fact of a conveniently situated branch with exhibits placed where the visitor can find them again with ease, and where, on the other hand, he is certain of a new show from time to time, accomplished this. The small size of a branch museum cancels that part of

4. 'museum-fatigue' that overpowers by multiplicity of objects. Fatigue through standing and walking can be lessened by the use of resilient flooring, and prevented by the opportunity to sit down in front of the case, as Coleman has suggested, and examine it at close range without stooping, stay to contemplate or sketch.
Eye fatigue is a most important component in general fatigue. There are experts in museum lighting, but these remarks are pertinent here. Light must be --

a. right quality - as to direction, constancy, wavelength.

direction: planned exhibits destined to move should incorporate self-lighting for the sake of constant conditions. This also in accordance with the display technique of 'spot-lighting'. Certain exhibits might require lighting parallel to surface for texture, or at an angle for sparkle, or perpendicular to avoid shadow. There is no one best light.

constancy: is an obvious desideratum; there are well-known means for the integration of daylight and electric light. Quick, easy maintenance helps.

wavelength: mixture determines such factors as color, suitability for live animals or plants, as one class requires ultraviolet, and the other the red end of the spectrum. Heat generated by artificial illumination may have to be taken into account.

b. glare free - elimination of violent contrast.

Use of non-reflecting cases; quiet interiors; elimination of contrast, such as a small glazed area in a dark wall; exposed lighting
fixtures; or a simultaneous view of a case of small objects and the bright outdoors, is a clear need. Non-reflecting cases can be attained in a number of ways: no glass--dust kept off by precipitron, radiant heating (minimum air current) and 'hands-off' honor system--unlikely; curved glass; invisible light source and strong interior light; polldroid glass; glass coated with the molecule-thick layer developed at MIT and earmarked for commercial exploitation. This last is the most promising as it frees lighting design in that respect.

c. plentiful - in general and in particular; enough overall illumination so as not to contrast too much with the hall, and discourage sleepiness, and to allow label reading, sketching, etc., with ease, but not so much as to nullify the self-lighting of objects. Is lighting directed chiefly at the floor, combined with low-tuned ceiling light and largely self-lighting labels and work surfaces the answer?

In view of the delicate adjustment required, it is hardly surprising that many curators agree in specifying solely artificial illumination for the exhibition gallery because it is controllable and uniform, and eliminates readily one more competitor for attention -- the light source.
Actually, in this case the cue is informality and integration with the interests of the individuals or groups active at the branch. While there will be a few semi-permanent installations of local fauna, the major portion of the exhibits might consist of models or drawings of microscopic studies, for instance, or members' collections of nature photographs, or some exhibit an interested group has compiled. A rigid order in display is, therefore, unlikely, and a feeling of openness and attraction to and from the outside overcomes the rather secondary requirements of lighting. Still, it is well to preserve the possibility of a formal arrangement, and the more effective display of an exhibit featuring small habitats or dioramas by providing a space which can be darkened, and one wide enough to allow partitioning into cubicles or triple alleys -- say thirty feet at least.

The entrance hall is to feature special-attraction exhibits, or illustrations for a lecture series. Generous view and daylight seem appropriate. It is also the place for:

- an information desk and book, curio and record sales, with an attached small office where the attendant can do odd jobs; a coat room and public toilets. This area can also serve as the lecture hall lobby.
The garden is here destined for a definite role in display. A supervised courtyard would be the place for an aquarium and a culture-pool; it could also be used for outdoor lectures and demonstrations when the weather permits. A garden (protected against random harvesters) is educational and fun. The remaining area would be cultivated wilderness, so to speak, to attract local birds, insects and children.

OTHER PUBLIC ROOMS

Lecture Hall: It is to seat 150 for lectures, movies, small dramatizations and round-tables. A small stage is therefore required, with sliding self-lit blackboards. This room, to afford a more intensive use of space, could be arranged either to serve two small hobby or study groups at once with a folding partition opening for larger lectures, or for a general exhibition space when not being used for seating an audience. The latter use was chosen because the former assumes an unrealistic number of concurrent classes with a correspondingly unrealistic number of docents, and because this hall, being of a generous size for exhibition purposes, can take the place of additional display space.

The entrance hall will then have to be so arranged that it can still function as auxiliary display and display overflow space while the main
gallery-and-lecture area is shut off for an event, or for the arrangement of a new exhibit.

While most lectures will take place in the evening, some will occur during the afternoon for the convenience of children or because of its being a more popular time on Sunday. A way of darkening this room, again is an addition to flexibility.

Three problems that obviously arise are the storage of chairs or display units when not in use, the closing off of the space when desired, and the provision of projection facilities.

Library: this again can support a dual use: that of reading room and that of seminar room, probably on alternate evenings rather than at different hours of the same day. As a reading room it should contain a selected, popular natural history and travel library, a catalogue to the parent museum's excellent resources, some slides, and some records, with viewing and listening cubicles; a librarians' desk and work table, comfortable chairs and browsing area for readers, with some sturdy tables for drawing, microscopy, spreading of large maps, etc. As a seminar room, all that is necessary is some additional chairs, tables which can be drawn together, and a screen for the showing of slides to a small audience. The pleasantness of this room can be enhanced by placing the desired plant-windows here. Some plants are closed off from the room on
account of higher temperature and humidity needs. 
Nor E sun is best, although obscure glass on S 
and W will prevent sunburn. Double or triple gla-
zing is used to conserve heat. Some plants will
grow in the room.

Workshop: In the morning it can be used for the assembly
of exhibits or minor repairs, in the afternoon by
the children, and in the evening by adults. As more
and more emphasis is placed upon doing as the path
to learning, and as this is one part of the museum
that could be particularly attractive to adolescents
who are rather apt to regard museum-going as sissy
stuff, this should be a well-equipped, well-lighted
and accessible room. While there is some argument
for the establishment of a separate children's work-
shop, it is outweighed by the need for economy
which looks askance at the extra space and double
set of tools required. It is also held to be good
for children to learn to put their things away and
keep their tools in order for the older brothers'
and grown-ups' use. Ample storage and one work-
bench of child's scale will hence be provided.
Woodworking, metal-smithing and the accompanying
chatter are noisy, so noise-isolation becomes a
factor in the plan.

Darkroom: This is certain to be popular with both youths
and adults.
CHILDREN'S SUITE

The proposed daily schedule is children 3-6, adults 6-9, and public-at-large Sundays 2-5. It is possible to achieve economy in building by an increased overlap in rooms, such as use of the children's club-room as an evening lecture room, say. The objections are the resulting rigidity of schedule and the variety of furniture required. The desirable dual-use of space has been achieved in other ways shown in the foregoing program analysis. In addition, it is strongly urged that the children have a place they can call 'all our own'.

Overspecification of rooms is dangerous, as their use will vary from one decent, or group, to the next. There are at least two age groups to be recognized in the choice of furniture.

At one time, an animal room for live material such as fish, small reptiles and amphibians, small mammals (a mouse being the largest) and occasional insects in the summertime was considered. While it could have been used as an auxiliary class-room, it required more space than it was worth under the circumstances, and almost the full time of an attendant. Some live material, changed when it becomes familiar, could be kept in the club-room, and much more, of course, out-of-doors during the summer.

As the main shop is open to the children, this also is eliminated. The 'suite', then, ends up as a single large room containing tables and chairs which can be
arranged either for a club meeting or for quiet work with books or specimens, which are kept in the room for their use; plant and animal counters; room for painting or modeling, and a place to wash up.

Utility Room: Essential space for a sink, burner (for animals' and possibly docents' luncheons), plant-growing space and equipment, and miscellaneous storage would be found here.

Toilets and lockerspace: It is a question whether to provide toilets; if the club room has its own outside entrance and operates at times when the remaining building does not, they should be provided. The children, however, are also using the shop, and some of the staff are working elsewhere in the building during the children's period, hence little chance to save heat would seem to result; and, most important, the children should certainly have access to the exhibition space and be drawn through it in their wanderings. Space for coats and rubbers, however, is a distinct convenience.
ADMINISTRATION AND MAINTENANCE

Administrative suite: it contains the director's room, an office for two assistants, with a little waiting space, storage for mimeographed pamphlets, etc., closets and toilet.

A skeleton staff of two can run the place if information booth, library and office are close together, permitting the pursuance of office routine while also available to the public.

Temporary storage: It will hold unprepared exhibits, extra screens, etc., and needs to be near exhibition hall, entrance, shop, and accessible to children's room. This may combine with other utility and storage functions, depending upon location. Delivery under shelter is called for. Janitor's closet and storage. This is a part time, possibly volunteer job.

Mechanical equipment: As there are no very precious objects, or great crowds, or unventilated rooms, air-conditioning can be dispensed with. Since the use of the building is predictable, time-lag is no factor, so radiant heating is not unsuitable. Its operating costs are lower and its desirable features, particularly where the glazed area is large, are known.
Diagram of Contents, Minimum Sizes & Relationships

Min. area: 6500 sq
COST

BUILDING  50¢/cu.ft. .................. $57,500
LANDSCAPING, maybe.................... 2,500
WRECKING, break even.................. -----

$60,000

Coleman suggested a cost of $25-50,000 but his program was not as extensive as that of this building which goes beyond passive exhibition in function.
APPREACHES TO SITE:

ADULTS & CHILDREN

SERVICES

(spoils good area)
court area best shielded from wind-ter winds, noise, back-yard view, open to sun

quietest area for wildlife; makes a pleasant approach to building

alternative locations for building, near enough to street, allowing unforced articulation of site.

alternatives for garden— if garden & gardeners seem at work, it tends to draw people in.
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Note: an extensive bibliography may be found in '1'.

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A well written, comprehensive work for back-
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PLANNING

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A short list of points to remember in planning and constructing a museum building

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   Also to the point

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