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New York State Museum Bulletin

Published by The University of the State of New York

No. 323

ALBANY, N. Y.

March 1941

NEW YORK STATE MUSEUM
CHARLES C. ADAMS Ph.D., *Director*

ONE HUNDRED THIRD ANNUAL REPORT OF THE NEW YORK STATE MUSEUM

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THE UNIVERSITY OF THE STATE OF NEW YORK

1941



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New York State Education Department
The New York State Museum, March 11, 1940

The Honorable Frank P. Graves
President of the University and
Commissioner of Education

SIR: I beg to submit herewith the report of the Director of the New York State Museum for the period from July 1, 1938, to June 30, 1939.

Very respectfully

CHARLES C. ADAMS
Director

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THE UNIVERSITY OF THE STATE OF NEW YORK

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ILLUSTRATIONS

The photographs were made by N. E. Baldwin, 3-10, 26, 50, 52-64; Edwin J. Stein, 15-18, 21-22, 27-41, 43-44; William F. Winter, 42, 45-49; Homer D. House, 11-14; Dayton Stoner 19, 20 and 23.

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THE LEGAL STATUS OF THE NEW YORK STATE MUSEUM

All scientific specimens and collections, works of art, objects of historic interest and similar property appropriate to a general museum, if owned by the State and not placed in other custody by a specific law, shall constitute the State Museum. [*Education Law*, § 54.]

The Librarian of any library owned by the State, or the officer in charge of any state department, bureau, board, commission or other office may, with the approval of the Regents, transfer to the permanent custody of the State Library or Museum any books, papers, maps, manuscripts, specimens or other articles which, because of being duplicates or for other reasons, will in his judgment be more useful to the State in the State Library or Museum than if retained in his keeping. [*Education Law*, § 1115.]

THE FUNCTIONS OF THE STATE MUSEUM

"The Museum is the natural scientific center of the State government; it is the natural depository of all the material brought together by the state surveys; it is the natural custodian of all purely scientific state records; it is the natural center of the study of the resources of the State as a political unit; it must maintain its capacity for productiveness in pure scientific research—pure science has been the justification of the State Museum from the beginning of its history. * * * In brief, the distinctive sphere and scope of the State Museum corresponds with the scientific interests and welfare of the people within the geographic boundaries of the State.

"The truest measure of civilization and of intelligence in the government of a state is the support of its institutions of science, for the science of our time in its truest sense is not the opinions or prejudices, the strength or weakness of its votaries, it is the sum of our knowledge of nature with its infinite applications to State welfare, to State progress and to the distribution of human happiness."—*Henry Fairfield Osborn, an address delivered at the dedication of the New York State Education Building, October 15, 1912.*

THE FUNCTIONS OF A MUSEUM

"A museum is an institution for the preservation of those objects which best illustrate the phenomena of nature and the works of man, and the utilization of these for the increase of knowledge and for the culture and enlightenment of the people.

"In addition to local accessories, the opportunity for exploration and field work are equally essential, not only because of considerations connected with the efficiency of the staff * * * but in behalf of the general welfare of the institution. Other things being equal, exploration can be carried on more advantageously by the museum than by any other institution of learning, and there is no other field of research which it can pursue to better advantage.

"To aid the occasional inquirer, be he a laboring man, schoolboy, journalist, public speaker, or savant, to obtain, without cost, exact information upon any subject related to the specialties of the institution; serving thus as a 'bureau of information.'

"A museum to be useful and reputable must be constantly engaged in aggressive work either in education or investigation, or in both.

"A museum which is not aggressive in policy and constantly improving can not retain in its service a competent staff and will surely fall into decay.

"A finished museum is a dead museum, and a dead museum is a useless museum."—*G. Brown Goode, formerly assistant secretary, Smithsonian Institution.*

THE VALUE OF RESEARCH

"In the eyes of the world today the reputation of a country does not depend alone on the size of her armaments, the size of her empire or volume of her trade so much as upon the contribution she can make to the progress and happiness of mankind in art, in literature and in science.

"The development of industry depends more or less on the application of new ideas and discoveries in pure science. Successful industrial research is ultimately dependent on the prosecution of research in pure science with the object of adding to our knowledge of the processes of nature, and generally without regard to the practical applications."—*Stanley Baldwin, Lord President of the Council, Opening the Mond Laboratory at Cambridge, England, From the New York Times of February 19, 1933.*

RESEARCH AND EDUCATION

"The future of America is in the hands of two men—the investigator and the interpreter. We shall never lack for the administrator, the third man needed to complete this trinity of social servants. And we have an ample study of investigators, but there is a shortage of readable and responsible interpreters, men who can effectively play mediator between specialist and layman. The practical value of every social invention or material discovery depends upon its being adequately interpreted to the masses. Science owes its effective ministry as much to the interpretative mind as to the creative mind. The knowledge of mankind is advanced by the investigator, but the investigator is not always the best interpreter of his discoveries. Rarely, in fact, do the genius for exploration and the genius for exposition meet in the same mind. . . . The interpreter stands between the layman, whose knowledge of all things is indefinite, and the investigator whose knowledge of one thing is authoritative. The investigator advances knowledge. The interpreter advances progress. History affords abundant evidence that civilization has advanced in direct ratio to the efficiency with which the thought of the thinkers has been translated into the language of the workers. Democracy of politics depends upon democracy of thought. 'When the interval between intellectual classes and the practical classes is too great,' says Buckle, 'the former will possess no influence, the latter will reap no benefit.' A dozen fields of thought are today congested with knowledge that the physical and social sciences have unearthed, and the whole tone and temper of American life can be lifted by putting this knowledge into general circulation. But where are the interpreters with the training and the willingness to think their way through this knowledge and translate it into the language of the street? I raise the recruiting trumpet for the interpreters."—*Glenn Frank.*

ENDOWMENT AND TRUST FUNDS

While the State has done much for the New York State Museum, it has not fully met its needs. Just as the citizens of the State have in the past generously donated much valuable material to the Museum, the public should be informed in what ways it may continue to assist.

Many persons do not realize that the State Museum, like the universities and other research institutions devoted to advanced learning, has in reserve many important problems and projects that require more money than the Museum budget provides. It is hoped that private citizens will assist in financing such worthy projects. To make this more definite certain methods of assistance will be listed.

1 Donations of funds to be devoted to special scientific, educational or economic studies. A list of these can be furnished to any seriously interested person.

2 A donation of funds, the income alone of which is to be used to conduct special studies. This kind of fund would give a fluidity which is particularly lacking under the present budget system. Such funds would enable the State Museum to undertake certain studies in advance of general public interest and legislative appreciation.

Collaborator

EPHRAIM P. FELT

Temporary Scientific Appointments

WILLIAM L. LASSITER M.A.....	<i>Temporary Curator of History</i>
HENRY VAUGHAN.....	<i>Temporary Geologist</i>
A. F. BUDDINGTON Ph.D.....	<i>Temporary Geologist</i>
EARL T. APFEL Ph.D.....	<i>Temporary Geologist</i>
LAWRENCE WHITCOMB Ph.D.....	<i>Temporary Geologist</i>
ROUSSEAU H. FLOWER Ph.D.....	<i>Temporary Paleontologist</i>
ROYAL E. SHANKS Ph.D.....	<i>Temporary Botanist</i>
CHAUNCEY D. HOLMES Ph.D.....	<i>Temporary Geologist</i>



Figure 1 New York State Education Building. The upper floors are devoted to the offices, laboratories and exhibits of the New York State Museum.

ONE HUNDRED THIRD ANNUAL REPORT OF THE NEW YORK STATE MUSEUM

BY CHARLES C. ADAMS Ph.D., *Director*
New York State Museum

FOREWORD

This 103d annual administrative report covers the fiscal year closing June 30, 1939. The New York State Museum is a research and educational agency dedicated to the application of the scientific method to the study of the natural resources of the State, its history, its industries and its art, in relation to public welfare.

No other state agency provides the coordinated, comprehensive fact-finding scientific surveys regarding the natural and human resources of the State and their relations to the school system and to the general public, industries, public officials and nonresidents who desire reliable information about the natural resources of the State. The State Museum possesses in its files and collections an accumulation of facts, records, specimens and historic objects secured during more than 100 years of activity. Representative samples of these collections are displayed in its exhibition halls and in its numerous illustrated publications, of both popular and technical character.

The exhibition halls are not merely a temporary "fair" or exhibition but form a permanent display throughout the year, available to the general public, the schools and the traveling public, and depicting in concrete form the outstanding characteristics of this State.

Emphasis is placed on the fact-finding functions of the State Museum because its staff consists of scientists who secure data from original sources, in the field and laboratory. It is important to note, however, that the work does not stop here, but extends to the publication of technical and popular reports on the results of these studies, interpreting these results in a form usable by schools, industries, engineers, state officials and the general public.

SUMMARY OF THE ACTIVITIES OF THE YEAR

1 In cooperation with the State World's Fair Commission a general State Museum exhibit was prepared, including a series of transparencies of the Museum's Iroquois Indian Groups and colored

transparencies of the wild flower and bird plates from the State Museum monographs. Also included were State Museum publications, a series of historic objects, fossils, minerals, zoological specimens and a mosquito control exhibit. The State Museum had less money for this fair than for any important previous fair, but it received assistance from the Works Progress Administration and the World's Fair Commission.

2 The Historic Collection has expanded, and considerable progress has been made with W.P.A. assistance to improve the file records and organize and care for the materials. In archeology progress has been made on the bibliography of the Indians of the State and on the indexing of the stored material.

3 A botanical report is nearing completion on the literature on the botany of the State; field work has been continued in the Newcomb region and in the Hudson valley. The report on the flora of Columbia county has progressed. The report on the vegetation of Cattaraugus county is in process of printing. Through cooperation with the Monroe County Division of Regional Planning, and with the assistance of Works Progress Administration workers, a vegetational survey of that county has progressed satisfactorily.

4 Field and laboratory studies of various insect pests have been continued, with special emphasis on mosquito and black fly problems. Special attention has been given also to the Pales and allied weevils and to the European shoot moth.

5 Field and laboratory work have been continued on the collection of mining and quarry statistics and on the oil and natural gas situation in the State. A popular report on the geology of the Lake George region is nearly completed, but has been delayed by the lack of a photographer and draftsman. The geological reports on the Wellsville and Willsboro quadrangle have been completed, and the report on the Indian Lake quadrangle in the Adirondacks is nearing completion. Substantial progress has been made on a report on the glacial geology of several quadrangles in the vicinity of Syracuse.

6 The report on the Catskill and Kaaterskill quadrangles has been completed, and the Coxsackie report will be completed in another season. Reports are yet under way on the following quadrangles: Randolph, Salamanca, Cattaraugus, Schunemunk, Oriskany and Morrisville. The report on the Clyde and Sodus Bay quadrangle is being printed.

7 Zoological studies have been continued on the bank, barn and cliff swallows by the banding method. A study of the birds of Washington Park, Albany, is nearing completion. The report on the

breeding birds of the Allegany State Park has been printed, and progress has been made on the report on the summer birds of the Allegany Park. The study of bird song has been continued.

8 With the development of the Division of State Planning and local county and regional agencies becoming more active, the basal scientific surveys of the State Museum should be expanded, as it would be wasteful and fundamentally an unsound procedure for each of them to undertake the geological and natural history fact-finding surveys that are essential for their work. The data and records collected over a period of 100 years by the State Museum should be used by these planning agencies. Our vegetational survey of Monroe county with the local planning division is a good example of how such studies should be conducted.

9 About 20 cooperative projects have been conducted with various agencies, such as state departments, universities, colleges, museums and federal bureaus, and with individuals. These have been mutually beneficial, and several have already taken final printed form.

10 An outstanding cooperation has been with the Works Progress Administration Project No. 50,470, which has provided technical and clerical assistance, supplementing the State Museum budget, that has resulted in preparation of catalogs and indexes, photographic work, inventory of publications, care of the historic collections, binding of books and periodicals, collection of ground water data, architectural drawings of Shaker and other historic buildings, drafting and the preparation of exhibits and labels for the State Museum exhibit at the World's Fair. This assistance has been of the greatest value. The temporary art loan exhibits from the Federal Art Project should also be mentioned in this connection.

COOPERATION WITH STATE AND OTHER ORGANIZATIONS

During the past year the State Museum has cooperated with the following agencies or individuals:

1 United States Bureau of Mines, United States Department of the Interior, Washington, D. C. The Museum has continued the long-standing plan of collecting jointly the statistics of mineral production from the mines and quarries of the State.

2 New York State Department of Agriculture and Markets. Cooperative entomological studies of the European pine shoot moth and of other insect pests of ornamental trees and shrubs have been continued.

3 New York State Conservation Department. The Director of the State Museum is a member of the State Council of Parks. The geologists of the Museum staff advise the Conservation Department on the purchase of lands when mineral resources are involved. The State Entomologist has continued his studies of the Pales weevil and related weevils injurious to Scotch and other pines, and of the European pine shoot moth. The Division of Fish and Game has cooperated with the State Entomologist on the relation of mosquito control to wild life.

4 The State Department of Health has cooperated with the State Entomologist of the Museum staff on problems relating to the control of blood-sucking flies on the grounds of the State Tuberculosis Hospital at Ray Brook, and on the relation of mosquito control to wild life on Long Island.

5 State Law Department, Office of the Attorney General. The Museum geologists cooperate with the Office of Land Titles on the purchase of mineral lands in the Adirondacks and on other legal problems.

6 State Executive Department, Division of State Planning. The State Museum has cooperated in many ways with the Division of Planning, and in particular with regard to its mapping program.

7 Colgate University, Department of Geology and Geography, Hamilton, N. Y., cooperated on a geological survey of the Morrisville quadrangle.

8 The University of Rochester, Department of Geology, cooperated on a geological survey of the Clyde and Sodus Bay quadrangles.

9 Cooperation within the Education Department: State Library, conducting exchanges of Museum publications; Department Editor, on the publication of Bird and Arbor Day numbers of the Bulletin to the Schools.

10 Dana Natural History Society, Albany, N. Y. Cooperation on a lecture on birds to Albany school children on Bird Day, April 21, 1939, by Allan D. Cruickshank.

11 United States Department of Agriculture, Bureau of Entomology, has cooperated on plans for scientific studies to determine the relation of mosquito control operations to wild life conservation. This cooperation is a continuation of the work begun as a state branch of the Federal Civil Works Administration (C.W.A.) mosquito control relief program and has been extended to include cooperation with the United States Biological Survey on the same series of studies, and with neighboring states.

12 The American Humane Association, Albany, N. Y. This organization has been conducting a prize competition in order to secure a more humane trap for catching animals. In this worthy endeavor the Zoology office of the State Museum has cooperated. This work has been under way for 11 years.

13 The National Association of Audubon Societies has cooperated with the State Entomologist on the relation of mosquito control to wild life.

14 National Research Council, Committee on the Preservation of Natural Conditions, Washington, D. C. The Director is a member of this committee, which has been studying the facilities devoted to the preservation of natural conditions.

15 Biological Survey, United States Department of Agriculture, cooperates in furnishing bands for the bird-banding studies of the State Zoologist, and has cooperated with the State Entomologist on plans for a study to determine the relation of mosquito control work to wild life conservation.

16 City Health Department of New York City. The State Entomologist has cooperated with this department on the control of mosquitoes and on their relation to wild life.

17 Suffolk County Mosquito Extermination Commission has cooperated with the State Entomologist on methods of controlling mosquitoes in relation to wild life conservation.

18 The Nassau County Mosquito Extermination Commission has cooperated with the State Entomologist on studies of mosquitoes and their relation to wild life.

19 Eastern States Association of Official Mosquito Control Workers. The State Entomologist has participated in the organization and activities of this interstate association, in which the following states are represented: Virginia, Maryland, Delaware, Pennsylvania, New Jersey, New York, Connecticut, Rhode Island, Massachusetts and New Hampshire, as is also the Federal Bureau of Entomology of the United States Department of Agriculture.

20 Monroe County, Division of Regional Planning. The State Museum has cooperated on an ecological vegetational survey of the county.

21 Works Progress Administration, Federal Art Project. Several valuable loans were made which formed temporary exhibits.

22 Works Progress Administration. Cooperation on Project No. 50,470. By means of this assistance a large amount of clerical and other work has been performed for which the State Museum budget was unable to provide; also professional services in several lines that have materially contributed to the needs of the Museum.

STATE AND COUNTY PLANNING

The functions and relations of the Division of State Planning to the Federal National Resources Board, and their relation to the State Museum were discussed in the 30th Annual Report, "The Relation of National Resources to Regional and County Planning," Museum Bulletin 310, p. 121-41. The water resources have been discussed in the 29th Annual Report: "Suggestions and Recommendations in Planning for the Use and Administration of Water Resources" (Museum Bulletin 306, p. 87-96, 1936). The State Museum is in hearty accord with all such efforts to develop public policies based on sound scientific and technical studies looking toward public interest and social advantage.

The Museum needs additional funds and personnel if it is to cooperate properly in meeting urgent local requests for such assistance. A bill providing for extra funds rather recently passed the Legislature but was vetoed. The fundamental importance of the local natural resources and the relative advantages of geographic position are physical facts which are fundamental in sound public planning, although this is not always appreciated.

In general, local planning boards can not expect, with their limited resources, to conduct the essential local scientific surveys of their natural resources. Such work should be conducted in cooperation with the State Museum, but when these studies reach the planning and engineering stage, only occasional scientific assistance may be needed. It is frequently observed, however, that engineers and administrators plunge ahead without adequate scientific and technical advice, and many avoidable errors are thus made, and even permanent injury has thus been done.

The completed vegetational survey of Cattaraugus county is in process of printing, and as already stated, another survey is in process in Monroe county, with the local Division of Regional Planning. These are examples of what is needed throughout the State in connection with local planning programs.

STATE COUNCIL OF PARKS

The State Council of Parks, in the Department of Conservation, is the "central advisory agency for all parks and parkways, and all places of historic, scientific and scenic interest." The Director of the State Museum is a member of the council and has attended regularly the monthly meetings and inspection trips through the parks and parkways. Important cooperative entomological experi-

ments have been conducted by the State Entomologist, of the Museum staff, with the Westchester County Park Commission and with the Long Island State Park Commission, in connection with the mosquito control problem in relation to wild life on the tidal marshes.

RELATION OF THE MUSEUM EXHIBITS TO SCHOOLS AND COLLEGES

(Figure 2)

One of the most encouraging and difficult phases of modern education is the effort made to reduce book learning to its proper sphere, and to expand and improve sound objective teaching by all possible means, including such methods as excursions, field trips, school museums and improved laboratory teaching. The school bus may be used for many valuable kinds of excursions, such as to industrial plants, to public works, to museums and to outstanding natural features, such as Niagara Falls, the ocean and lake shores. Often because these facilities are close at hand they are overlooked or neglected. Our educational system should not be guilty of neglecting such educational facilities and opportunities.

The number of classes and groups of school children and college students that visit the State Museum follows closely the ups and downs of economic conditions. During the past year the number of classes was 402, with a total attendance of 10,912, and a class average of 27, from 36 counties of New York State and six other states. The preceding year the number of classes was 387, and attendance totaled 11,697 from 38 counties of New York State and two other states. Many teachers reported that numerous sacrifices were necessary in order to make the trips, and often only a part of the class was able to come.

The attendance for the past 12 years, as recorded by the State Museum guide, is as follows:

<i>Year</i>	<i>No. classes</i>	<i>No. students</i>	<i>No. counties</i>
1927-28.....	200	5 500	13
1928-29.....	175	4 750	21
1929-30.....	235	6 308	25
1930-31.....	264	7 128	30
1931-32.....	253	6 726	28
1932-33.....	309	7 981	31
1933-34.....	301	8 769	28
1934-35.....	333	8 364	36
1935-36.....	445	12 315	39
1936-37.....	402	12 444	38
1937-38.....	387	11 697	41
1938-39.....	402	10 912	36

Monthly Class Attendance, 1936-39

	<i>No. of Classes 1936-37</i>	<i>No. of Classes 1937-38</i>	<i>No. of Classes 1938-39</i>	<i>Attendance 1936-37</i>	<i>Attendance 1937-38</i>	<i>Attendance 1938-39</i>
October.....	33	29	47	983	802	775
November....	20	22	32	374	711	876
December....	15	11	13	1 020	344	282
January.....	21	17	7	550	373	136
February.....	16	20	11	495	497	403
March.....	64	47	46	2 324	1 443	1 236
April.....	44	48	83	1 125	1 453	2 671
May.....	99	94	91	3 179	3 303	2 505
June.....	90	99	72	2 394	2 771	2 028
	<u>402</u>	<u>387</u>	<u>402</u>	<u>12 444</u>	<u>11 697</u>	<u>10 912</u>

Classification of Visiting Groups

	<i>1936-37</i>	<i>1937-38</i>	<i>1938-39</i>
City schools	65	61	63
Rural schools	161	141	159
High schools	57	76	53
Junior high schools.....	34	43	31
Scout groups	11	10	21
Clubs	34	16	27
Sunday schools	10	9	11
Normal schools	18	15	20
Colleges	12	16	12
Agricultural colleges .....	....	....	5
	<u>402</u>	<u>387</u>	<u>402</u>

The above table shows that more rural schools visit the State Museum than do city schools, no doubt due in part to the possession of buses.

Regularly each year teachers, school officials and individuals request help in the determination of natural history specimens for teaching purposes, and for loans and donations. Local school museums are greatly needed as well as traveling automobile exhibits, somewhat comparable to automobile book libraries. Properly equipped, the State Museum could do much to improve this general situation.

As in past years, the Museum staff aided the Department Editor in the preparation of the Bird and Arbor Day issues of the Bulletin to the Schools. The Museum also cooperates with the Dana Natural History Society in giving a lecture to the school children on birds. This year it was given by Allan D. Cruickshank on April 21st.

Finally, it is well to recall that in adult education activities there is a vast field which is at present largely independent of the whole school system. As a research institution, the State Museum, through

its exhibits, its publications, correspondence and conferences, is constantly assisting in this phase of informal education.

The cooperation in conducting the Allegany School of Natural History has been terminated. The plan for this school originated with the Director of the State Museum and had his general educational supervision for nine years, and it also had during this interval the very substantial scientific and financial support of the State Museum. Now that it is well established, and it has been demonstrated what educational use can be made of state parks, it is time for the State Museum to concentrate on other lines of activity.

ANNUAL ATTENDANCE TO EXHIBITION HALLS

The State Museum entrances to the offices, laboratories and exhibition halls are so constructed that it is impossible to count the regular attendance to the exhibits. Under normal economic conditions the attendance was carefully estimated to be about 200,000 a year. Since the depression the attendance has dropped. The attendance during the past year was about 177,000.

The Sunday and holiday attendance from July 3, to September 11, 1938, inclusive, 11 Sundays and two holidays, was 9606, and between May 28 and June 25, 1939, inclusive, five Sundays and one holiday, the attendance was 2532, or a total of 12,138. These records are based on actual counts because the elevator service permits this on such days.

During July and August the attendance was greater than during other months by about 5000 each month, and although the World's Fair, which opened April 30, 1939, was expected to increase attendance, the Sunday and holiday attendance, instead of increasing over last year, declined.

INFORMATION AND PUBLICITY

A large public looks to the State Museum as a bureau of information on the natural resources of the State. This results in an extensive correspondence and many office visitors. Members of the Museum staff, working in cooperation with other agencies, also act as diffusion agents. Press releases assist in keeping the public informed about current aspects of the work of the Museum.

There are a number of requests for public lectures, but with limited travel funds and without official automobiles, not many invitations can be accepted. During the past year members of the staff gave 15 lectures and talks, reaching more than 1100 persons, and delivered two radio talks.

PRINTING AND PUBLICATIONS

"If you would not be forgotten as soon as you are dead and rotten, either write Things worth reading or do Things worth the writing."—*Benjamin Franklin*.

"After all it is the written word that lives."—*Dr W. M. Beauchamp*.

The following is a list of the regular serial publications of the State Museum printing during the fiscal year.

Adams, Charles C.

- 1939 One Hundred First Annual Report of the New York State Museum. N. Y. State Mus. Bul., 317:1-150

Allen, Elsa G.

- 1938 The Habits and Life History of the Eastern Chipmunk, *Tamias striatus Lysteri*. N. Y. State Mus. Bul., 314:1-122

Glasgow, Robert D., Taylor, Norman, & Richards, A. Glenn, jr

- 1938 Mosquitoes and Wild Life as Interrelated Problems in Human Ecology. N. Y. State Mus. Bul., 316:7-20; A Preliminary Report on the Salt Marsh Vegetation of Long Island, New York, p. 21-84; Mosquitoes and Mosquito Control on Long Island, New York, with Particular Reference to the Salt Marsh Problem, p. 85-180

Goldring, Winifred, & Megathlin, Gerrard R.

- 1938 Algal Barrier Reefs in the Lower Ozarkian of New York with a Chapter on the Importance of Coralline Algae as Reef Builders through the Ages. N. Y. State Mus. Bul., 315:5-76; Additional Notes on Previously Described Devonian Crinoids, p. 77-83; Faulting in the Mohawk Valley, New York, p. 85-122

Newland, David H. & Hartnagel, Chris A.

- 1939 The Mining and Quarry Industries of New York State for 1934 to 1936. N. Y. State Mus. Bul., 319:1-108; Natural Gas Developments in New York State for the Period 1935 to 1938, p. 109-56

Saunders, Aretas A.

- 1938 Studies of Breeding Birds in the Allegany State Park. N. Y. State Mus. Bul., 318:1-160

Accompanying this report, pages 67-69, is also the Annual Museum Bibliography, which includes papers by members of the staff and also papers by others which are based at least in part on the collections of the State Museum, or which are the result of some form of cooperation with it.

The need of funds to reprint various State Museum publications is one that continues to be a very serious problem. Frequent requests are made for publications that are out of print. So little has been done to meet this need that it would require \$25,000 to reprint a few of the publications for which there is at present the greatest demand. This is only a part of the larger problem of a general printing policy for the State Museum publications, which has never been properly solved. Neither the general public's

interest nor protection of the State's interest can be given proper attention at present. As has been mentioned in previous Annual Reports, Dr H. A. Pilsbry's monograph on the land and fresh water mollusca of the State remains in manuscript after its completion for nearly 15 years. Elsewhere the Director has discussed certain phases of this problem ("Suggestions for a Printing Policy for the New York State Museum." *The Museum News*, v. II, p. 7-8, 1935). The reprinting by private firms of the bird plates and the wild flower volumes is an aspect of the problem that calls for careful study and a progressive policy.

HISTORIC COLLECTIONS AND ALLIED MATTERS

(Figures 3-4)

"I warmly sympathize with the ambition expressed in your annual report to have this Museum more than a mere zoologic or scientific museum. It should be a museum of arts and letters as well as a museum of natural history.

. . . "There should be here a representation of all our colonial and revolutionary life. There should be in this Museum for the instruction and inspiration of our people, a full representation of American history since the time when New York cast off its provincial character and became an integral portion of the American Republic."—*Theodore Roosevelt's address at the opening of the New York State Museum, December 29, 1916.*

The marked improvement in the condition of the Historic Collection has been possible largely through additional assistance from the Works Progress Administration. The records and files have been greatly improved.

In the last Annual Report reference was made to the bequest of Mrs William Bayard Van Rensselaer, of a stained glass window, which is supposed to have come from the Van Rensselaer Manor House at Albany. This is shown in figure 3.

Another item in the Historic Collection which is of special interest is a photograph of a painting of the birthplace of Joseph Henry (figure 4) donated to the State Museum by Mrs Carmelita Martin, of Ringville, Mass., through the friendly services of William F. Jacob, of Schenectady, N. Y. The record with this photograph shows that it was from the estate of T. Commerford Martin and states:

This is a photograph of a watercolor drawing of the birthplace of Professor Joseph Henry. The drawing is the property of Mr T. C. Martin of New York and this photograph was made with his kind permission. In December 1899 this picture was identified by Miss Agnes Henry, a niece of Professor Henry and who lived in his family for many years and her sister Mrs Geake, as a reproduction of a painting that was in their family for many years, but through some accident was destroyed. This painting was always



Figure 3 Stained glass window, showing the Coat of Arms of Ian Baplit Van Renssilar, patroon of the Manor of Rensselaerswyck, 1656



Figure 4 The birthplace of Joseph Henry, Albany, N. Y.

understood by the family to be that of the birthplace of Professor Henry. They also identified the person in the door as "Old Jack," a Scotchman employed in the family for many years as chore man. Miss Henry states that this residence was retained by his family until after 1818, at which time the city directory of Albany shows that they lived at No. 78 South Pearl street.

The importance of Henry's work is such that it needs repeating periodically. Most emphasis has been placed on his electrical discoveries, but in recent years another aspect of his work is gaining recognition, as indicated by Crowther (*Famous American Men of Science*, 1937, p. 162) where he states:

In total achievement Henry was the equal of Faraday, Helmholtz, Kelvin, Maxwell, and the other great scientists of the nineteenth century. He did not discover so many important new facts and theories as Faraday, but he contributed vastly more to the organization of scientific research. As G. B. Goode has explained, Henry "did much toward establishing the profession of scientific administration—a profession which in the complexity of modern civilization is becoming more and more essential to scientific progress." This is an important remark. The creation of methods of organization is even more urgent, in the conditions of modern civilization, than the discovery of such a profound phenomenon as electro-magnetic induction. Society is being disrupted by the scientific forces which have been released within it.

The most important contributions that may be made to modern culture are discoveries of rational methods of promoting and utilizing science. Henry was a distinguished forerunner of the modern social planners, who wish to integrate science into the machinery of society.

Thus the integration of science is coming to be recognized in a new light, in spite of the marked tendency to emphasize specific discoveries of fact.

The most important contribution to the Historic Collection has been made by the Works Progress Administration architects, draftsmen and photographer. Field studies have been made of all the remaining Shaker buildings at Watervliet, and drawings of part of them have been completed. A substantial start was also made on the buildings at Mount Lebanon. These architectural records supplement the photographs already in the Collection and the extensive collection of industrial materials which combine to make the Collection a unique museum series. Elsewhere in this report other aspects of the Shaker problem are discussed.

TEMPORARY AND LOAN EXHIBITS

(Figures 5-10)

It is a common criticism of museums that their exhibits are not changed more frequently. In the main this is due to the lack of funds for new exhibits, skilled technicians to prepare them, storage space for exhibits not on display, and staff members with time and ability to supervise their preparation. It is a serious question as to how much space a general museum should devote to *permanent* exhibits. There was a time when exhibits were considered to be so valuable as to merit permanent exhibition. But as the collections grew and improved, interests of the public, the donors and the staffs changed. A rotation, even of the best objects, has certain advantages.

The general exhibits of the State Museum have not been changed for many years. This condition can not be remedied until the Museum's financial condition is materially improved and adequate space is provided. To offset this disadvantage, the loan of temporary exhibits, while of course a minor influence, is very welcome indeed, and has many advantages as a permanent policy.

The Hine Photographic loan. During the past year the State Museum has been fortunate in securing several temporary exhibits. The loan of photographs by Lewis W. Hine, which were exhibited from June 1 to July 15, 1939, is a good example (figure 4). The press notice of this exhibit by William L. Lassiter, who prepared the display, states:

This exhibit of "sociological" photographs consists of 74 photographs taken during Mr Hine's career of over 30 years as a "sociological photographer." They are simple and direct in their appeal and artistry, but each picture tells its story and the observer can not fail to get the message. Many of the prints are from the negatives made in 1907 to 1910 when he began to photograph the newly arrived immigrants on Ellis Island, men in work shops, people on the street, and in the homes of those who contributed much to the great industrial period. Many of these photographs were reproduced in magazines and newspapers, and showed a generation ago "how the other half lives." He thus helped the National Child Labor Committee, National Women's Trade Union and other organizations that were urging social reform legislation.

Outstanding among the pictures are: "New York Is Such a Friendly Town," "A Madonna of the Tenements," "Neighbor, New York 1912," "Child Working in South Carolina Cotton Mill, 1908," and "A Striker, New York 1927." These are pictures of personalities, which Lewis Hine so delights to do. With his experience among people and his training he is able to find subjects which portray poignant drama.

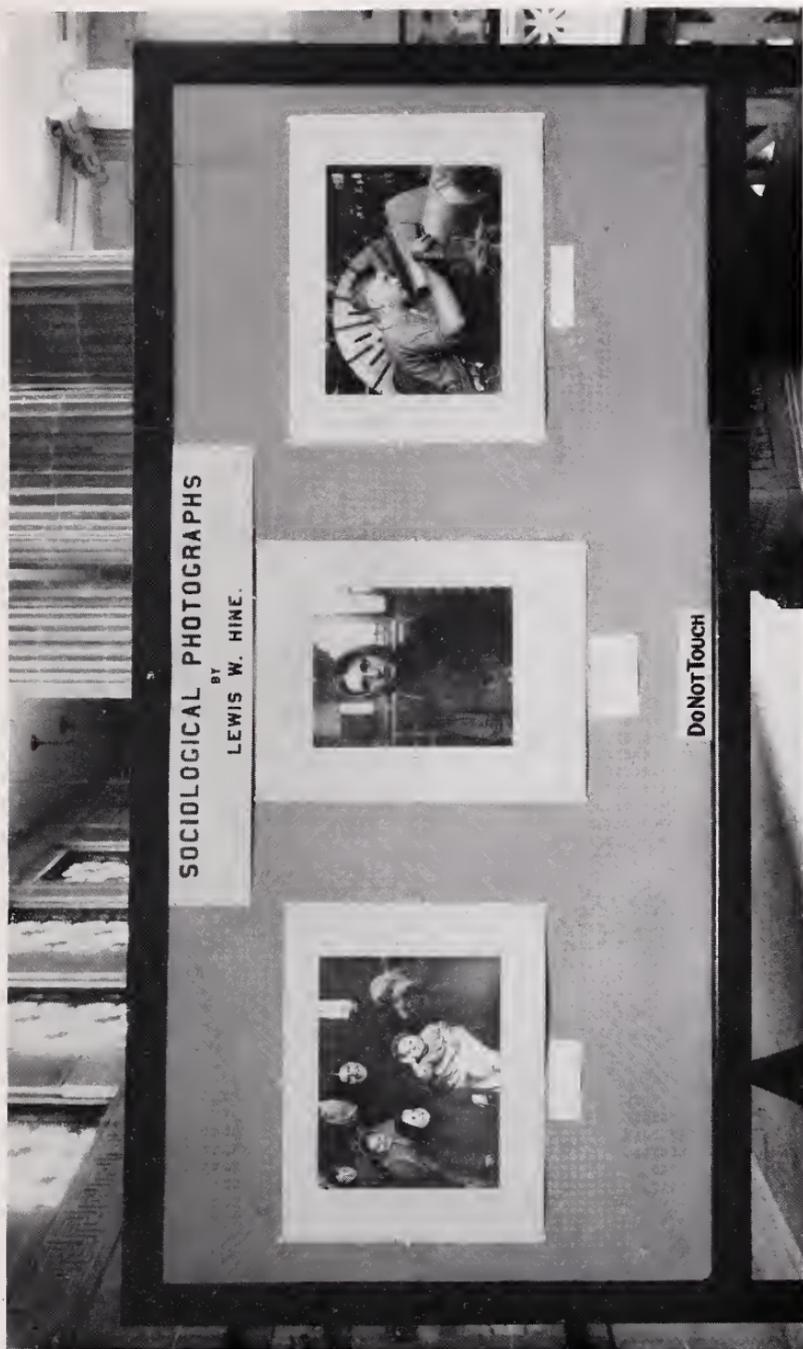


Figure 5 Sociological photographic loan exhibit by Lewis W. Hine.

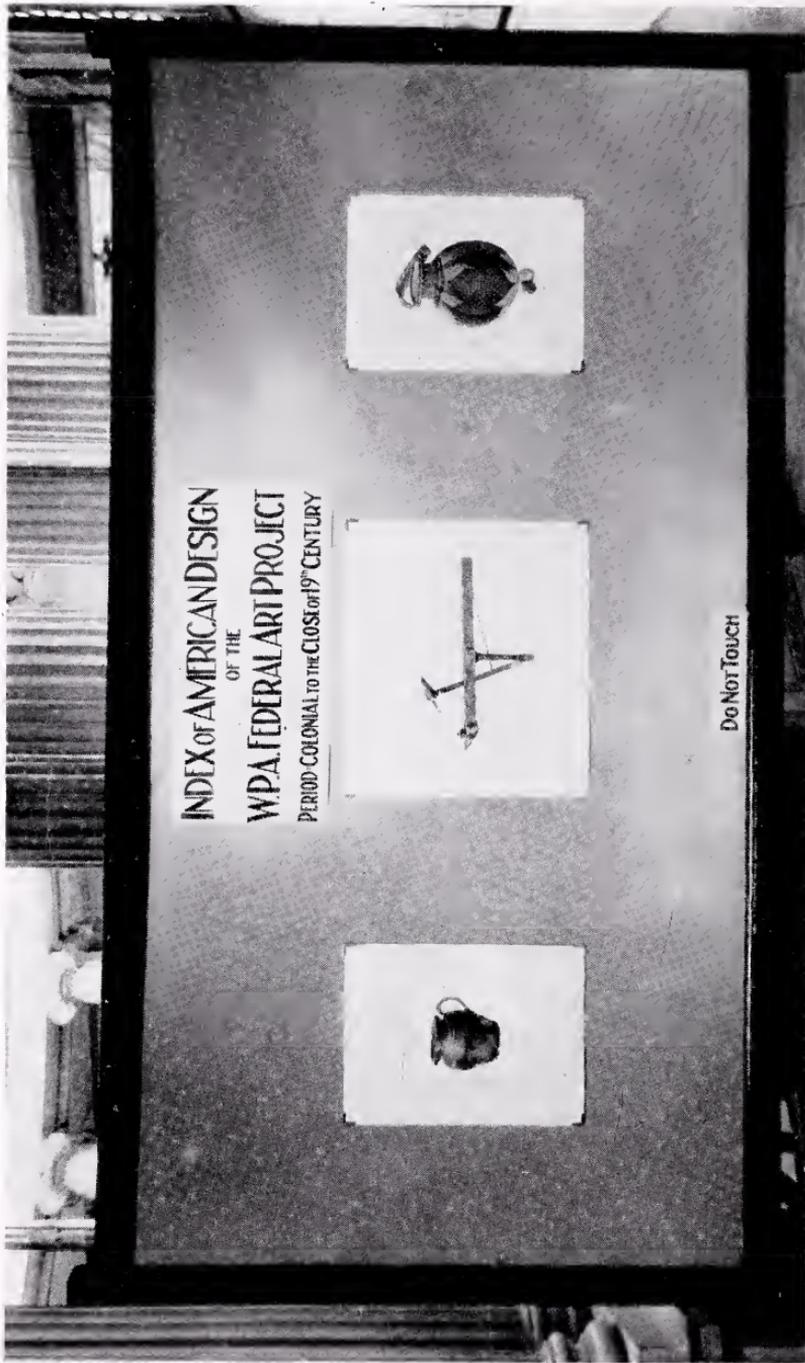


Figure 6 Index of American Design exhibit, Works Progress Administration, Federal Art Project. A sample screen.



Figure 7 New Jersey pottery pitcher, made between 1800 and 1830. Drawn by F. L. Durand. Index of American Design. Detail of figure 6.

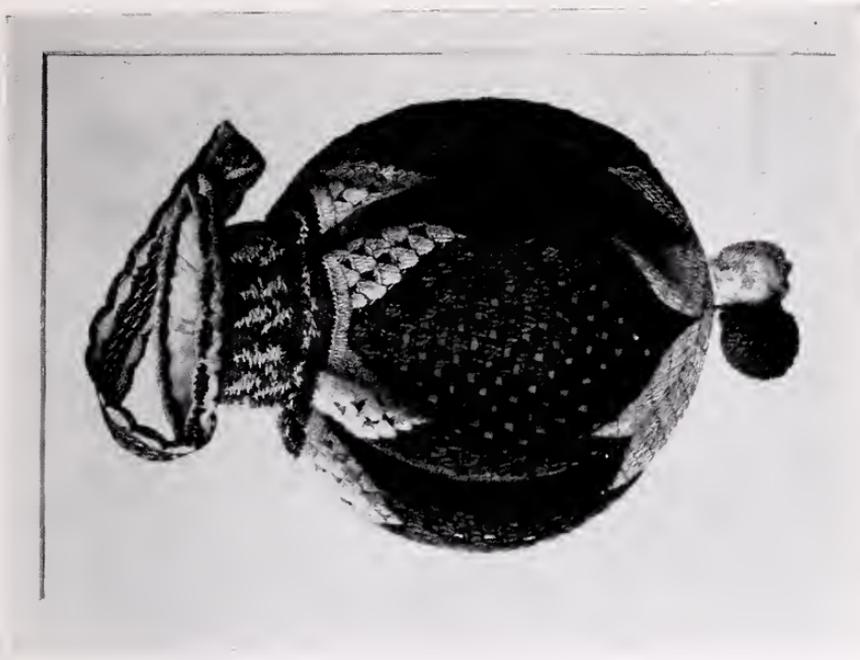


Figure 8 Crochet bag, made in 1885 by Sally Amerman. Drawn by Erwin Schwabe. Detail of figure 6.



Figure 9 Graphic Art Loan exhibit, Works Progress Administration, Federal Art Project. A sample screen.



Figure 10 Lithograph, "The Back Porch," by F. Cheney. Graphic Art Loan exhibit. Works Progress Administration, Federal Art Project.

Lewis Hine was born in 1874 in Oshkosh, Wis. He worked his way attending Chicago, Columbia and New York universities, where he was trained as a teacher of biology and nature study. In 1905 he began teaching at the Ethical Culture School, New York, and it was here he began using the camera to visualize the school's activities. He left the Ethical Culture School in 1908 to assist in research for the National Child Labor Committee, and relied upon his camera as a powerful tool to present the convincing evidence of his reports.

Further information about Mr Hine's work may be found in the following:

Hine, Lewis W.

1932 *Men at Work. Photographic Studies of Modern Men and Machines.*
New York

Marks, Robert W.

1932 *Portrait of Lewis Hine. Coronet, 5:147-57*

McCausland, Elizabeth

1938 *Portrait of a Photographer. Survey Graphic, 27:502-5*
1939 *Boswell of Ellis Island. U. S. Camera, No. 2, p. 58-62*

Federal Art Project loans. The main source of our temporary loans has been the Federal Art Project, Works Progress Administration (W.P.A.) in New York City, through the courtesy of Mrs Audrey McMahan, assistant director, and Holger Cahill, director. These have been as follows:

1 *July 11-August 11, 1938.* The remarkable exhibit of photographs of "Changing New York" by Berenice Abbott, was continued from June. See 102d Annual Report, p. 38-44.

2 *August 2-September 5, 1938.* An exhibit of 30 index plates of the "Index of American Design," to which reference will be made later (figures 4-6).

3 *October 19-November 1, 1939.* An exhibit of 60 contemporary color lithographic prints illustrating the graphic arts. Assisted by the United American Artists (figures 8-9).

4 *November 3-January 2, 1939.* An exhibit of 52 Shaker photographs made at Mount Lebanon, N. Y., and Pittsfield, Mass., by Vincente and Herlick, and Vincentinn and Herlick (figure 41).

5 *February 20-March 14, 1939.* An exhibit of handwoven textiles.

6 *March 14-April 24, 1939.* A loan of 38 children's drawings from Works Progress Administration classes.

7 *May 3-May 26, 1939.* An exhibit of "Photographs of Children at Work in the Free Art Classes." By Works Progress Administration photographers.

A final word should be added before leaving these excellent Federal Art Project loan exhibits, regarding the Index of American Design loan. This loan was described in the press notice by William L. Lassiter as follows:

This loan consisted of 30 drawings in water color and in black and white, by artists of the Index of American Design of the W.P.A. Federal Art Project. The work represents the New York City, the New York State and the New Jersey divisions of the Index of American Design, which in 28 states is making a comprehensive pictorial survey of American decorative and useful arts from the time of settlement to the close of the nineteenth century.

Objects recorded for the survey in water color, in black and white and in photographs are drawn from museums, historical societies and libraries, as well as from private collections. The work is carried out by specially trained artists under the supervision of experts in the various categories covered by the Index. These categories include furniture, textiles, costume, weathervanes, ships, figureheads, pottery, glass, wall paper, jewelry, lighting devices and kitchenware.

A variety of early American objects is reproduced in the collection of drawings exhibited at Albany. Among these are a Dutch kas or cupboard now in the collection of the Metropolitan Museum of New York, a weathervane modeled from Bartholdi's "Liberty"; a Duncan Phyfe table in a private collection (Duncan Phyfe was formerly a resident of Albany); a satin brocade dress made by a family dressmaker for a White House reception in 1865, privately owned; a bird hand carved in 1770 from a chestnut stump by a chef in the employ of the Vanderbilt family; as well as other objects that illustrate the variety of design produced by American individual craftsmen before the twentieth century.

Two of the drawings in color—a red crocheted bag made in 1885 in South Branch, N. J. (figure 9), and an embroidered table cover made in 1860 in New Brunswick, N. J.—were executed in a special application of scratch board technic adopted by the Index for producing the fine detail and texture of certain textile surfaces. These drawings in scratch board technic were made by Erwin Schwabe of the New Jersey division of the Index of American Design.

Other artists whose work is represented in the exhibition at Albany are: Salvatore Borrasso, Isidore Goldberg, Milton Grubestein, Mina Lowry, Jean Peszel, Isidore Steinberg and John Tarantino of the New York City division; Isabelle De Strange, Florence Earl, Daniel Fletcher, Howard Lombard, Arthur Mathews and Louis Plogsted of the New York State division; and John Cutting, Francis L. Durand, S. O. Klein, Henry Myers and Paul Ward of the New Jersey division.

This exhibit and the photographs by Mr Hine aroused more interest than any other loans, and was a revelation to those who had no real conception of the ability of some relief workers. Without

question the record made by this Index is of far-reaching importance. It reveals a skill and an appreciation of artistic values that will surprise and please many persons who have not realized how much substantial ability existed among our people. Of course, previous to this project no one had ever been able to see so much valuable material assembled in a single series. Without question much of this should be published and made generally available.

Cooperative Shaker exhibit. A special cooperative loan exhibit of Shaker materials was conducted with the Albany Institute of History and Art, of which Ledyard Cogswell is president, between November 2 and 30, 1938. In this case the State Museum material was placed on display at the Albany Institute, and concurrently the above-mentioned Works Progress Administration loan of Shaker photographs was exhibited at the State Museum (figure 41). Local residents also contributed to the exhibit, and the Shakers from Mount Lebanon by their presence. The display was arranged by R. Loring Dunn and William L. Lassiter. It was without question the best general Museum exhibit of Shaker furniture and utensils ever made. Reference should be made to figures 58-63, for views of the exhibit. This exhibit is described more fully on pages 135-36.

CONDITION OF THE EXHIBITION HALLS

The outstanding problems of the exhibition halls are the need of rotation of old exhibits and obtaining new ones, and the perennial problem connected with the roof, as all efforts to control the leaks give only temporary relief. The disfigurement of the ceilings, walls and light screens can not be prevented until the roof problem is settled satisfactorily. The ceiling of the Zoology Hall is now probably at its worst condition in many years. New shades are also greatly needed for the windows of Zoology Hall.

Throughout the exhibition halls the paint on the cases is worn off and requires renewing. Many labels need attention, but with the lack of a draftsman little can be done. The excellent relettering of the insect cases was done with Works Progress Administration assistance. The State Relief Map needs repainting, as leaks have discolored it.

PHOTOGRAPHY AND DRAFTING

In the conduct of scientific and scholarly investigations no satisfactory substitute has been found for photographs, drawings and maps. These are not only a part of the record, supplementing the

written notes, but are an essential part in presenting the results of these studies in printed form for public use. The workers in the field, as a rule, make their own exposures, and the negatives are developed and printed at the Museum, in order to attain uniformity and permanence of the record. The quality of the record thus preserved under this system has improved considerably.

The death of the photographer and draftsman, Edwin J. Stein, on January 7, 1938, made a vacancy not yet filled, and greatly interferes with the work in all offices. Had it not been for Works Progress Administration assistance an exhibit for the World's Fair could not have been prepared. Preparation of reports has been unduly delayed for lack of such assistance.

MUSEUM COLLABORATORS

In order to encourage the cooperation in the scientific and other aspects of the work of the Museum, the Regents on April 18, 1929, authorized the Director to appoint collaborators.

Dr E. P. Felt is at present the only Museum Collaborator. He has carefully revised his Museum Bulletin 200, Key to American Insect Galls, and has submitted it for reprinting, but funds were not available for printing it.

STATE MUSEUM COUNCIL

The State Museum Council is an advisory group appointed by the Board of Regents to advance the general welfare of the Museum. Its duties are thus explained by the Rules of the Board of Regents:

Section 13 *Councils*. The Commissioner with the approval of the Regents shall appoint the following councils, of five members each: college, academic, library, *museum*, music, nurse training school, industrial education, agricultural education, character and humane education, physically handicapped children, and medical. These councils shall serve as advisory bodies with which the officers of the Department may consult regarding institutions in the University or registered in the Departments. One member of each Council shall be appointed yearly to serve for a term of five years beginning with the first day of October next following the ending of the term to which each respectively, is to succeed, except that an appointment to fill a vacancy created otherwise than by the expiration of a term shall be for the unexpired term. The deans of the dental, pharmacy and veterinary medical schools shall, respectively, act as similar councils for dental, pharmacy and veterinary medical interests.

There was no meeting of the council called this year.

SUMMARY OF THE ACTIVITIES OF THE MUSEUM STAFF

(Figures II-23)

"It is essential that this Museum should command the service of many different men for work in many different fields, and that its work should be so closely related to work of the same kind elsewhere that it shall all represent a coordinated whole. This is true of all departments of the work, but especially so of those departments which have a direct utilitarian bearing.

"This Museum like every other institution of the type, should do everything to develop large classes of workers of this kind. And yet, friends, we must never forget that the greatest need, the need most difficult to meet, is the need to develop great leaders and to give full play to their activities. In the entirely proper effort to develop numbers of individual workers there must be no forgetfulness of this prime need of individual leadership if American achievement in the scientific field is to be really noteworthy. Yet, in scientific as well as in historical associations and academies, this fact is often forgotten.

"The really great works must be produced by some individual great man who is able to use to the utmost advantage the indispensable preliminary work of a multitude of other observers and investigators. He will be the first to recognize his debt to these other observers and investigators. If he does not do so he will show himself a poor creature. On the other hand, if they are worth their salt they will be proud to have the great architect use all the results of their praiseworthy and laborious and necessary labor in constructing the building which is to crown it."—*Theodore Roosevelt's address at the opening of the New York State Museum, December 29, 1916.*

From an administrative standpoint the following is a summary of the activities of the staff:

History, Art and Archeology. The Director, assisted by William L. Lassiter, temporary curator of history, and several relief workers, has, as in recent years, devoted special attention to the history and art collection. The detailed list of accessions to the Historic Collection is given elsewhere in this report. The Works Progress Administration architectural survey of the Shaker buildings at Watervliet has practically completed the measurements of the buildings, some progress has been made on the final drawings, and a substantial start was made on the measurement of the buildings at Mount Lebanon, both at the North and Church families. These architectural studies add greatly to what has already been secured bearing on Shaker history and achievements. Substantial progress has also been made by indexing and improving the historic files and records.

Mr Lassiter has supervised the displays of the Works Progress Administration Art Project temporary loans, to which reference is made elsewhere in this report.

Noah T. Clarke, State Archeologist, has made progress on a bibliographic index of New York State Archeology and Ethnology, as well as on the index to the archeological material in storage.

Botany. Dr Homer D. House, State Botanist, has completed a bibliography on the botany of New York State, and has been engaged in botanical field work in the vicinity of Newcomb in the Adirondacks, and in the lower Hudson valley (figures 11-14). With Works Progress Administration assistance much progress has been made in improving the condition of the herbarium and arranging the collection in the new storage cases. Progress has been made in completing the office index and file to the botanical photographs.

Dr Robert B. Gordon's report on the vegetation of Cattaraugus county has been submitted for printing as Museum Bulletin 321.

Dr Rogers McVaugh, temporary botanist, has continued his work on the flora of Columbia county.

Norman Taylor, temporary botanist, has completed a report on the salt marsh vegetation of Long Island, which has been published in Museum Bulletin 316.

Dr Royal E. Shanks, temporary ecological botanist, began his study of the vegetation of Monroe county, in cooperation with the Monroe County Division of Regional Planning.

Entomology. Dr Robert D. Glasgow, State Entomologist, has continued his studies of the black flies and mosquitoes, particularly their relation to economic conditions. Part of his results are published in Museum Bulletin 316. He has also continued his studies of the Pales weevil and the European pine shoot moth.

Doctor Glasgow has assisted in the general supervision of the Works Progress Administration project No. 50,470. The Works Progress Administration assistance has aided his work in indexing the entomological literature, in translating, in photography and in bookbinding. Part of these workers have also devoted their time to general museum work for the various offices, such as bookbinding, photography, drafting, inventory of publications, and to the Historic Collection.

Kenyon F. Chamberlain, Assistant State Entomologist, has continued the transferring of the insect collection to the new insect boxes in the steel cabinets, and through field trips has made important additions to the insect collection.

Dr A. Glenn Richards, temporary entomologist, studied mosquito control on Long Island, and his results have been published in Museum Bulletin 316.

Geology. Dr David H. Newland, State Geologist, and Henry Vaughan, temporary geologist, have nearly completed their handbook on the geology and mineralogy of the Lake George region. The completion of the report has been delayed by the lack of a photog-



Figure 11 South shore of Rich lake, Newcomb, Essex county. Low water in late summer. Habitat of numerous plants of shallow water such as *Isoetes Braunii*, *Lobelia Dortmanna*, *Eriocaulon septangulare*, *Utricularia resupinata* etc.



Figure 12 Sand-binding plants: *Ammopila*, *Artemisia*, *Oenothera*, *Salix* etc. Eastern end of Lake Ontario, near Montario point, Jefferson county.



Figure 13 Wind-blown sand advancing over fields, near New London, east of Oneida lake, Oneida county. Tree growth mainly pitch pine, *Pinus rigida* Mill.



Figure 14 Black creek, from the Poppleton road bridge, east of Oneida lake, Verona township, Oneida county. Stream channel completely choked with growth of *Cephalanthus occidentalis*, *Decodon verticillata*, and center, *Potentilla palustris*.



Figure 15 Cut in Schodack shale and brecciated limestone (Cambrian) in the Castleton cutoff (New York Central railroad), two miles south of Schodack Landing, Cossacke quadrangle, East side of section looking east-northeast. The thick brecciated limestone bed is well shown in the cliff at the left, with two large blocks on the talus. Photograph by E. J. Stein.

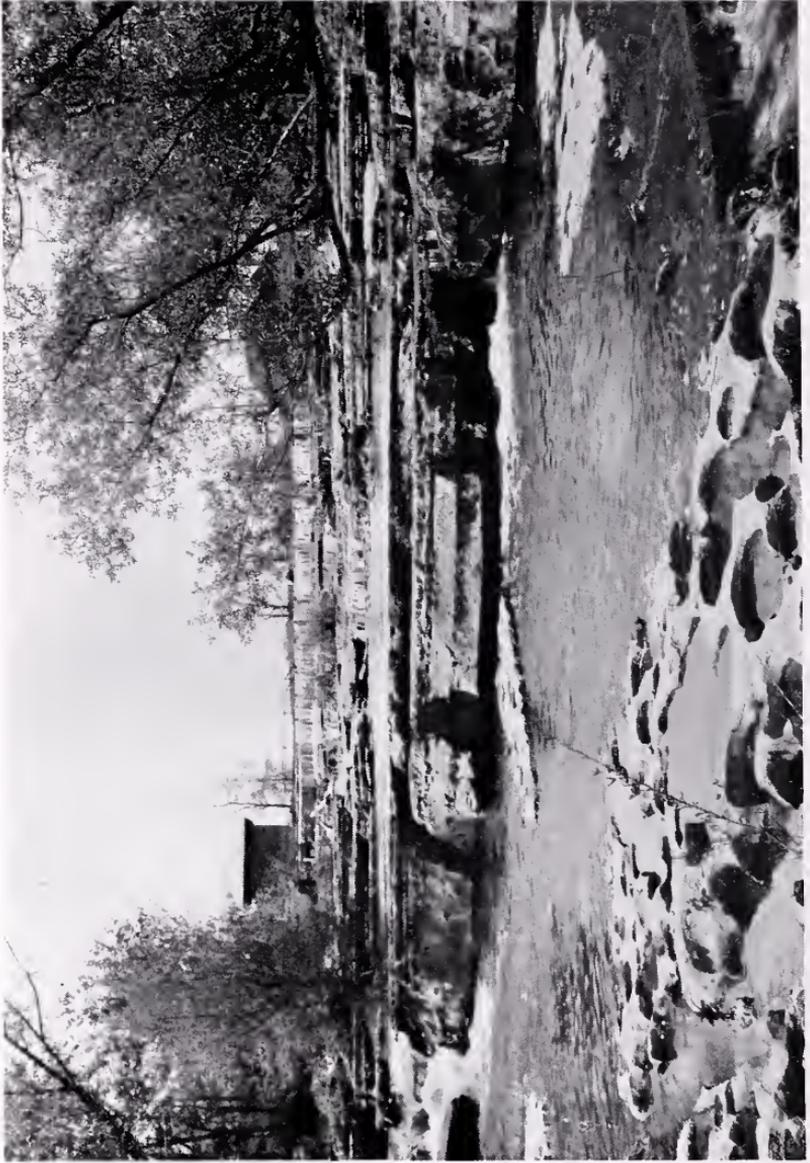


Figure 16 Kalkberg limestone (Lower Devonian) at Deans Mills below the dam, Coxsackie quadrangle. Chert bands are characteristic of these lower New Scotland beds. Numerous potholes may be seen in the foreground. Photograph by E. J. Stein.



Figure 17 Anticlinal fold in Esopus shale (Lower Devonian), Leeds gorge, Cossackie quadrangle: Glenierie and Port Ewen limestones in stream bed. The Esopus, with some Glenierie at the base, has been thrust westward (upstream) over Esopus. Photograph by E. J. Stein.



Figure 18. Doming of Schoharie and Onondaga limestones in the Leeds gorge west of (upstream from) the mill pond and the anticlinal fold in the Esopus shale. The Schoharie forms the bed of the stream, the Onondaga with numerous chert bands the left (south bank). Photograph by E. J. Stein.



Figure 19 Temporary exhibit of recent zoological accessions.
Photograph by Dayton Stoner.



Figure 20 Temporary exhibit of recent zoological accessions.
Photograph by Dayton Stoner.



Figure 21 View of interior of storage case housing a part of the Museum's collection of bird skins. Photograph by E. J. Stein.

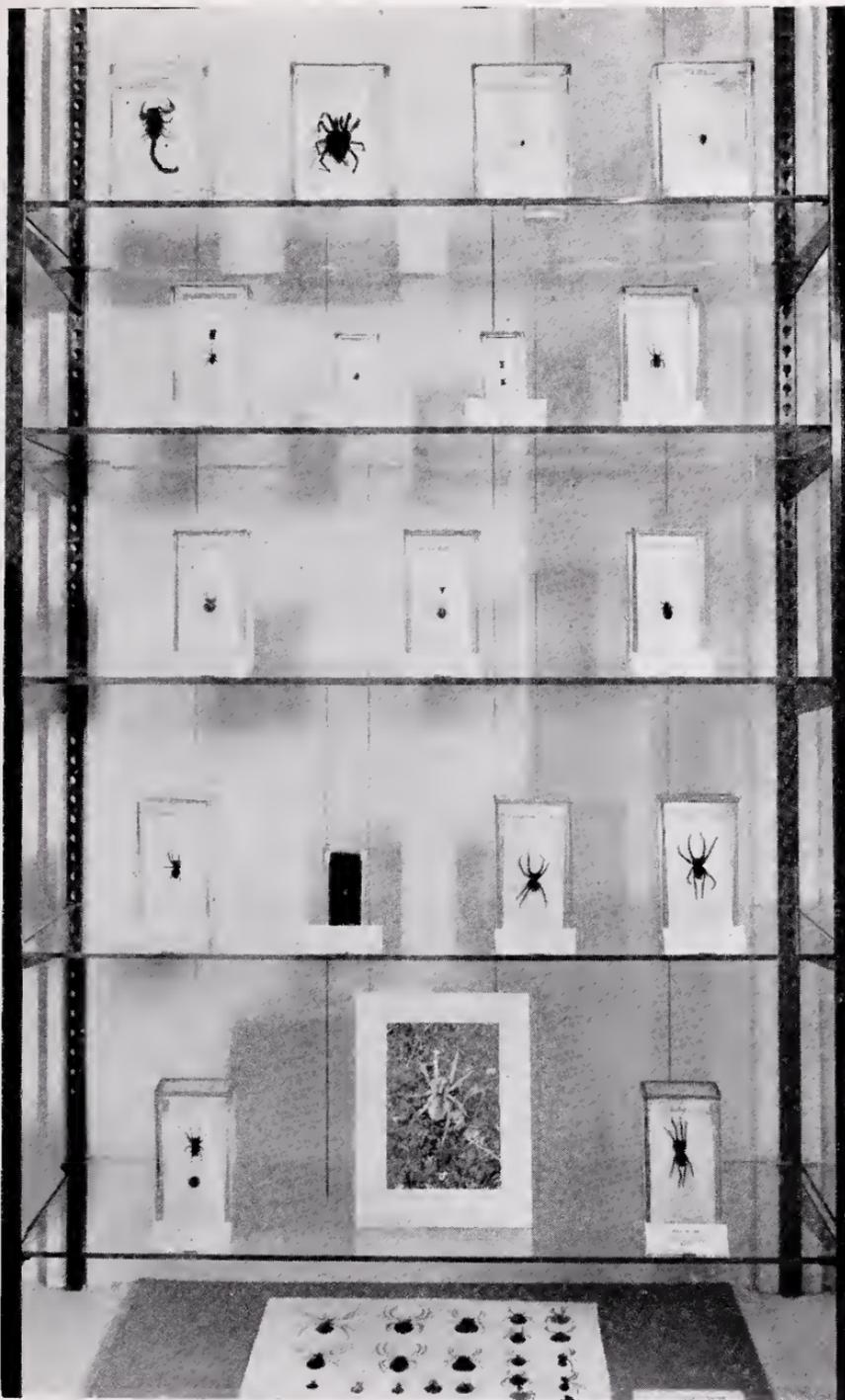


Figure 22 Portion of exhibit of spiders and allies in Zoology Hall.
Photograph by E. J. Stein



Figure 23 Nets placed over mouths of bank swallow burrows to catch inmates for banding as they emerge. The white dots showing on the face of the bank are tags bearing band numbers. The burrow opening marked by a circle—extreme left—is one from which a return bird was obtained. Albany, N. Y., June 1938. Photograph by Dayton Stoner.

rapher and draftsman. A popular account of the geology of this region, with its large number of summer visitors, should be of much interest.

Doctor Newland has begun a revision of a Museum bulletin on mineral localities in the State.

Doctor Newland, assisted by Chris A. Hartnagel, Assistant State Geologist, has continued the preparation of the cooperative biennial report on mining and quarry production of the State. Some changes of policy by the United States Bureau of Mines have made cooperation increasingly difficult on our limited funds.

Chris A. Hartnagel, Assistant State Geologist, has continued his careful attention to the development of oil and natural gas within the State, and has nearly completed his report on the Randolph mammoth.

Dr Arthur F. Buddington, temporary geologist, has completed the field work on the Willsboro quadrangle.

Dr Lawrence Whitcomb, temporary geologist, studied the Paleozoic rocks of the Willsboro quadrangle.

Mrs Medora H. Krieger, temporary geologist, continued her work on the report on Indian Lake.

Dr Earl T. Apfel, temporary geologist, has devoted his time to field work on the glacial geology of the quadrangles in the general region about Syracuse.

Dr Chauncey D. Holmes, temporary geologist, has cooperated with Doctor Apfel in the Syracuse region.

Paleontology. Dr Winifred Goldring was promoted provisionally as State Paleontologist August 1, 1938, and to the permanent position April 1, 1939. She has completed the field work on the Cocksackie quadrangle, and has also continued with Dr G. Arthur Cooper, of the United States Geological Survey, field studies on the Devonian stratigraphy. Her report on Algal barrier reefs and crinoids was published in Museum Bulletin 315.

Dr Rudolf Ruedemann, retired, is continuing his report on graptolites, and reports that more than 100 drawers of species remain to be examined, and the general chapters of the monograph are yet to be written.

John H. Cook, temporary geologist, is completing his report on the glacial geology of the Cocksackie quadrangle.

Clinton F. Kilfoyle, technical assistant, has continued the catalog of the type collection and the catalog of pamphlets in the Office collection. He also revised the list of publications of the State Museum and assisted Doctor Goldring in the fossil collection for the World's Fair exhibit.

Dr Rousseau H. Flower, temporary geologist, completed his field work collecting Devonian cephalopods.

George H. Chadwick, temporary geologist, completed his report on the geology of the Catskill and Kaaterskill quadrangles.

Dr A. C. Tester, temporary geologist, has not yet completed his report of the geology of the Randolph quadrangle.

Dr Gordon I. Atwater, temporary geologist, has not yet completed his report on the revision of the geology of the Salamanca quadrangle.

Professor L. W. Ploger, temporary geologist, has continued his study of the geology of the Cattaraugus quadrangle.

Colleagues in the Department of Geology, Columbia University, of Dr R. J. Colony, temporary geologist, who died March 26, 1936, will complete the report on the complex geology of the Schunemunk quadrangle on which he was engaged for many years. The field work was practically completed.

Professor N. C. Dale, temporary geologist, is completing his report on the geology of the Oriskany quadrangle.

Professor H. D. Whitnall and his colleagues of Colgate University have continued their cooperative study of the geology of the Morrisville quadrangle.

Dr John G. Woodruff, of Colgate University, completed his report on the geology of the Wellsville quadrangle, studied in cooperation with Colgate University, and the report awaits publication.

Dr Tracy Gillette, of the University of Rochester, who made the cooperative study with the Geology Department of the University of Rochester of the Clyde and Sodus Bay quadrangles, completed his general report which will be printed as Museum Bulletin 320.

Zoology. Dr Dayton Stoner, State Zoologist, has continued his study of the bank swallows of the Oneida Lake and Albany regions, by the banding method. The report on the birds of Washington Park, Albany, is now in preparation. His report on the temperature and growth of the phoebe is completed. He assisted in the preparation of the Bird Day Bulletin to the Schools, and in the preparation of the World's Fair exhibit.

Walter J. Schoonmaker, Assistant State Zoologist, has continued his study of the woodchuck, and of the mammals of Rensselaer county, and also assisted in the installation of the World's Fair exhibit.

Aretas A. Saunders, temporary ornithologist, is completing his report on summer birds of the Allegany State Park.

Dr Wallace Craig, temporary ornithologist, has continued the preparation of his report on bird song.

GENERAL ADMINISTRATIVE PROBLEMS

WHY RESEARCH IN RELATION TO CULTURAL ACTIVITIES?

"We are at the parting of the ways. And we may define the two ways—the old one which we have been going and may continue to our destruction, and the new one which we shall have to try out if we are to survive—by comparing two senses in which the machine 'saves labour.'

"At present it means that the machine *saves labourers* and their pay. That is, it reduces costs of production by reducing the number of wage-earning workers. But, inevitably, it thereby swells the ranks of the unemployed and automatically diminishes the number of consumers of the product of the machine. Increase of products, decrease of population; enormous power of production with ever-shrinking power of consumption—that is why we live in an era of starvation in the midst of plenty and of depression in the midst of the greatest productive power which the world has ever seen.

"The other meaning of 'saving labour' through the machine is that machines save labourers from labouring, i.e., they work for men in the literal sense of lifting the old curse from their shoulders, of releasing their energies and setting them free for other activities—for play, for self-cultivation, for study, for the pursuit of all sorts of hobbies, for that noble leisure which, Aristotle tells us, is the pre-condition of the highest mental activities. . . . If the machine is thought of as working for, and in place of, the man, then it becomes absurd to deny to the man his share of the goods produced on the ground that he has done no work. (p. 168)

"I can imagine the leisured men of the future spending their day according to their taste and ability in countless wholesome and morally satisfying activities, which under the present system are threatened by a machine civilization, but which then will be not only compatible with it, but positively promoted by it. I can envisage a return of skilled handicrafts—not for the market, but for personal enjoyment in the exercise of skill and the making of things of beauty. I can imagine more people giving more time to music, wanting to learn to play for themselves music to which the wireless has first introduced them. I can imagine a renaissance of the arts, just because those who have artistic gifts will be able to devote themselves to their cultivation, without having also to practise that other art which Plato calls the 'art of wages,' i.e., without having to think of 'making a living' either by their art or else by some bread-and-butter occupation which ultimately kills the artistic impulse with them. More people will have time to cultivate their gardens or to enjoy Nature, let alone penetrate her secrets by scientific research." (p. 169) "*Old Truths and New Discoveries*" by R. F. A. Hoernlé. In "*Our Changing World-View*." Johannesburg. p. 168-69.

The preceding quotation states precisely the relative need of economic research and research for its social and cultural value to society. It is the prevailing custom to justify most research on immediate economic grounds, because that is more generally appreciated rather than because it is relatively more important.

There was a time possibly when this was not the case; today while research for promoting production must continue, much greater emphasis is needed for learning how to utilize and appreciate the cultural advantages which society is capable of producing; and methods of making them more generally available to the public.

Whenever there is an economic depression, education, research and cultural and welfare activities are the first to be drastically sacrificed, rather than economic production activities which have already clogged

the machinery by relative overproduction, according to our present system of consumption and utilization. It is only in desperation that provision is made for various public forms of relief that permit men and women to be allowed to preserve and use their skill and intelligence primarily for cultural purposes rather than primarily for economic production, or for public works of many kinds.

In brief, those who do not accept this view continue by means of pressure groups, to stress the primarily productive activities that have already, under existing conditions, stalled society, and oppose support and expansion of educational, research and cultural activities.

Of course, private industry should advance in any new channel that can be invented and that will not promote the existing congestion. At the same time neglected public works of the most urgent kinds should be greatly expanded, not alone public works in the old restricted sense, of maintenance and construction of rivers and harbors, canals, highways and public buildings, but also support for research in the natural resources, not merely for production but as well for their cultural results and their social applications. It is not that New York State can not afford to encourage more of such activities, but there is the lack of organized support for such activities. The appropriations follow organized support.

HISTORICAL POLICIES

In previous Annual Reports attention has been called to the need of revised or new policies on certain historic matters intimately related to the work of the State Museum such as the following:

1 The unsatisfactory status of state-owned historical and scientific reservations, and the need of a comprehensive constructive policy for their administration, care and use. (Cf. State Mus. Bul. 288, p. 51-56. 1931.)

2 The unsatisfactory status of the battleships that lie upon state land, in public waters of the Atlantic ocean, the Great Lakes, Lake Champlain and Lake George. (Cf. State Mus. Bul. 313, p. 123-36.)

WORLD'S FAIR OF 1940

Plans are under way for extending the New York World's Fair of 1939 to the 1940 season.

In order to make the best utilization of such exhibits after the fair, definite plans should be made for the long proposed new Memorial State Museum Building. Many valuable and extensive exhibits could no doubt be acquired from such a source if adequate space were provided for their exhibition and storage. Regarding plans for

the proposed new State Museum building, reference should be made to the 25th Annual Report (State Mus. Bul. 293, p. 81-110, 1932.) Failure to prepare for this occasion properly would mean an irreparable loss to the State Museum, as such an opportunity may not again arise for a generation.

STATE MUSEUM STORAGE SPACE

When the State Education Building was built, although it was intended to house the State Museum, no adequate provision was made for modern storage facilities and space. Research and educational exhibits in the natural sciences require collections of specimens, and these always need space for their storage and display. The same is true of history and art objects, all of which were authorized nearly 50 years ago in the Education Law when additional provision was made for expanding the functions of the State Museum.

It is generally understood by the public and officials that museum exhibits require much space and cases, but it is not so generally appreciated that the study collections in science, history and art also require even as much or more space and proper cases if these materials are to be made available for use. Too often storage means only inferior and limited space for boxes and barrels of materials, but a museum with its collections so stored is in the same position as a library would be with its books nailed up in boxes, rather than accessible on the shelves. Neither the museum staff nor the inquiring expert or visitor can thus readily consult such materials. Space alone is not a satisfactory solution because valuable materials should be in appropriate cases, in order to shut off the light and keep out the dust. Much valuable material is injured or destroyed by light and dust. Proper humidity is also important for the storage of many kinds of materials; if there is too much moisture, objects mold, and if not enough, they dry out and crack. It is thus evident that storage space is not simply room or space that no one else desires, but that it should be on a par with museum exhibition space, if the materials are to be used to the best advantage.

The safety of materials in storage can only be assured by periodical inspections and constant use. For this reason boxes and barrels are positive proof of inadequate storage! Furthermore, only responsible persons should be allowed access to such collections, and that can be accomplished only when locks and keys are properly safeguarded. This subject of storage is one that needs constant emphasis because its importance is very generally underestimated.

Often large museums are as unfortunate in this respect as smaller ones.

The Education Building has for years been overcrowded, and the only large storage room assigned to the State Museum was one in the northwest corner of the basement, Room 5. In making certain adjustments of rooms in the basement, it was decided by the Regents to accept storage space in St Agnes School, behind the Education Building, and to move the contents of Room 5 into this abandoned school building. (Cf. Journal of Regents Meeting January 8, 1938, p. 380.) The collections which were moved into the school in March 1938 consist largely of geological and industrial history materials, and are now as excessively crowded as they were in Room 5. It was hoped that during the process of moving, certain uncataloged materials could receive attention, but this was not practicable, and the resultant crowded condition has prevented it since. Until adequate space and cases are provided this very valuable material will remain a cause of serious concern as to its condition and safety. Furthermore the school is built on varve clay, on the side of a ravine and bordered by landslide topography.

ANNUAL FINANCIAL AND STATISTICAL SUMMARY

THE STATE MUSEUM BUDGET

The following budget does not include the cost of heat, light, janitor service, orderlies (watchmen), carpenters, painters and elevator men. Certain other items also are furnished by the Education Department, such as postage, stationery, express, drayage in part, telegraph and telephone, and are therefore not included in the budget. The traveling expenses have been budgeted so that each member of the scientific staff is able to plan his work to the best advantage.

Facilities provided by cooperative projects supplement to an important degree the state appropriation. It is impossible to estimate the amount of these funds precisely, since they include the federal franking privilege, cooperation with many individuals, with organizations and with other state departments. Labor, supplies, expert services, use of automobiles etc. have been provided by this cooperation. Such financial assistance is of the greatest value; but the funds do not pass through the Museum.

The annual statistical summary for the fiscal year July 1, 1938, to June 30, 1939, follows:

APPROPRIATIONS AND FUNDS FOR THE FISCAL YEAR

(July 1, 1938 to June 30, 1939)

Appropriations

(Less enforced savings)

Salaries:

Administrative staff.....	\$ 9 520 00
Permanent scientific staff.....	30 230 00
Temporary expert service.....	2 520 00
Scientific assistants.....	5 620 00
Clerical, labor etc.....	11 100 00
Total salaries.....	\$65 040 00
Equipment and supplies.....	\$ 2 650 00
Traveling	
Printing	5 000 00
Total budget.....	\$72 730 00

DIRECTORY DATA

Name of Museum: New York State Museum*Location:* Albany, New York, U. S. A.*Name of Director:* Charles C. Adams*Name of Assistant Director:* Alvin G. Whitney*Date of Founding:* The Museum is the outgrowth of state surveys begun in 1836; formal organization of the Museum was effected in 1843. (See State Museum Bul. 313, p. 85-121, 1937, for historical sketch.)*Open to the public:* Open week days from 9 a.m. to 5 p.m. Closed on Sundays and legal holidays, except from June to September. Total number of hours open to the public for the year, approximately 2560.*Staff:*

Administrative officers	2
Permanent scientific staff.....	11
Technical and clerical assistants.....	11
Part-time employes	9
Total staff	33

Salary schedule, 1938-39:

Administrative	\$3 270-6 250
Scientific professional staff.....	1 860-4 860
Technical assistants (nonprofessional grade).....	1 760-2 100

*Hours and vacation:*Hours of work a week, 36 $\frac{3}{4}$

Vacation allowance, 22 working days, and all legal holidays

NEEDS OF THE STATE MUSEUM

THE GENERAL FINANCIAL PROBLEM

The State Museum moved into its present quarters in the State Education Building in 1912. After 20 years, in 1932, a careful comparison was made of its financial status during that interval. The results were very significant, as they showed a salary increase of about \$25,000 in 20 years. Equipment, supplies and traveling and temporary expert services increased about \$1300 in 16 years! The staff declined from 28 to 24 persons in 15 years. The printing funds have never been wholly adequate to meet the needs. These are fair samples of the relatively stationary or declining financial support of the State Museum during the 20-year period.

The tragic feature of the situation is that during this same period there was a great period of economic prosperity, during which museums and similar scientific and educational agencies all over the United States underwent unprecedented expansion. Likewise, within the State, while other educational agencies were expanding and new ones being developed, the State Museum did not maintain normal growth, but actually showed a relative decline. The neighboring state of Pennsylvania expended for its geologic work alone \$67,500; Illinois, \$125,000; and California, \$63,000 in a single year, and the New York State Museum, for the same period, with its very much broader field, has had about \$75,000. Throughout this period of relative decline of financial support, the public need for scientific and educational work, within the field of the State Museum, has constantly increased. This has led to the suggestion that the State Museum, like the state colleges in the Education Department, should have its own trustees, who would be able to devote considerable time to promoting the general welfare of the Museum.

As a natural result of this retarded condition of the Museum, other state agencies have encroached upon the legitimate field of the State Museum and tended to take over its functions, in spite of the fact that aside from finances, they are not properly staffed for such scientific, economic and educational work; they do not have the necessary library, collections, files of data for such work; and, in common with administrative departments, they do not generally have the viewpoint conducive to research and the educational approach. Furthermore, various state administrative agencies at Albany frequently need scientific and technical assistance and cooperation which can best and quickest be furnished by an agency at Albany.

This long-standing financial situation has received constant emphasis in each Annual Report for a decade, and has become a monotonous feature, but until conditions materially improve, it seems necessary to continue calling attention to the facts of the situation.

The State Museum has for years urged that a careful, comprehensive, scientific study be made of the role of research in the State Government, with special reference to the work of the State Museum. Upon such a foundation it should then proceed toward a more constructive administrative policy, instead of the present relatively confused one. Phases of this problem have been the basis for special studies that have appeared in the Annual Reports and elsewhere, but these studies have never been a substitute for the comprehensive study needed.

The State Education Department has been the subject of several intensive and extensive studies, most of which have been concentrated on the public school system, elementary and secondary education. Other educational aspects, such as private education and higher education, including the colleges and universities and research, have never had adequate attention, so that even today we do not have a complete picture of the educational system. These studies have not attempted to evaluate critically the previous studies, and then to build upon them a new comprehensive program.

Elsewhere I have discussed (*Scientific Monthly*, 20: 588-93, 1925) the two methods of improving an organization: one from within and the other from without. As state and federal administrative problems have much in common, the following experience regarding efforts made to improve the Biological Survey of the United States Department of Agriculture, which has long been rather unsatisfactory, shows how Jay N. Darling, discouraged in his efforts to work for improvement from "within," attempted to improve the survey by enlisting more general support from without, as follows:

In an interview carried in June, 1936, by the Scripps-Howard Newspaper Alliance, Darling explained why he had decided to work for conservation from the outside. He told the story of his attempts to block the Santee-Cooper power project in South Carolina in order to prevent the destruction of what he regarded as the greatest productive area of aquatic life on the Atlantic coast. For a time he seemed to have check-mated the allocation of relief funds. "Six weeks later I am astonished to read that the money has been reallocated. I go to the President again and ask why. I know you're not supposed to quote the President, but I have to tell about this. He says, 'Jay'—he calls everyone by his first name, you

know, as soon as he finds out what it is—'Jay, I think you are right, but here is the pile of petitions from South Carolina' . . . There they were—every Chamber of Commerce, the entire South Carolina delegation in Congress, people everywhere. They said Darling doesn't know what he's talking about. The President said, 'Jay, go and get somebody to support you. Don't you see—it's impossible for me to stop this thing when everybody wants it.' That was the genesis of my effort to leave Washington and come out and try to organize the 7,000,000 people who buy licenses for sport in this country and the 7,000,000 or more others who love nature and believe in conservation into an organized body that will support conservation in Washington." (A. W. MacMahon and J. D. Millett, Federal Administrators. *A Biographical Approach to the Problem of Departmental Management*. 1939, p. 331. (Cf. also K. G. Crawford, "The Pressure Boys. The Inside Story of Lobbying in America." New York, 1939.)

THE CURRENT FINANCIAL PROBLEM

As shown by the preceding financial summary, the budget for the past fiscal year was about \$72,000 and was reduced by enforced savings. In addition to this amount there have been contributions from cooperating agencies, which are very difficult to estimate. Special economy reductions from the regular budget items or allotments have been made, as above indicated. On the other hand, valuable assistance has been received from the Works Progress Administration, which furnished both clerical and skilled help.

Considering the value of the natural resources of the State, and their economic and social importance in a State with the largest population and the greatest wealth, it is at once apparent that a budget of \$74,000 is inadequate to cover an up-to-date, statewide scientific survey of the natural resources. Not until the State Museum has a budget of about \$250,000 can a reasonable approach be made to this important problem.

The summary of the finances for the past ten years follows:

Summary of the State Museum budgets and allotments, 1929-30 -- 1938-39

Fiscal year	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39
Salaries.....	\$57 880 00	\$60 870 00	\$60 870 00	\$60 720 00	\$60 370 00	\$60 370 00	\$60 670 00	\$60 670 00	\$62 720 00	\$65 040 00
Equipment and supplies (General expense).....	5 000 00	5 000 00	5 000 00	3 000 00	2 400 00	3 000 00	2 800 00	4 100 00	3 000 00	2 690 00
Traveling expenses.....	3 000 00	3 000 00	3 300 00	2 450 00	2 550 00	2 700 00	2 790 00	2 600 00	2 600 00	No allotment
Traveling expenses (out of State) ..	(200 00)	(200 00)	(200 00)	(200 00)	(200 00)	(200 00)	(310 00)	(250 00)	(275 00)	(150 00)
Sunday opening.....	1 020 00	1 020 00	1 020 00	.....	.....	.....	.....	.....	.....	.....
Printing.....	10 000 00	7 500 00	10 000 00	8 500 00	5 300 00	5 300 00	5 300 00	6 367 00	5 000 00	5 000 00
Total.....	\$76 900 00	\$77 390 00	\$80 190 00	\$74 670 00	\$70 620 00	\$71 370 00	\$71 470 00	\$73 737 00	\$73 320 00	\$72 730 00

GROUND WATER RESEARCH

As the population of the State increases, the demand for underground waters for public and private supplies, as well as for industrial use, increases very rapidly. One-half of the public waterworks of the State obtain all or part of their supplies from ground waters. The mode of occurrence, the quality and the quantity of the water are thus of great importance, as was particularly realized during the severe droughts of recent years. Millions of dollars are invested in public water supply plants, and the delivery or sale of water to the consumer makes it one of the most important mineral resources of the State. The products of the mines and quarries during prosperous times have for a single year amounted to more than \$100,000,000 worth of raw materials, and it is not unlikely that the ground waters are worth considerably more than half that amount. Although the State Museum has collected observations and records on this subject for many years, it has never had the funds, men and equipment to make an adequate statewide study of this vital problem.

TEMPORARY STORAGE SPACE

Pending the construction of a new State Museum Memorial Building the problem of temporary storage for collections is becoming more acute every year. The hallways or corridors have been utilized for storage because there was no adequate provision made for storage when the Education Building was planned; yet this has been discouraged for various reasons. The crowded condition of the storerooms is a menace to the collections, and the materials can not be consulted and used; although there is frequent need of this.

DONATIONS TO THE STATE MUSEUM

In spite of the preceding statement as to the need of storage space for the museum collections, it is desirable to inform the public that the State Museum welcomes donations of:

1 Scientific collections of natural history materials, minerals, fossils, rocks and specimens of plants and animals, particularly when accompanied by scientific data.

2 Historical collections of objects illustrating the history of New York Indians, objects of the Colonial period and the Revolutionary period, household and industrial equipment. Materials illustrating the history of the professions are particularly desired, such as illustrate the history of medicine and surgery, dentistry, engineering

in its various aspects, and the tools and equipment used in various trades. Aviation should also be properly represented.

Historic objects related to the various wars in which New York has taken an active part are heartily welcomed.

In all cases it should be borne in mind that it is *primarily New York State material that is sought*, because first of all this is a New York State Museum, and also because space is lacking for other materials. Persons contemplating such donations should call at the Museum or write in advance about such proposed donations.

The State Museum has no desire to monopolize all such materials, but at present in many localities there are no local organizations able to care properly for such collections; and the State should give reasonable assistance in preserving them and making them available for future study and display.

3 Finally, although the Education Law has provided for nearly 50 years (since 1892) for collections of art, and although New York City is the outstanding art center in the Western hemisphere, neither the general public nor artists have made an active, aggressive effort to build up a state art collection, worthy of the history of art in the State and recognizing the modern development of art. The State should not depend solely on donations any more than it does for highways, agriculture or state publicity; there should be definite financial provision for such work.

A PUBLIC UP-STATE ART CENTER

Nearly 50 years ago legal provision was made for the State Museum to build up an art collection. During this interval but slight progress has been made. It is true, nevertheless, that a high grade of art was shown in the construction of the Lithgow-Parker Iroquois Indian Groups, the Gilboa Fossil Forest, the Devonian Sea Bottom Groups, and the Fleshy Fungus (wax) exhibit. And there should not be allowed to pass unmentioned the fine series of wash drawings of birds by Ernest Seton Thompson, and the water color drawings for plates of the birds by Louis Agassiz Fuertes, which illustrated Eaton's *Birds of New York*, and were later donated to the State Museum by Mrs Russell Sage.

Of industrial art an outstanding series is the Shaker furniture and examples of their allied industries, including architectural drawings of Shaker buildings, and an important collection of Shaker photographs.

There is a valuable series of stoneware; some glass, china and textiles, and a small series of drawings, prints, oils, water colors and medals which serve as a nucleus for further development.

When one considers that the State of New York is the art metropolis of the Western hemisphere, it would seem that the State itself should play a leading role in encouraging the fine arts. It is therefore proposed that there should be developed in the New York State Museum at least a representative collection depicting the art history of the State, including the work of contemporary artists, and that the State should be a liberal patron of the arts. It is only by such methods that creative work can be substantially encouraged and developed. There should be diffusion of collections by loans, to reach the largest possible appreciative public, and enough variety to meet varied tastes and interests.

It is suggested that this collection should not be limited to the finished work, but should include sketches and all other appropriate materials illustrating how the finished work was produced. Such a collection could be made of great educational value if properly displayed or stored and made readily accessible to students.

The attention of artists and artists' organizations is called to this proposal, as their interest, cooperation and support is necessary if such a possibility is developed as it should be.

I have discussed this proposal with sculptors, painters and other artists, and have found universal approval of the idea, and even active efforts on their part to lend assistance. It was noteworthy that most of those consulted were surprised at the suggestion, as it had not occurred to them that the State should build up such a public collection. Possibly this was due to the prevailing belief that the field of art has been largely a private preserve and not one of general importance to our people.

For more than 100 years the State Museum and its varied ancestors have continued a constructive program along scientific cultural lines. This indicates a certain amount of stability which is a necessary qualification for a repository of valuable materials. The annual attendance averaging about 180,000 even during the depression demonstrates that the State Museum attracts many visitors.

A surprisingly large number of persons of the State have valuable art materials which they wish to donate to some stable public institution, where they will become available to the general public. Such donations, although they should not be the main source of material, may be made a valuable accessory source of material for the state collection.

Not the least advantage of such a state art collection would be its stimulus toward a comprehensive state policy in regard to the fine arts. At present there is hardly a trace of such an attitude. Each

case that develops is handled as a unit, and without the guidance of general principles, with the result that a confusion is developing which later will require serious revision and organization.

ANNUAL BIBLIOGRAPHY OF THE STATE MUSEUM

Publications by the Museum staff for the fiscal year ending June 30, 1939, or based, at least in part, on the Museum collections, or made in cooperation with the State Museum, are as follows:

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- 1938 New York State Museum. In 34th Ann. Rep't of the Education Department, v. I, p. 319-22
- 1938a A Note for Social-Minded Ecologists and Geographers. Ecology, 19:500-2
- 1939 One Hundred First Annual Report of the New York State Museum. N. Y. State Mus. Bul., 317:1-150
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MUSEUM ACCESSIONS FOR THE YEAR

Accessions are new additions to the Museum. These are classified into the following groups:

- 1 By donation: objects presented to the Museum
- 2 By exchange: for other Museum materials etc.
- 3 By purchase: payment from the Museum budget
- 4 By the staff: collected by the staff during official duties of any kind
- 5 By transfer: from other state departments or other divisions of the State Government, as provided by law

Gifts to scientific and educational institutions are listed at the end of this section.

BY DONATION

Agricultural Experiment Station, Gainesville, Fla.

40 specimens of mosses and liverworts from Florida

Arnold, E. J., Peru, N. Y.

Specimen of *Lycopodon giganteum*

Arnold, Elisha J., Albany, N. Y.

Old steelyards

Old butter sampler

Old Lincoln spigot

Old carpenter's adz

Old iron teakettle

Asbestos Corporation Ltd., Thetford, Can.

4 samples of asbestos

Aspinwall, Dr Franklin E., Miami, Fla.

3 spurious arrowpoints, 1 quartz arrowpoint, Atlanta, Ga.

1 quartz arrowpoint fragment, Stone Mountain, Ga.

Old book on art of healing, 1872

Well's phrenological charts

Book on anatomy of brain, 1826

Health Culture Magazine, 1917-18

Printer's line engraving of phrenological charts

Medical Brief Magazine, 1921

20 miscellaneous historical articles

- Aspinwall, Mrs Franklin E., Buechel, Ky.
 7 copies of Shaker Manifesto
 2 Shaker books, 1836
 Old school book
 Old English grammar, 1822
 Photograph of a Shaker woman, Sister Aurelia White
- Avery, Thurman, Albany, N. Y.
 Big brown bat, Albany, N. Y.
- Baker, Mrs Arnold, Albany, N. Y.
 6 old cyclist prize medals
- Battisi, Elio, Castleton on Hudson, N. Y.
 Specimens of dobson fly, Castleton on Hudson, N. Y.
- Bennett, Donald, Nassau, N. Y.
 Hair worm, Nassau, N. Y.
- Brinkman, Mrs A. W., Altamont, N. Y.
 Nest of red-eyed vireo, Altamont, N. Y.
- Burger, Louis, Albany, N. Y.
 Specimens of ants, Albany, N. Y.
- Calder, Mrs H. W., Ravena, N. Y.
 Great horned owl, Ravena, N. Y.
- Carter, Dr Grace A. B., Rochester, N. Y.
 16 plants from Ontario county, N. Y.
- Carthage Marble Corporation, Carthage, Mo.
 Varieties of polished marbles; Nerobi, Ozark Tavernelle, Ozark Gray
 Veined and Ozark Fleuri
- Chadwick, George H., Catskill, N. Y.
 14 fossils, Erie county, N. Y.
 30 fossils, mainly from the Hudson valley, N. Y.
- Cohen, Joe, Albany, N. Y.
 Specimens of Abbot's sphinx moth caterpillar, Albany, N. Y.
- Cohn, Dr Julius, New York, N. Y.
 4 specimens of *Isoetes* from northern New York and New Hampshire
- Cooley, George R., Albany, N. Y.
 Fossil seaweed, Rensselaerville, N. Y.
- Corning, Dr Erastus, Albany, N. Y.
 3 old microscopes
 Old scale balances and weight
 Old blood pressure apparatus
 Old irrigating or aspirating apparatus
 4 cases of old surgical instruments
- Croneis, Dr Carey, Chicago, Ill.
 Old plates of New York Geological Survey
- Deats, William, Barryville, N. Y.
 132 fossil plant specimens, near Barryville, N. Y.
 65 fossil plant specimens, Pond Eddy, N. Y.
- Deevey, Mrs Edward S., New Lebanon, N. Y.
 Baltimore oriole, New Lebanon, N. Y.
- Dobbin, Frank, Shushan, N. Y.
 43 specimens of plants from New York State
- Dolder, Mrs Jacob, Voorheesville, N. Y.
 Marsh hawk, Voorheesville, N. Y.
- Donnella, A. M., Albany, N. Y.
 Specimens of pine wood-borer, *Derobrachus brunneus* Forst., Albany, N. Y.

- Finke, Mr and Mrs William, Coeymans, N. Y.
Albino red squirrel, Coeymans, N. Y.
- Flower, R. H., Ithaca, N. Y.
3 fossil crinoids, Portland Point, N. Y.
19 graptolites, Grant Hollow, N. Y.
- Follett, Louis E., Saratoga Springs, N. Y.
1 bannerstone fragment, 3 scrapers, 1 triangular arrowpoint, Fish Creek,
N. Y.
- Force, Nelson J., Watertown, N. Y.
Cephalopod, Watertown, N. Y.
- Frederick, A. C., Albany, N. Y.
Specimens of *Incisalia polios* Ck. & Wat., Clarksville, N. Y.
Specimen of *Hesperia leonardus*, Albany, N. Y.
Specimen of *Hesperia comma manitoba*, Bar Harbor, Maine
Specimen of *Plebeius saepiolus*, Wallace, Idaho
Specimen of *Lycaena epixanthe amicetus*, Chester, Maine
- Freeman, Frank T., Albany, N. Y.
Specimens of lice, Albany, N. Y.
- Glenn, J. A., Albany, N. Y.
Eastern bobwhite
Eastern meadowlark
Northern fox squirrel
- Greeley, John R., Delmar, N. Y.
Eastern ruffed grouse, Stephentown Center, N. Y.
Chinook salmon, White Plains, N. Y.
- Hagelstein, Robert, New York, N. Y.
10 specimens of Myxomycetes
- Hamilton, W. J., jr, Ithaca, N. Y.
Meadow jumping mouse, Rensselaerville, N. Y.
Lemming mouse, Rensselaerville, N. Y.
- Hill, Mrs E. D., Schenectady, N. Y.
Old flax spinning wheel
- Holweg, A. W., Albany, N. Y.
12 specimens of plants from New York State
- Ives, Ralph S., Roxbury, N. Y.
4 crude stone implements, Margaretville, N. Y.
- Jameson, Dr Edwin W., Saranac Lake, N. Y.
Golden eagle, Plattsburg, N. Y.
- Johnston, J., Albany, N. Y.
Specimens of ants, Albany, N. Y.
- Kiefer, John C., Brooklyn, N. Y.
Armadillo, Texas
- Kimm, S. C., Herkimer, N. Y.
Old hand-made shingles
- Kuhl, Edward L., Albany, N. Y.
Quartz crystal, Kenwood, N. Y.
- Lantz, Dr Frederick C., Dunkirk, N. Y.
Enameled landscape
- Lasher, Mrs K. N., Newburgh, N. Y., and
Lasher, Mrs Elizabeth, Brooklyn, N. Y.
Old silk hat
Old wooden hat shaper
- Lovely, James C., Glenmont, N. Y.
Domestic fowl, Glenmont, N. Y.

- Lucas, Ralph, Albany, N. Y.
3 old hand-dipped candles
- Matthews, W. A., Rochester, N. Y.
9 specimens of plants from western New York
- McChesney, J. F., Albany, N. Y.
Specimens of caterpillars of walnut datana, Albany, N. Y.
- McClester, T. F., Watervliet, N. Y.
Specimen of European corn borer larvae, Watervliet, N. Y.
- McDonnell, Peter, Rensselaer, N. Y.
Specimen of *Dicerca divaricata* Say., Rensselaer, N. Y.
- Miller, H., Albany, N. Y.
Specimens of sawfly larvae, Albany, N. Y.
- Miner, Mrs Ella M., and Johnson, Mrs Anna B., Richland, N. Y.
Hilton-West Collection, 53 historical objects
- Molloy, K. P., Troy, N. Y.
Eastern tree sparrow, East Greenbush, N. Y.
Great blue heron, Troy, N. Y.
- Montague, Mrs E. D., Pulaski, N. Y.
48 historical objects to be added to Stowell-Davis Collection
- Mosher, William, Hudson Falls, N. Y.
Nest of Baltimore oriole, Hudson Falls, N. Y.
- Myers, W. L., Albany, N. Y.
Specimen of Japanese beetle, Albany, N. Y.
- Newkirk, Mildred, Castleton on Hudson, N. Y.
Specimens of nests of Potter wasp, Castleton on Hudson, N. Y.
- Northrup, H. R., Albany, N. Y.
Specimen of Polyphemus moth, Elnora, N. Y.
- Pauly, K. A., Schenectady, N. Y.
Receptaculites sp. nov.? Trenton Falls, N. Y.
3 crinoids, Sharon Springs, N. Y.
Crinoid slab, Middleville, N. Y.
2 crinoids, Indian Ladder, Helderberg mountains, N. Y.
Starfish?, Indian Ladder, Helderberg mountains, N. Y.
Starfish?, Trenton Falls, N. Y.
Crinoid, Remsen, N. Y.
Crinoid, near Trenton Falls, N. Y.
- Pearce, John, New Haven, Conn.
Southern fox squirrel, Sangerfield, N. Y.
- Peck, Lloyd, East Greenbush, N. Y.
Star-nosed mole, East Greenbush, N. Y.
- Perrine, Irving, Oklahoma City, Okla.
Volcanic breccia, Cayuga Lake, N. Y.
- Pflegl, Frank P., Cauterskill, N. Y.
Fossil coral, Austin's Glen, N. Y.
- Potter Catharine E. B., Whitehall, N. Y.
84 historical objects to be added to the Rear Admiral William Parker
Potter, Sarah W. Potter and Catharine Eights Boies Potter Collection
- Pratt, Loring W., Westfield, N. J.
Ascidian, Muscongus Bay, Maine

- Rau, George, West New York, N. J.
 Specimens of paratype of *Asprothrips rauli* Cwfd., *Encyrtus femorata*,
Encarsia formosa Gahan, *Leptomastidea abnormis*, *Pseudococcus maritimus* Ehrh.,
Lecanium greeni Rau., *Pseudococcus longispinus* Targ., *Phenacoccus gossypii* Ckll.,
 and *Pseudococcus gahani* Green, New York, N. Y.
 Specimens of *Clausonia purpurea* Ishii, and *Pseudococcus comstocki* Kuw.,
 Greenwich, Conn.
 Specimens of *Trionymus* sp., *Phencoccus acericola* King, *Hypogeococcus barbarae* Rau.,
Pseudococcus patulae, *Phenacoccus serratus* Ferria, Saratoga, N. Y.
 Specimens of *Pseudococcus lilacinus* Ckll., Philippine Islands
 Specimens of *Pseudococcus citri* Risso, South Africa
 Specimens of *Phenacoccus hirsutus* Green, Port Said, Egypt
 Specimens of unidentified Coccidae, Fort Lee, N. J.
 Specimens of *Phenacoccus pergandei* Ckll., Nelson, B. C., Canada
- Rickard, LeRoy S., Albany, N. Y.
 Fossil coral, south of Albany, N. Y.
- Rowley, Elmer B., Glens Falls, N. Y.
 Dakeite from Wyoming
 Curtisite, Lake county, Calif.
 3 specimens of Autunite, Grafton Center, N. H.
- Sanderson, W. E., Loudonville, N. Y.
 2 ring-necked pheasants, Loudonville, N. Y.
 "Silky" domestic fowl, Vernon, Conn.
 Eastern wild turkey, Loudonville, N. Y.
 Duck hawk, Albany, N. Y.
 Eastern screech owl, Albany, N. Y.
 Eastern skunk, Loudonville, N. Y.
 Small eastern flying squirrel, Troy, N. Y.
- Saunders, George, New York, N. Y.
 Moose call
- Seymour, George W., Keuka Park, N. Y.
 13 specimens of plants from western New York
- Simmons, Mrs Harry, sr, Albany, N. Y.
 Virginia opossum, Glenmont, N. Y.
- Simons, Mrs E. S., Albany, N. Y.
 Specimens of ants, Albany, N. Y.
 Specimen of praying mantis, Holland Patent, N. Y.
- Sipple, Sister Frieda, Pittsfield, Mass.
 Shaker's scrapbook
 Shaker's postcard album
 Box of old buttons
 Old Shaker musical transcriptions
- Smith, Jay, Chester, N. Y.
 12 specimens of Dakeite from California
- Smith, Minnie J., Salamanca, N. Y.
 Sora, near Rudolph, N. Y.
- South Family of Shakers, Watervliet, N. Y.
 Photograph of Elder George Clarke
- Southworth, C., Thedford, Ont., Can.
 Specimen of fossil wood, 10 miles northwest of Thedford, Ont., Can.
- Stebner, Harold P., Albany, N. Y.
 Hammerstone, near Albany, N. Y.
- Stevens, Eldress Rosetta, Mount Lebanon, N. Y.
 Old Shaker mirror board

- Stoner, Mrs Lillian C., Albany, N. Y.
English sparrow, Albany, N. Y.
- Thomas, Frank, Catskill, N. Y.
Old booklet—"Head and Feet"
- Thomas, Wilfred, Catskill, N. Y.
6 historical objects
- United States National Museum, Washington, D. C.
Cryptozoon undulatum, Funkstown, Md.
- Van Alstyne, George, Rensselaer, N. Y.
Ring-necked pheasant, Stuyvesant, N. Y.
- Van Auken, R., Rochester, N. Y.
Fresh-water jellyfish, Garnet lake, N. Y.
- Vander Veer, Drs Edgar and Albert, Albany, N. Y.
Specimen of petrified tree from Arizona
- Vickery, W. V., Gloversville, N. Y.
Fresh-water sponge, Gloversville, N. Y.
- Walker, Raymond C., Albany, N. Y.
Civil War captain's sword
Civil War captain's dress sword
- Whitbeck, Bertha L., Aquetuck, N. Y.
Land patent of Peter Coeymans, 1714
- Whitcomb, Professor Lawrence, Bethlehem, Pa.
5 slabs of graptolites, Essex, N. Y.
- Wickes, Frank, Greenville, N. Y.
Old book on surveying
- Williams, Arthur E., Rensselaer, N. Y.
Old baby carriage
- Wilson, A. Eugene, Guilderland, N. Y.
Iron mushroom ventilators
Iron castings for mushroom ventilators
Specimens of Guilderland glass
Old metal canteen
- Wingate, Milton, Guilderland, N. Y.
Bullet mold
Old powder flask
4 gun flints

BY EXCHANGE

- Clausen, Dr Robert, Ithaca, N. Y.
116 plants from New York State
- Gray Herbarium, Cambridge, Mass.
100 specimens of plants
- New York State College of Agriculture, Ithaca, N. Y.
106 specimens of plants
- Rose, Lewis N., San Francisco, Calif.
300 specimens of plants of California
- Royal Ontario Museum, Toronto, Can.
An extensive series of ores, minerals and rocks from various Canadian localities
- United States National Museum, Washington, D. C.
104 specimens from the Tully beds of New York State
A collection of 326 fossils
- University of Pennsylvania, Philadelphia, Pa.
138 specimens of plants

BY PURCHASE

- Arnold, Elisha J., Albany, N. Y.
 Old stove
- Hanson, Mrs Gladys M., St Louis, Mo.
 Hand woven coverlet
 Carved wooden stomacher
 Old wooden bootjack
- South Family of Shakers, Watervliet, N. Y.
 Shaker arch kettle and accessories
- Thomas, Wilfred, Catskill, N. Y.
 87 historical objects
- Thompson, Helen, Binghamton, N. Y.
 Agate, Greene, N. Y.
- Ward's Natural Science Establishment, Rochester, N. Y.
 A collection of 15 minerals
 7 specimens of *Eutaxocrinus whiteavesi*, Windom, N. Y.

BY MUSEUM STAFF

- Adams, Dr Charles C., Albany, N. Y.
 Old Shaker bookmark
 Shaker souvenir folder
 Specimens and work of locust leaf-miner, Fairport, L. I., N. Y.
- Chamberlain, Kenyon F., Albany, N. Y.
 Specimens of *Anacaena limbata* Fab., Pittsburg, N. H.
 Specimens of *Laccobius agilis* Rand., and *Haliphus triopsis* Say, Cornwall, N. Y.
 Specimen of *Canthydrus gibbulus* Aube, Dunedin, Fla.
 Specimen of *Hydrocanthus oblongus* Shp., Winter Park, Fla.
 Specimens of miscellaneous beetles, Delmar, N. Y.
 Several thousand specimens of miscellaneous beetles, New Lebanon, N. Y.
 Eastern miller's thumb, New Lebanon, N. Y.
- Glasgow, Dr Robert D., Albany, N. Y.
 Specimens of pigeon louse, *Esthiopterum columbae* L., ichneumon flies, *Megarhysa atrata* Fab., and weevil reared from red pine shoots, Albany, N. Y.
 Specimens of blackfly larvae, pupae and adults, North Elba, N. Y., Lake Placid, N. Y., Ray Brook, N. Y., Underwood, N. Y., and Sabael, N. Y.
 Specimens of blackfly adults, Speculator, N. Y.
- Glasgow, Dr Robert D. and DePort, Paul, Albany, N. Y.
 Specimens of giant thorny-headed worm; adults and eggs from pig, and reared larvae from insect host, Albany, N. Y.
- Goldring, Dr Winifred, Albany, N. Y.
 About 700 specimens from key beds of the Hamilton and Tully of eastern and east central New York
- Paladin, Arthur, Albany, N. Y.
 Specimen of parasitic fly, *Ornithoctona* sp., Albany, N. Y.
- Stoner, Dr Dayton, Albany, N. Y.
 Cedar waxwings from Queechy lake, N. Y., and Voorheesville, N. Y.
 Eastern phoebe, Voorheesville, N. Y.
 Nest of eastern song sparrow, Voorheesville, N. Y.
 Nest of barn swallow, Voorheesville, N. Y.
 Skull of ring-necked pheasant, Albany, N. Y.
 Skull of short-tailed shrew, Voorheesville, N. Y.
 White-footed mouse, Albany, N. Y.

Whitney, Alvin G., Albany, N. Y.

Specimens of caterpillars of silver-spotted skipper, Albany, N. Y.

Woodruff, Dr J. G., Hamilton, N. Y.

20 rock sections and 216 fossil specimens from Wellsville Quadrangle, N. Y.

BY TRANSFER

New York State Conservation Department, Albany, N. Y., through Gardiner Bump, partial albino woodcock, Lowville, N. Y.; through E. W. Littlefield, part of scotch pine, Sloansville, N. Y., and through Dr Emmeline Moore, collection of fishes from 1938 survey of the fresh waters of Long Island; also squilla from Nyack, N. Y., and shrimp from Jones Beach, Long Island, New York.

New York State Education Department, Albany, N. Y., through Henry Byron, old electric bulb used in the Education Building when first opened

GIFTS TO INSTITUTIONS AND INDIVIDUALS

Berkshire Industrial Farm, Canaan, N. Y.

11 specimens of rocks and minerals

Central School, Averill Park, N. Y.

15 specimens of rocks and minerals

Gilson, Herring, Atlanta, Ga.

Hematite

Godfrey, Rose, Ware Shoals, S. C.

Iron ore (magnetite)

Iron ore (hematite)

Zinc ore with pyrite

Hodgson, Russell, Ventura, Calif.

4 specimens of minerals

McAuliffe, Venetia, Atlanta, Ga.

Collection of fossils

Swartz, Dr F. M., State College, Pa.

11 ostracods from the Manlius limestone

William A. Bass Junior High School, Atlanta, Ga.

12 mineral specimens

THE NEW YORK STATE MUSEUM'S HISTORICAL SURVEY AND COLLECTION OF THE NEW YORK SHAKERS

BY CHARLES C. ADAMS Ph.D.

Director, New York State Museum

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INTRODUCTION

A small group of religious enthusiasts came in the eighteenth century to New York City from England, in the hope of finding religious freedom. They settled near Albany, at Watervliet, in 1776, acquired extensive lands, prospered, and came to be known as Shakers. Other settlements were established at Mount Lebanon and at Sodus Bay, which later moved to Sonyea, and the movement spread to New England, Ohio, Pennsylvania, Kentucky and Florida. We are concerned primarily with those of New York State, as the head of the organization was at first at Watervliet (figure 24), where their leader, Ann Lee, lived. Later the official headquarters were located at Mount Lebanon (figure 25). The different communities had much in common although there were also certain distinctive local differences.

The greatest development of the sect came between 1830 and 1860, and the decline was well under way by about 1870. At present, 1939, there are only a few dozen surviving members.

Briefly, the major significance of the group is that it was the most successful communal society ever developed in America. It built its social and economic system upon the early American culture, perfected it in several respects, and made numerous minor improvements. As a group the Shakers are unique in American

history. Very strict religious discipline, celibate life, isolation from the "world" were distinctive features of the sect. The influence of the aggressive industrial, economic and social environment, as well as internal factors, ultimately led to the decline and assimilation of the Shakers by the dominant culture.

The Shakers acquired large tracts of land and were very successful farmers. They began early to industrialize their farm products, such as the growing of herbs, medicinal extracts, garden seeds, dried corn and apples, applesauce, and the canning of vegetables and fruits. Large-scale production was a rather natural outgrowth of their mode of life; it was in part no doubt due to the large communal families that necessitated the production and preservation of food and other supplies on a large scale. This industrial bent even extended to the production of cloth, clothing, rugs and chairs. Their economic system was based on a combination of intensive agriculture, manufacture and trade, and they were thus leaders in certain phases of mass production in America.

The Shakers originated, or at least were the primary developers of the small seed package and the herb business, which extended over much of Eastern United States. The medicinal liquid extracts were prepared by the vacuum pan method, thus hastening the concentration of these extracts. This vacuum pan was made available to Gail Borden in making the first evaporated milk. The dried corn, dried apple, applesauce and the canned vegetable business was conducted on an extensive scale. The Shakers invented a variety of mechanical contrivances, including the circular saw (figure 26), the original of which, according to the Shakers, is in the Historical Collection of the State Museum (Avery, '84, p. 7; White and Taylor, '05, p. 312; Simmons Guide for Millmen, vol. 14, No. 2, Mch-Apr. 1922, p. 5-6). They excelled in basketry, making between 50 and 75 kinds. The chair business is still conducted. The tables, chairs, store and work counters, chests, cupboards and built-in drawers all showed great mechanical skill, simplicity and perfection of execution.

Their early acquisition of large tracts of land, the construction during their period of expansion of extensive and substantial buildings, and their cultural isolation were conditions favorable to the preservation of many of their industrial accomplishments. Their accomplishments are unique not only in New York State history, but almost equally so for the history of the United States.



Figure 24 Characteristic types of the former Shaker buildings at the Watervliet or Niskayuna Shakers, near Albany, N. Y.



Figure 25 North Family group at Mount Lebanon Shakers. Picture taken previous to 1893.

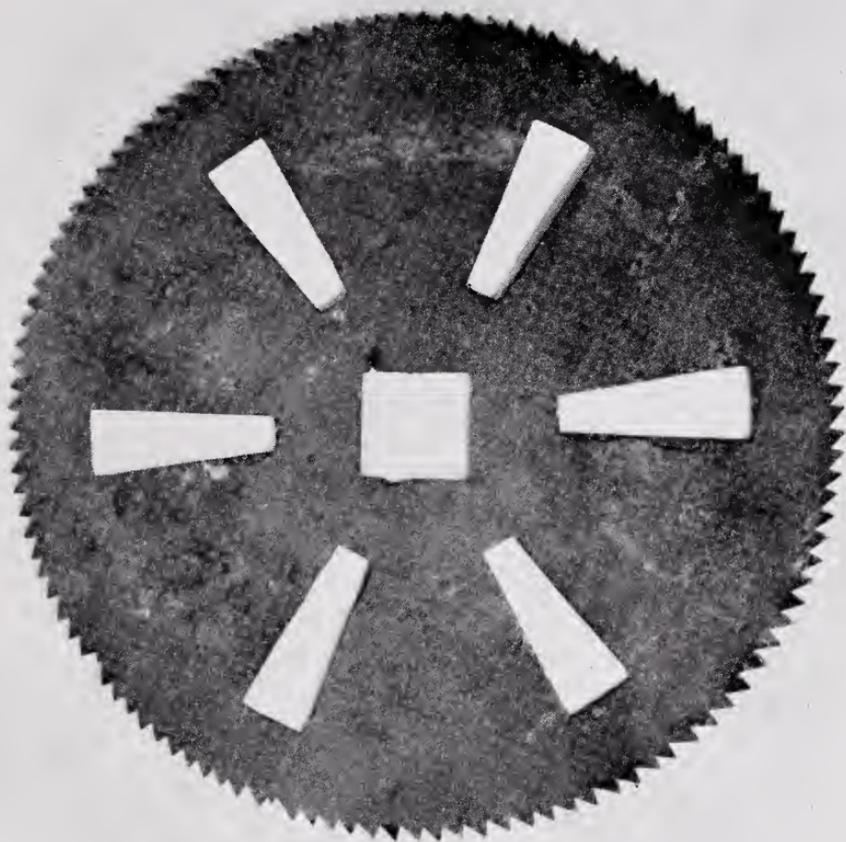


Figure 26 Shaker circular saw, invented by Tabitha Babbitt.

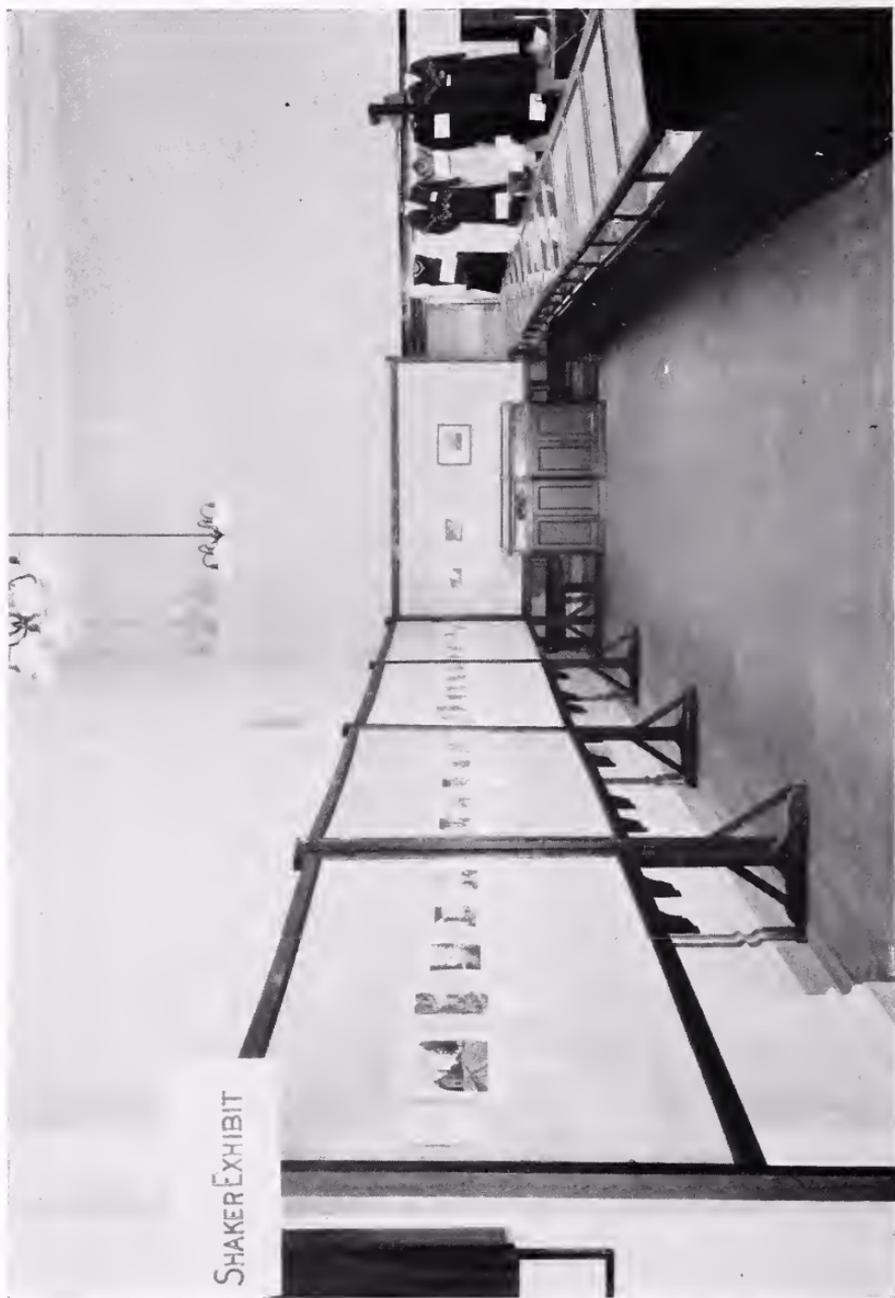


Figure 27 Photographs displayed on the screen in connection with the State Museum temporary exhibit illustrating the industries of the Shakers.



Figure 28 Another view showing Shaker household arts, as displayed in the State Museum temporary exhibit.

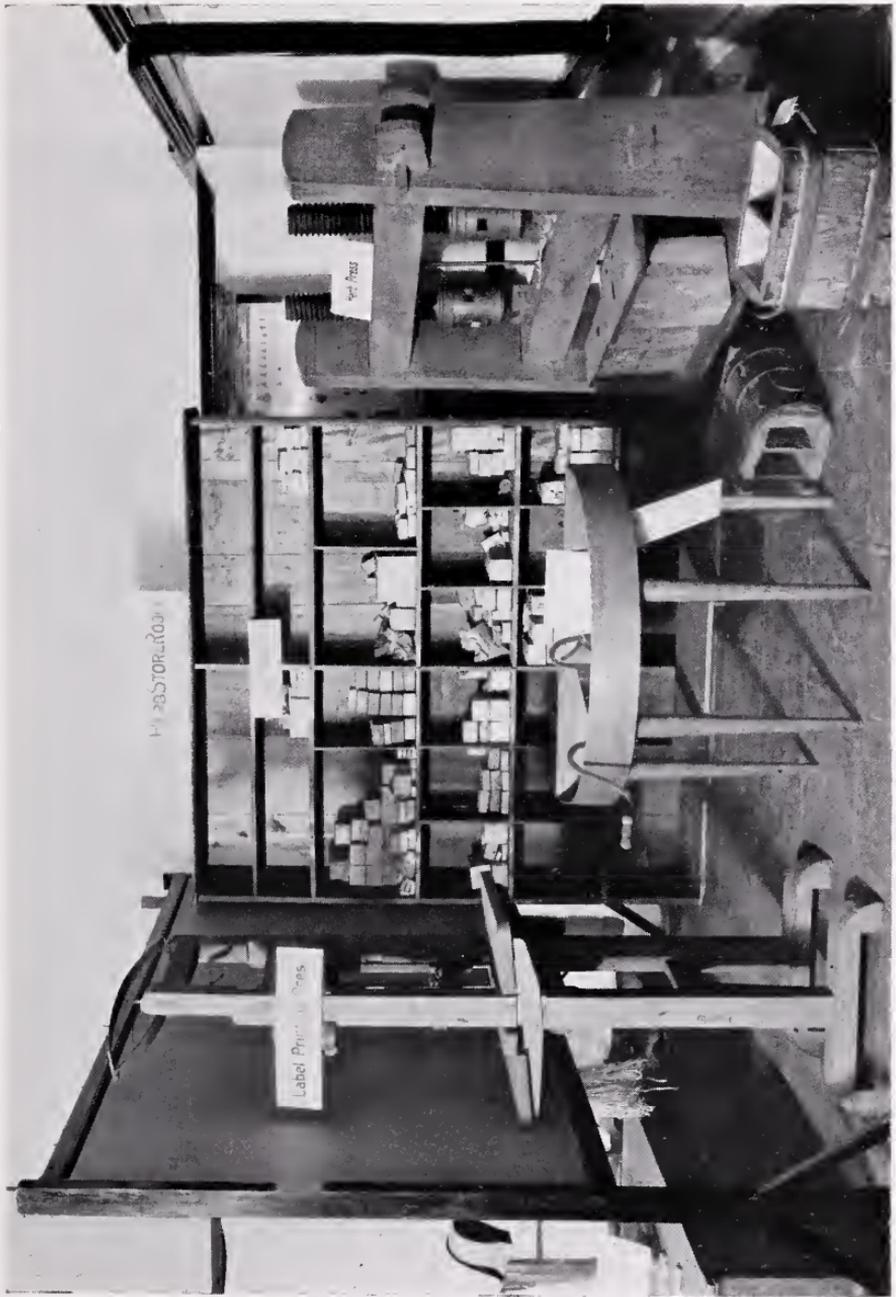


Figure 30 Objects illustrating the herb industry of the Shakers at Watervliet. Temporary exhibit at the State Museum.



Figure 31 Shaker sisters' workshop, Watervliet or Niskayuna Shakers, near Albany, now destroyed.



Figure 32 Rear entrance to Shaker sisters' workshop shown in figure 31.

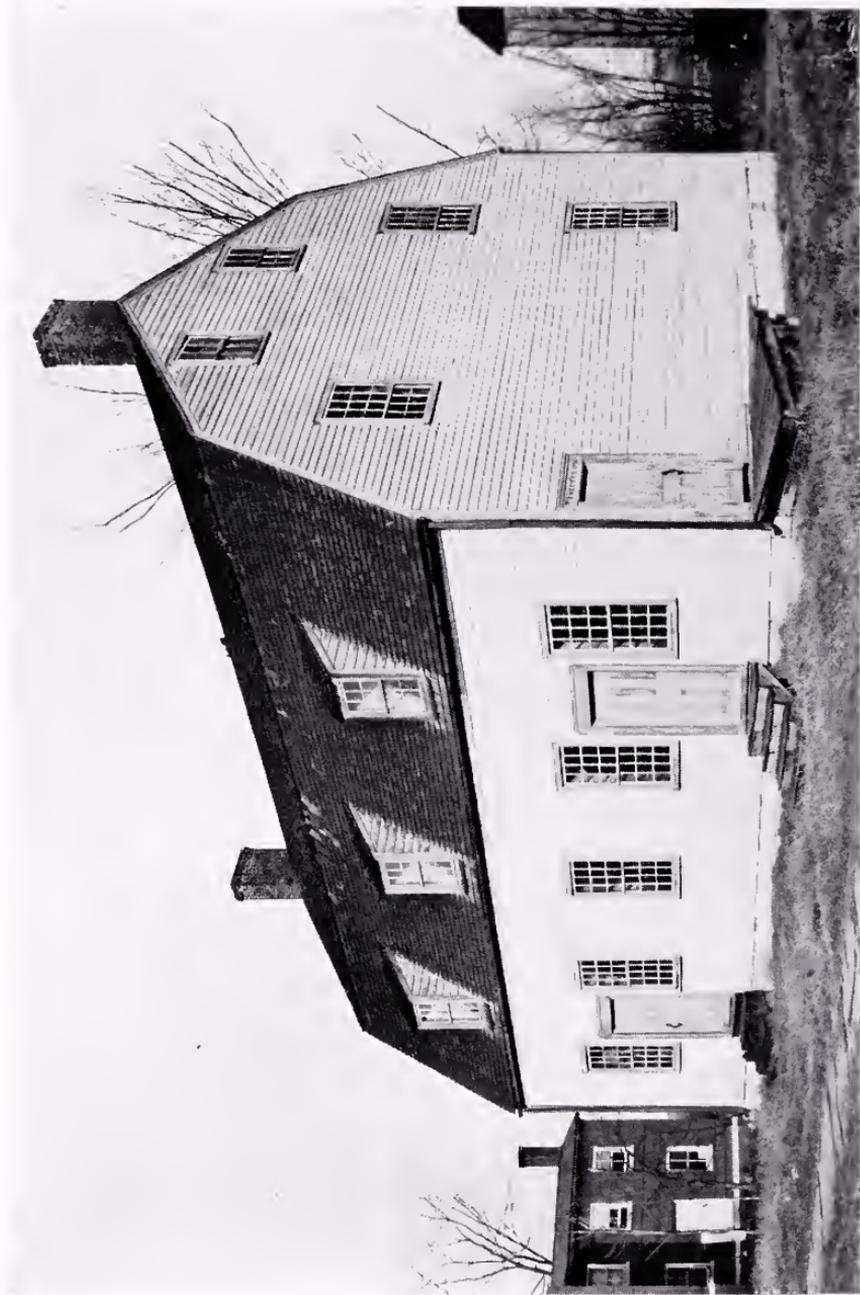


Figure 33 Old meeting house, Watervliet or Niskayuna Shakers, near Albany, N. Y. Built in 1791, now destroyed.



Figure 34 Herb shop or factory, Watervliet or Niskayuna Shakers, where the herb business was conducted, now destroyed.



Figure 35 Shaker canning factory at Watervliet, now destroyed.



Figure 36 Old mill, formerly powered by water, later by steam. Watervliet Shakers, now destroyed.



Figure 37 Shaker herb storeroom in factory building shown in figure 34.

With the decline of the sect and the sale of their lands, the State Museum recognized the urgent need of preserving a record of this important phase of our history. It was realized that unless this was done at once the evidence might be lost forever. Contributing factors were the interest in antiques, leading to the dispersal of the objects themselves and to the loss of facts concerning them, as well as the natural deterioration of the property accompanying the economic decline, and the scattering of printed and written documents on the sect.

As the New York State Museum is the central official state agency for historic objects, it became the responsibility of the State Museum to do all it could, with its limited facilities, funds and storage space, to preserve as much as possible of these Shaker materials.

My attention was first called to the Shakers more than 15 years ago by my then young friend, William F. Winter, of Schenectady, whose summer avocation was photographing the beautiful scenery in the Adirondacks. With keen esthetic appreciation, he had recognized beauty in the buildings and handicrafts of the Shakers. When I came to the State Museum in 1926, he became my chief adviser on Shaker matters. It was, in fact, his suggestion of a loan of some of his Shaker photographs that led to the first exhibition of Shaker industries in the State Museum in the spring of 1929 (figures 27-30).

Understanding the Shakers involves not only study of their distinctive features but also knowledge of the general social, religious and economic conditions that prevailed during the past century. During this period there developed in this State, in addition to the Shakers, the Oneida Community and the Mormons; greatly contrasting movements. The Mormons moved West, the Oneida Community died out, and the longest to persist are the Shakers.

THE SHAKER HISTORICAL SURVEY

When the salvaging of the Shaker materials was undertaken by the State Museum in 1927, the importance of this problem was generally very little understood and appreciated. Indeed there was even aggressive opposition to the work of preserving these valuable objects.

The State Museum began its study of the Shakers with the same ideas and procedures as are regularly applied to scientific studies. When Albany County acquired the property of the first Shaker settlement (The Church Family) at Watervliet and began to con-

vert it into the county home and airport, certain Shaker buildings (figures 31-36) were scheduled to be changed or destroyed. Through the cooperation of Leo Doody, county superintendent of public welfare, a blue print of the property was provided which indicated just which of the buildings were to be destroyed or changed. E. J. Stein, State Museum photographer, was instructed to make a photographic survey of the grounds, buildings and many of the contents. Efforts were also made to acquire the contents of the various buildings, such as those of the herb house, including its machinery (figures 34, 37-39). Then there began a race between destruction and salvage. The State Museum acquired many objects of value (figure 40) although, in spite of our efforts, much valuable material was lost. This survey and the preservation of the materials were later extended to Mount Lebanon and to Hancock. On account of inadequate assistance, the cataloging, labeling and care of the materials were long delayed, but in recent years, with the help of the W.P.A., this work has been expanded to include architectural drawings at both Watervliet (figure 66) and at Mount Lebanon (figure 65).

As one visits the historical or industrial history collections and museums in various parts of the United States, and inquires about their detailed records, one is greatly impressed with the frequent lack of detailed information accompanying both the collections and the exhibits. Even in the case of the Shakers the recording of many mechanical objects was begun a generation too late, after the men and women who were most familiar with the objects made and the tools used had died. Special efforts have been made to secure all the information possible, and excellent cooperation has been received from many of the Shakers in recording certain details. In spite of this assistance much has been lost, particularly in regard to the machine shops, the tanneries, clockmaking, the textile methods, brickmaking and certain phases of engineering and the remarkable and varied use of water power, for, in spite of the relative abundance of man power, the Shakers pioneered in developing labor-saving devices, which are usually supposed to be the product of a shortage of labor.

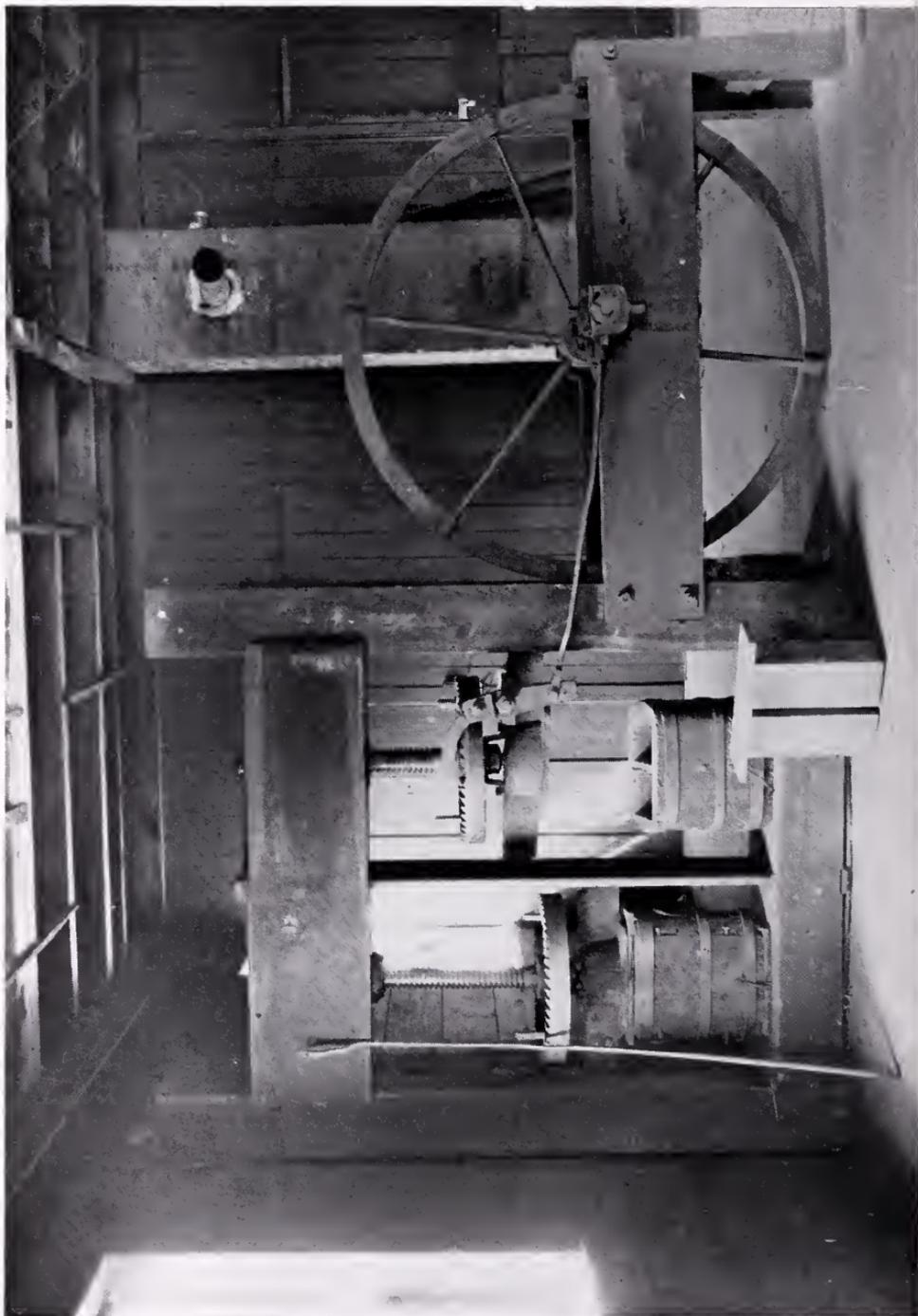
In the present study the general procedure has been:

- 1 To collect objects made by Shakers, including when possible, samples of the raw materials, tools and machinery, the finished product and information about the leadership in these activities.

- 2 To make photographic records of the physical environment, the buildings—exterior and interior—including unique and signifi-



Figure 38 Another set of shelves in the herb factory storeroom.



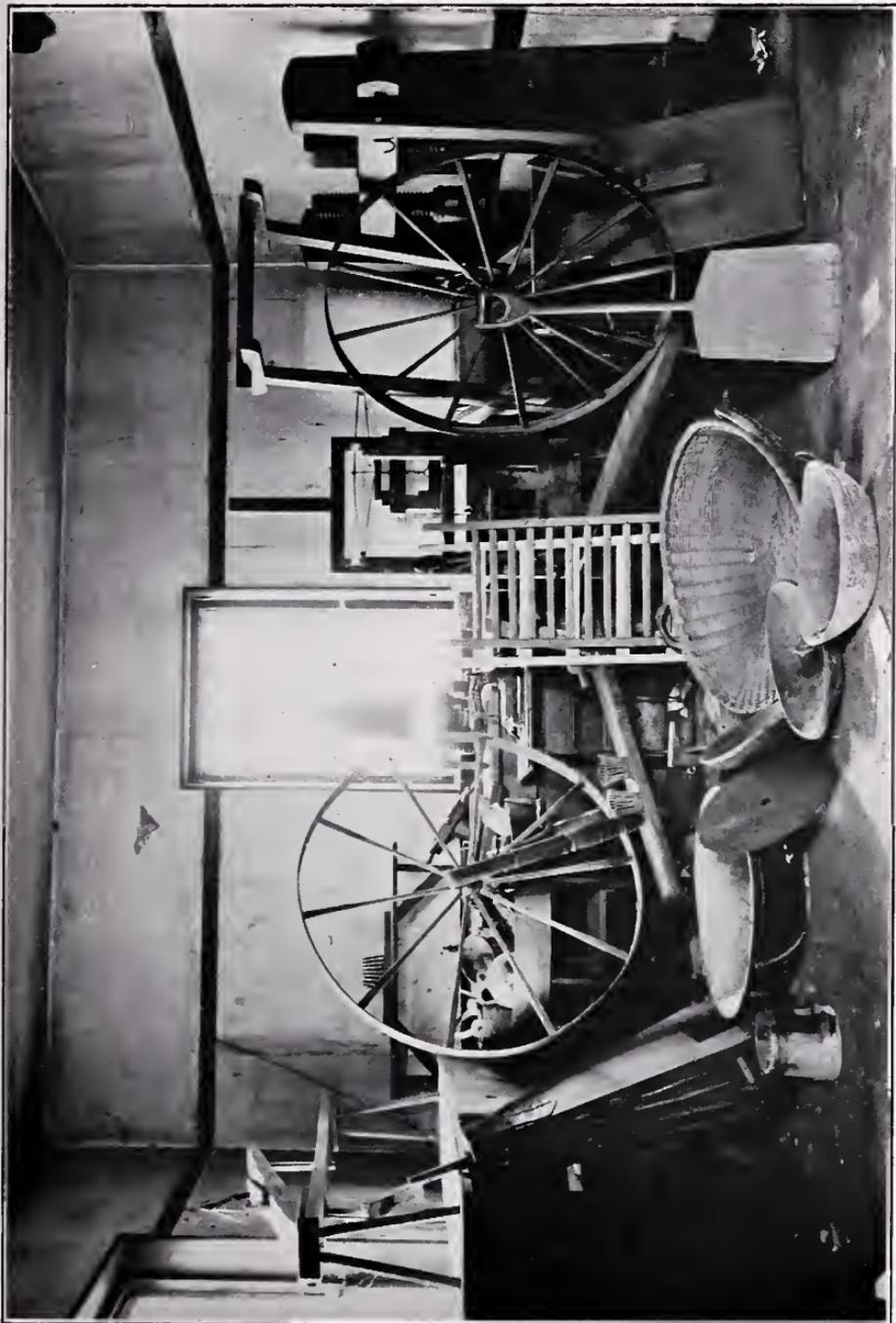


Figure 40 A part of the historical collection, of household and industrial materials, secured for the Museum at Watervliet near Albany, N. Y.

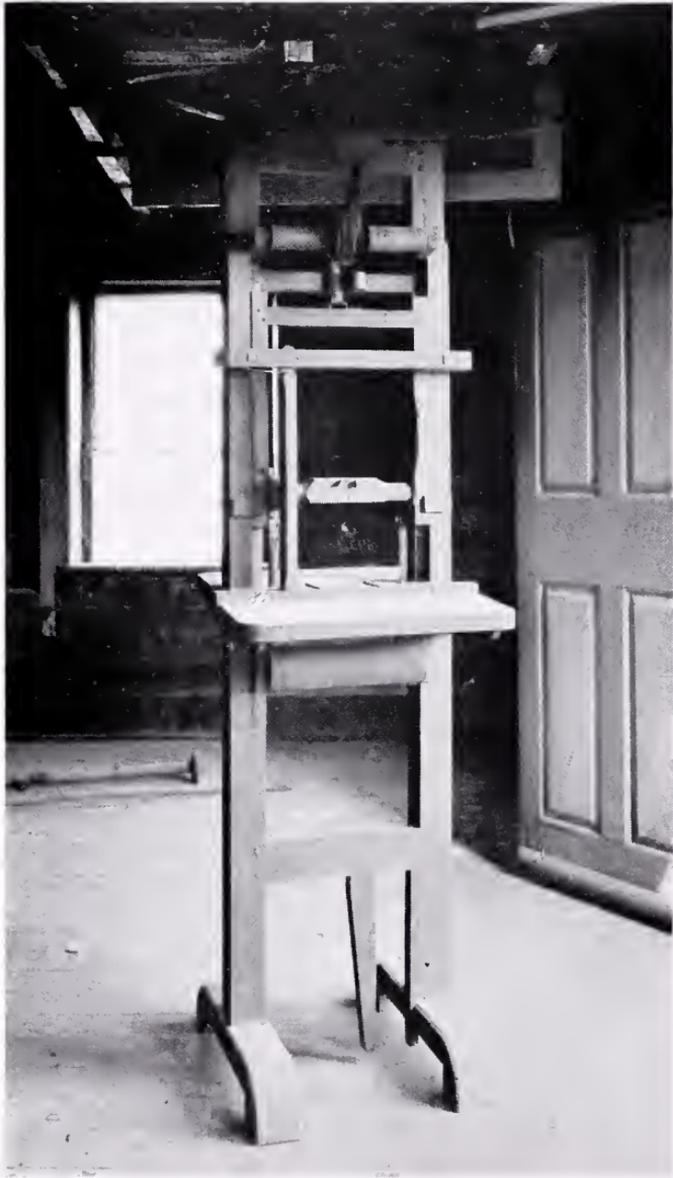


Figure 41 Shaker printing press from Watervliet. Used for printing small labels. Also shown in figure 30.



Figure 42 Envelops used for the seed packages by the Shakers, New Lebanon.



Figure 43 Flax hetchel on frame. Used for combing out the coarse parts from the fine fibre preparatory to spinning. From Watervliet.

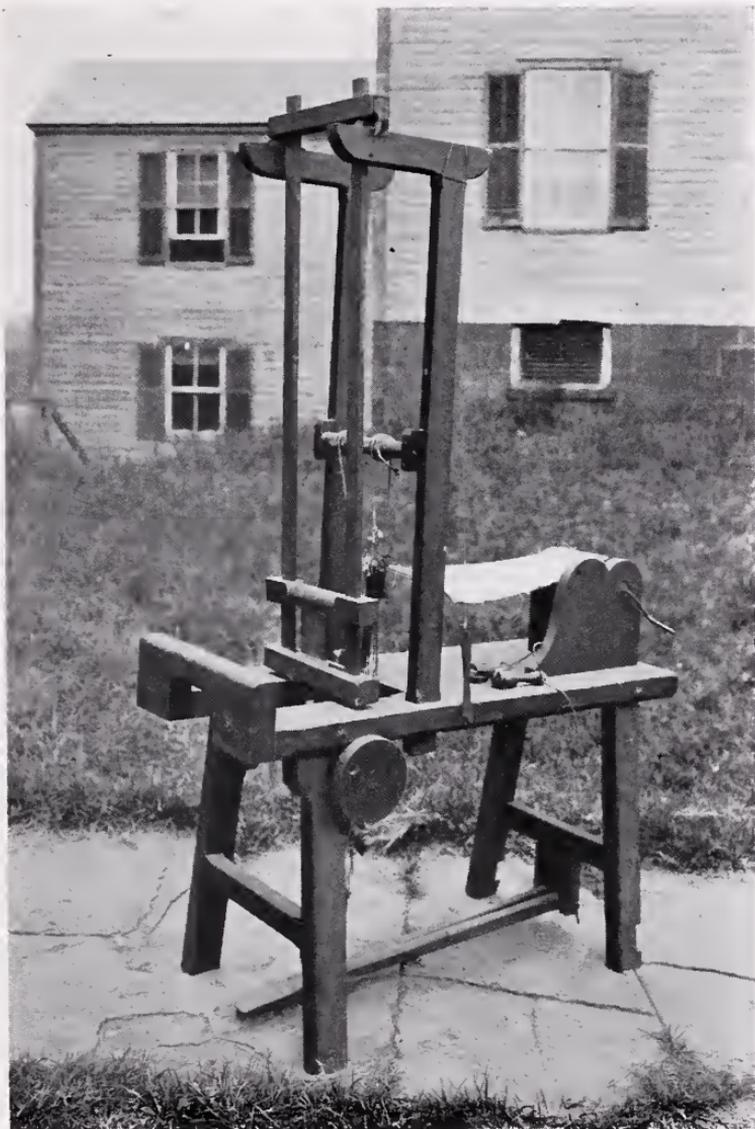


Figure 44 Loom used for weaving narrow braids or tapes of cloth or straw. From Watervliet.



Figure 45 Oval boxes of various sizes, from New Lebanon.

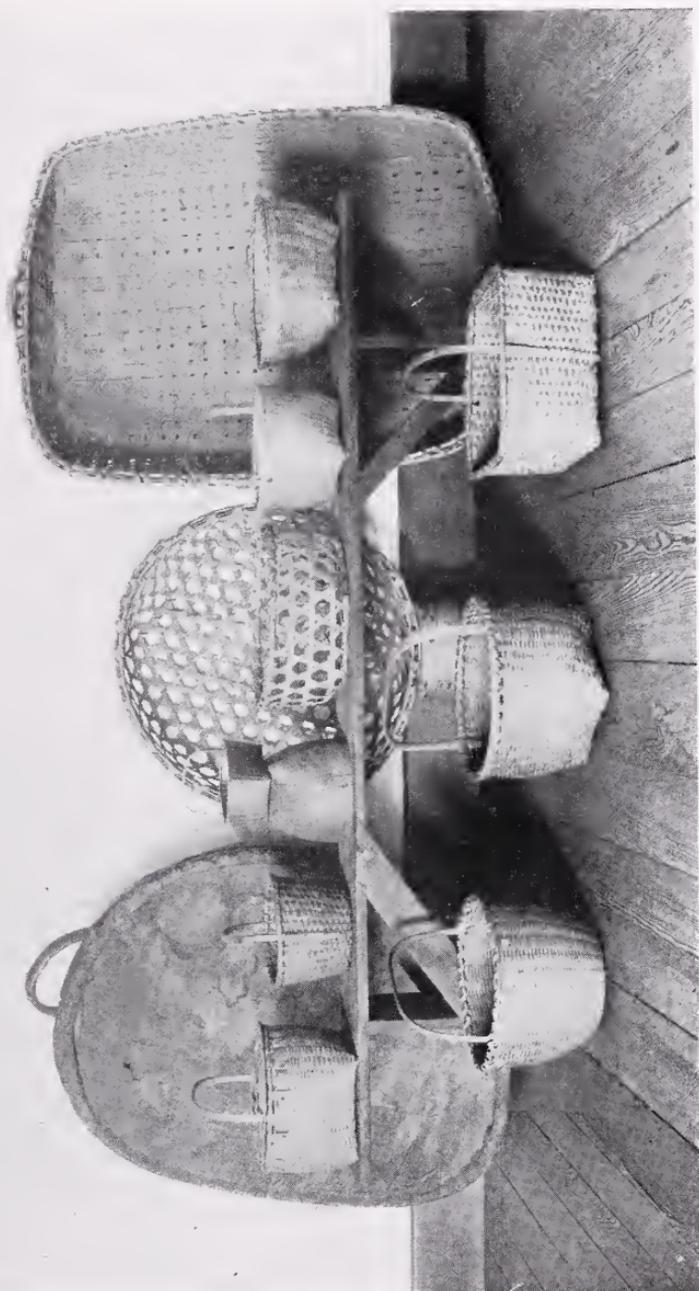


Figure 46 Collection of Shaker baskets.

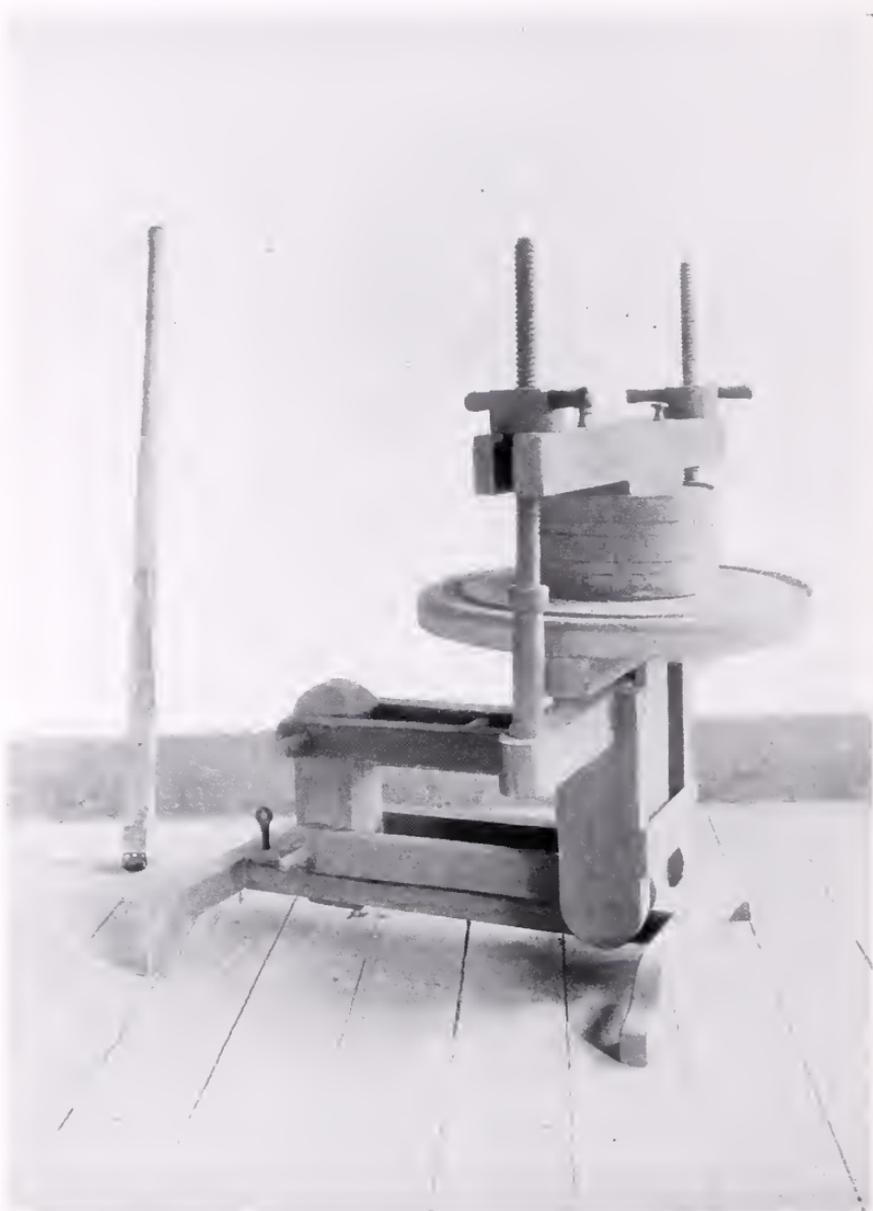


Figure 47 Early cheese press, Mount Lebanon Shakers. Collection of the New York State Museum. Photograph by W. F. Winter jr.

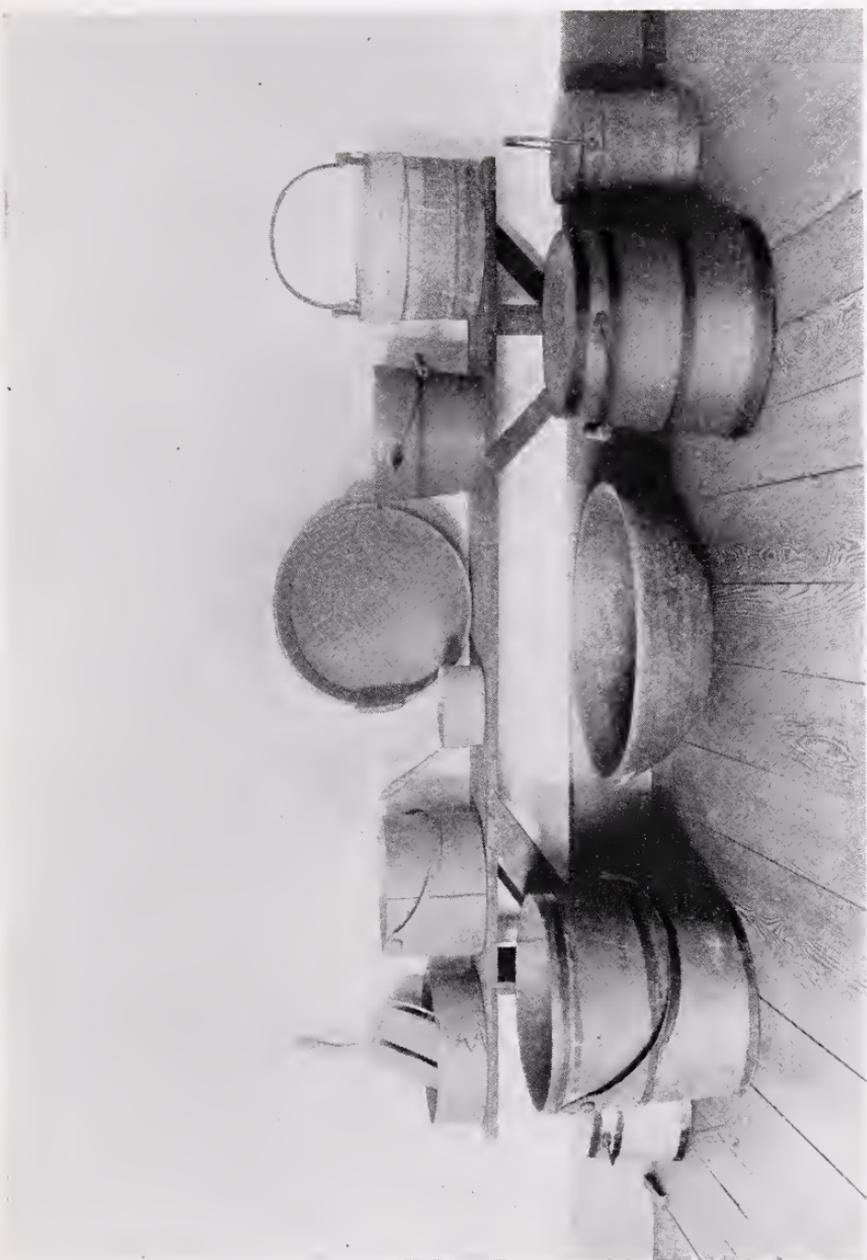


Figure 48 Collection of coopers' ware.



Figure 49 Samples of Shaker chairs, stools and rugs made at Mount Lebanon.



Figure 50 Store and home of North Family. Mount Lebanon. 1939.



Figure 51 View of Shaker bake room, North Family, Mount Lebanon. Photograph taken in 1882, showing the interesting bread-slicing machine in action, and the large ovens.



Figure 52 The large barn of the North Family, Mount Lebanon. Built in 1859.

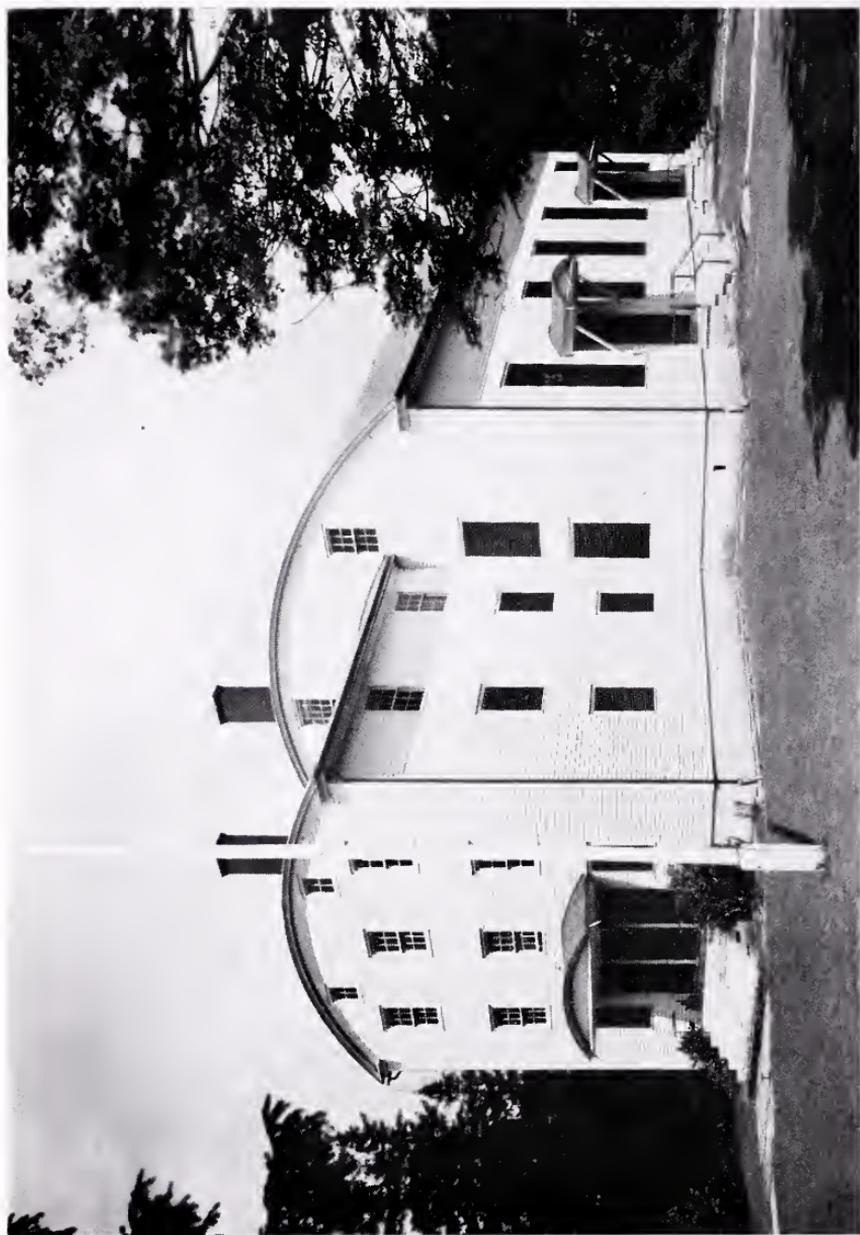


Figure 53 The meeting house of the Church Family of Mount Lebanon Shakers.



Figure 54 Methods of supporting the arched roof of the Church Family meeting house shown in figure 53.



Figure 55 Platform used for the Shaker sisters to mount horses in the horseback riding days. North Family, Mount Lebanon.



Figure 56 Frame for holding oxen when shoeing. Church Family, Mount Lebanon.



Figure 57 Showing the built-in series of drawers, the chimney closet, and a door; all very characteristic Shaker structures. Watervliet. Main Dwelling, West Family, Watervliet.



Figure 58 Temporary Shaker exhibit conducted by the Albany Institute of History and Art and the New York State Museum. November 1938.



Figure 59 Another view of the temporary Shaker exhibit shown in figure 58.



Figure 60 Temporary Shaker exhibit. William F. Winter photographs on the walls. Shaker chest and spinning outfit.



Figure 61 Temporary Shaker exhibit. Chest of drawers and stove.



Figure 62 Chest of drawers. Shaker exhibit. State Museum Collection.



Figure 63 Another Shaker chest of drawers. State Museum Collection.

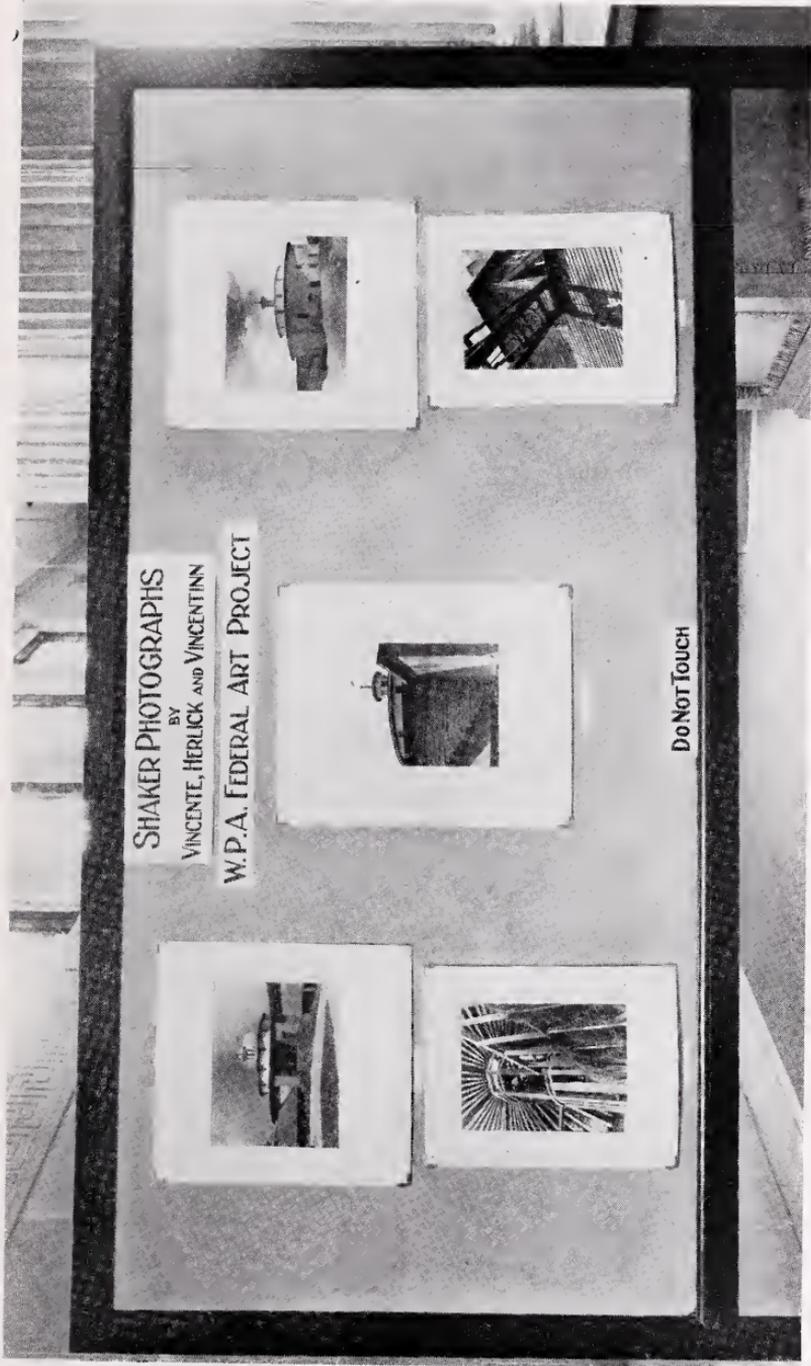
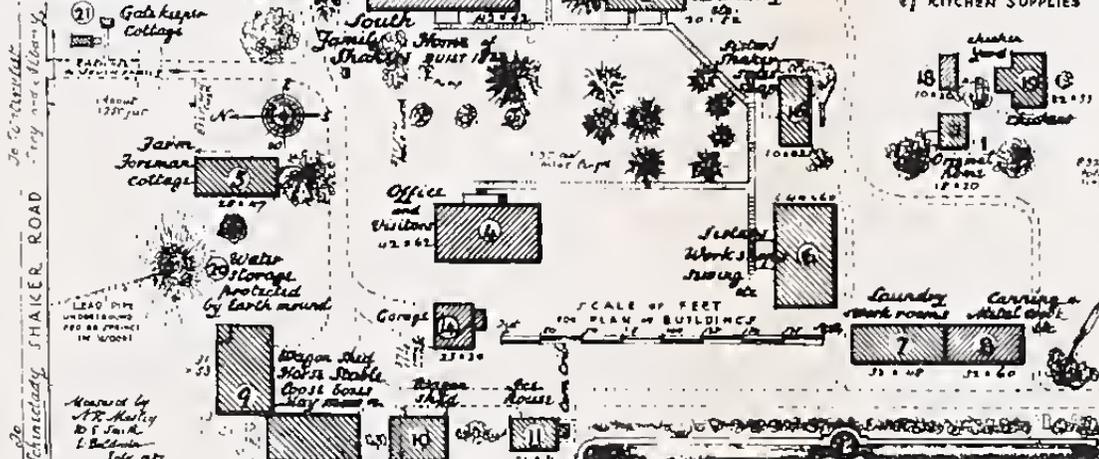


Figure 64 Temporary loan exhibit of Shaker photographs by the W.P.A. Federal Art Project. Photographs by Vincente, Herlick and Vincentinn.

GROUP PLAN OF BUILDINGS OF THE SOUTH FAMILY OF SHAKERS

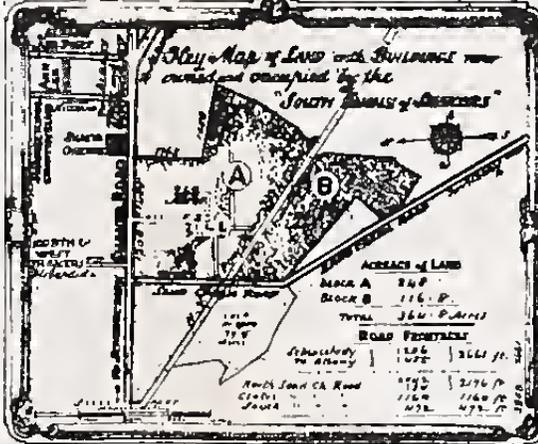
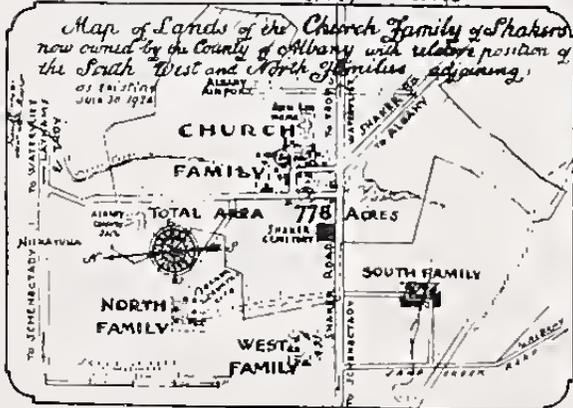
WITH SOME DATA OF THE CHURCH NORTH & WEST FAMILIES THE GROUP OF FOUR FAMILIES TOGETHER CONSTITUTING THE

WATERVLIEET ALBANY COUNTY NEW YORK COMMUNITY OF SHAKERS



SOUTH FAMILY LIST OF BUILDINGS EXISTING JULY 1937

- 1 SMALL BUILDING WITH CUPOLA SAID TO BE THE OLDEST
- 2 FRAME OCCUPIED AS BROTHERS' DORMITORY WITH CARPENTER SHOP
- 3 BRICK - BUILT 1822 AS HOME FOR THE SOUTH FAMILY
- 4 OFFICE & VISITING FRIENDS' HALF EACH FOR MEN AND WOMEN
- 5 FRAME FARM FOREMAN RESIDENCE MOVED HERE FROM WEST FAMILY
- 6 SISTERS' WORK SHOPS
- 7 ORIGINAL HAND ROW MODERNISED LAUNDRY
- 8 FRUIT & VEGETABLE CANNING WITH METAL WORKING - TINS FOR CANNING ETC
- 9 HORSE STABLE MAY NOW BE WAGON SHED ETC
- 10 ICEHOUSE WITH CORN CRIB ETC
- 12 CATTLE BARN YOUNG STOCK CORN BILO ETC - PROVIDED WITH LOWER MIDDLE AND UPPER FLOORS ACCESS DRIVEWAYS ETC
- 13 FARM IMPLEMENTS PORAGE ETC
- 14 MODERN BLOCK GARAGE
- 15 FINE AND FENCE WOOD WINTER STORE
- 16 SHAKER SALES SHOP
- 17 KITCHEN SUPPLIES
- 18 DISUSED PERIVES
- 19 CHICKEN YARD
- 20 WATER BK. STORAGE TANK GRAVITY SUPPLY BY LEAD PIPE FED BY SPRING IN WOODS TO NORTH VALLEY TANK IN EARTH MOUND
- 21 GATEKEEPER COTTAGE SHAKER ROAD ENTRANCE TO THE EXISTING SOUTH FAMILY !!



List of Buildings of the Church Family July 20 1936

1	Shaker School	40 x 55	11	1788	2375.2
2	Administration	46 x 61	11	Wagon Shed	12.857
3	Building	32 x 45	11		23.141
4	Room	30 x 41	11	dry ice building	17.124
5	Room	41 x 70	11	ice house	20.711
6	Room 1 shed	23 x 41	11		
7	ice house	24 x 43	11	Room	18.170
8	ice do	32 x 115	11	ice h	41.121
9	ice house	27 x 60	11	ice house	22.121
10	Shedding do	27 x 22	12		12.112
11	Shedding do	30 x 127	12	ice h	20.110
12	ice house	12 x 22	12	ice h	12.112
13	ice house	21 x 21	12	ice h	12.112
14	ice house	21 x 21	12	ice h	12.112
15	ice house	21 x 21	12	ice h	12.112

MAP OF PROPERTY AS NOW OWNED AND OCCUPIED BY *The South Family of Shakers* FOUNDED AT WATERVLIEET IN THE TOWN OF COLONIE IN ALBANY COUNTY NY. BY Ann Lee in 1776

Figure 66 Architect's drawing of a section of a Watervliet Shaker dwelling. W.P.A. Project. Watervliet.

cant details of construction. Old photographs have also been collected, with the names of the persons and dates, when these can be determined. Photographs were made in detail of the equipment and the handicrafts, such as the printing press (figures 41-42), the looms (figures 43-44), oval boxes (figure 45), baskets (figure 46), wooden and tin ware (figures 47-48), costumes, chairs (figure 49), other furniture (figure 51), and equipment (figures 55-56). The lack of a moving picture machine has made it impossible to record certain processes of manufacture which would be well worth recording. The total number of these photographs secured is over 700.

3 To make architectural drawings of the buildings at Watervliet and Mount Lebanon in detail, similar to those standardized by the Works Progress Administration, Historic American Buildings Survey (figure 65).

4 To record all available data in a card catalog, as follows:

Record Catalog

Cat. no.	Name of object	
Acc. no.		Date rec'd
Orig. no.		No. of specms.
Locality		Condition
Donation or purchase		Collector
Donor's address		
Published data		Photo or neg.
Remarks and history		
Cataloger		No. of cards
New York State Museum		Historical Collections

It is surprising to learn how little is recorded in the American literature on museums concerning the detailed methods of making this kind of historical survey and collection, and the methods used in the preservation of the materials and the records.

If surveys of this general character were made of the various state historic reservations, and if they were conducted as modern historic museums, their educational and cultural value could be greatly increased. This would involve a definition of policy regarding each plant, inventory catalogs and exhibits based on pertinent information and their interpretation to the public (Cf. Adams '29).

PRESERVATION OF SHAKER HISTORIC MATERIALS

1 **Documentary Collections.** The main collections of publications and documents are as follows:

1 *The Congressional Library.* The Congressional Library has the collection made by J. P. MacLean, the author of the first

important bibliography on the Shakers ('05). He also indicated in what libraries the various documents were located.

2 *Public Library of New York City*. A bibliography of this collection was published in 1904 (Bul. N. Y. Public Library, 8: 550-59).

3 *New York State Library*. The State Library has both publications and many manuscripts. J. I. Wyer, 1929, 111th Annual Report, N. Y. State Library, p. 51, states: "Shakers. A collection of 75 volumes, 420 pamphlets, 56 broadsides, and 135 manuscripts printed by or treating directly of Shaker history and polity. Over 550 titles are included, 80 of which are not in the MacLean bibliography of Shaker literature, published in 1905."

4 *Western Reserve Historical Society*, Cleveland, Ohio. Through the active and intelligent efforts of W. H. Cathcart, director of the Western Reserve Historical Society, was secured the most complete series of printed publications and the most important and extensive collection of official documents and correspondence in existence by the Shakers. This collection is in excellent order, is card indexed, and includes a complete card index of all Shakers. No comprehensive and exhaustive study of the Shakers can be made without working with this collection. Mr Cathcart writes:

Our collection contains about 1800 items, including books, pamphlets and broadsides, written by or about the Shakers. The manuscripts number about 3000, but we have never made an estimate of the number of letters. The membership file contains at least 20,000 names. We can not attempt to give you the number of photographs, as they too will have to be counted some time in the future (Cathcart, '27).

5 *Williams College Library*, Williamstown, Mass. The collection of Shaker literature is described by Peyton Hurt, librarian, in his Annual Report for 1938-39, p. 8-9, dated June 30, 1939, as follows:

In 1931, Edward B. Wight of the class of 1907, presented to the Library his excellent collection of about 150 bound volumes, 400 pamphlets, and 50 manuscripts, all relating to the Shakers, part of which had been collected by Mr Wight while he was a student at Williams College. With the exception of some of the rare anti-Shaker tracts published at the end of the eighteenth century, this collection is well representative of all that has been written by and about the Shakers. Among other interesting items it includes the earliest Shaker imprint (Bennington, 1790); the first edition of the "Shaker Bible"; early Kentucky and Ohio imprints; MacLean's Bibliography of Shaker Literature (Columbus, 1905), and a complete file of the official journal of the sect, 1871-1899.

Work on cataloguing this collection was begun by Mr L. H. Bloedel, and had recently been completed by Mr Finney. This catalogue is designed to supplement and to correct some of the errors in the now existing Shaker bibliographies, of which MacLean's is the most complete.

Because of the flame of Shakerism, which burned so long and so brightly in this locality, is slowly flickering out, it is fitting that Williams College should collect, preserve, and make available for study the records of these unorthodox Believers. Thanks to the collecting zeal and generosity of Mr Wight, we now have one of the outstanding Shaker collections and we hope, with assistance, to go further in the acquisition of rare missing items. The Library is endeavoring to fill in some of the lacunae. Recently twenty-six Shaker items have been purchased, the first additions to the Wight Collection since its acquisition. Mr Finney will soon visit each of the several Shaker communities to search for and try to purchase what books and pamphlets he can find. But certain items, such as the first bound book published by the Shakers—Richard McNemar's *Kentucky Revival* (Cincinnati, 1807)—, the attacks made on the sect by the brothers Rathbun and by James Smith of Kentucky, and Amos Taylor's *Strange Principles, Conduct and Character of the People Known as Shakers*, (Worcester, 1782), are so rare that the Library must only hope to be so fortunate as to receive them by gift.

6 *Berkshire Athenaeum*, Pittsfield, Mass. The Athenaeum has a valuable collection of Shaker literature which is described by F. H. Henshaw, librarian, as follows:

This Library has a well-rounded collection of printed material and manuscripts relating to the Shakers. Printed materials include advertising matter, broadsides and posters used to advertise Shaker products. Our manuscript material includes letters, song-books and diaries. We have no historic Shaker objects.

7 *American Antiquarian Society*, Worcester, Mass. Clarence S. Brigham, director of this historical society, states:

We have about 400 printed titles relating to the Shakers, including a complete set of Valentine Rathbun (the early 18th century editions.) This is a fair collection, but nothing comparable to a really large collection. I have always hoped to be able to increase our Shaker material, since this Library is so strong in the history of American religious sects. We have no Shaker objects of any kind, as we do not maintain a museum. We have several important Shaker manuscripts, including a *Historical Record of the Shaker Church at Harvard, Mass.*, by Thomas Hammond, 1853; the *Records of the Harvard Shaker Church, 1790-1871* (1 vol.); and the *Records of the Meetings of Friends at Bellefonte, Pa.*, including births, burials and marriage ceremonies.

8 *Ohio State Archeological and Historical Society*, Ohio State Museum, Columbus, Ohio. This society has a valuable collection of documents, as indicated by the detailed report by K. W. McKinley, assistant librarian, as follows:

1 Letters, 1831-87	19 pieces
2 Letters, April 30, 1837-May 13, 1887, and Miscellaneous.....	38 pieces
3 Circular Letters	11 pieces
4 Shaker Diaries, 1823-69.....	9 pieces
5 Shaker Diaries, 1870-92.....	10 pieces
6 Laws of the Church and Community.....	6 pieces
7 Spiritual Communications, 1840-60.....	93 pieces
8 Spiritual Communications, 1841-60.....	8 pieces
9 Divine Revelations and Communications, 1841-50.....	10 pieces
10 Manifestations of Faith and Religious Experience, 1843-70....	12 pieces
11 Tree of Heaven—Instrument James Mott, Mount Union, 1844...	1 piece
12 Autobiographies of Elder Issacher Bates.....	2 pieces
13 Religious Writings, 1839-78.....	11 pieces
14 North Union Covenant Books, 1835-85	
Subscription Books, 1876-85, Mount Union Membership and Believers Lists, 1842-52.....	7 pieces
15 Hymns, 1838-88	40 pieces
16 Copy of Shaker Children's Newspaper, Children's Lessons and Others, 1846-73, 1904.....	5 pieces
17 Roll Book—Pleasant Hill, Ky., 1833; Notes on the School, 1844; North Union School Record, 1869-74.	
Miscellaneous Arithmetic Book.....	5 pieces
18 Poems, 1833-62	14 pieces
19 Abstracts of Current Events, 1842; May 20, 1843, by James Prescott	1 piece
20 Receipts, 1827-88	43 pieces
21 Indentures and Articles of Agreement, 1830-77.....	150 pieces
22 North Union Community Articles of Agreement, Sept. 1845-May 1853	1 piece
23 North Union Community Articles of Agreement, Aug. 11, 1884-Apr. 1885	1 piece
24 North Union Community Cash Book, Jan. 3, 1844-Dec. 18, 1865	1 piece
25 Watervliet Community Cash Book, Oct. 16, 1856-Sept. 1, 1872	1 piece
26 North Union Community Cash Book, June 25, 1860-Aug. 1889	1 piece
27 North Union Community Cash Book, Jan. 1, 1862-June 1869..	1 piece
28 North Union Community Cash Book, Jan. 1, 1880-April 28, 1884	1 piece
29 Watervliet Community Cash Expenditures, Jan. 1, 1865-Dec. 31, 1877	1 piece
30 North Union Community Cash Book, Jan. 16, 1868-Dec. 31, 1879	1 piece
31 North Union Community Cash Book, Office Day Book, Jan. 1, 1869-Dec. 12, 1870.....	1 piece
32 North Union Community Cash Book, Office Day Book, Jan. 3, 1871-Aug. 20, 1872.....	1 piece
33 North Union Community Cash Book, Mar. 16, 1874-1882....	1 piece
34 North Union Community Cash Book, Family Accounts, 1880-81	1 piece
35 North Union Community Cash Book, Jan. 1-Oct. 1, 1882.....	1 piece
36 North Union Community Cash Book, Aug. 5-Oct. 7, 1887....	1 piece
37 Watervliet Community Cash Book, 1892.....	1 piece
38 Watervliet Community Ledger, June 1802-June 1822.....	1 piece
39 Watervliet Community Ledger, Jan. 1, 1840-Mar. 10, 1861,...	1 piece
40 Watervliet Community Ledger, Jan. 1, 1847-Apr. 8, 1882....	1 piece
41 Union Village, Account Book, Jan. 2, 1824-May 3, 1829.....	1 piece

42 North Union Community Account Books, Jan. 1, 1839-Dec. 1841	1 piece
Aug. 3, 1854-June 10, 1861; Jan. 4, 1867-July 11, 1868; Jan. 1873-Dec. 1884	5 pieces
43 Watervliet Community Factory Accounts, Aug. 1847-May 1874; Miscellaneous Account Books, 1860-84.....	7 pieces
44 North Union Community Scrap Book.....	1 piece
45 Miscellaneous; Letters, Notes, Books etc.....	62 pieces

9 *Grosvenor Public Library*, Buffalo, N. Y. Mildred E. Ross, reference librarian, reports as follows:

In 1937 the following statistics were compiled:

Since 1905, the Grosvenor Library has added 46 of the titles listed in the MacLean bibliography, making a total of 147. The Grosvenor has 18 of the 23 journals containing accounts of Shakers, appended to the MacLean list. With the addition of the titles not in the MacLean bibliography the Grosvenor Library Shaker collection consists of 278 entries, which includes 163 titles of Shaker books, 46 references to Shakers in other books, and 69 magazine articles by and about Shakers.

Since 1937 a collection of some 90 titles was purchased and added to the Library's Shaker collection.

The oldest book in the Grosvenor Shaker collection is the 1808 edition reprinted in Albany of Richard McNemar's *The Kentucky Revival*. The second oldest title in the Grosvenor collection is the 1810 edition of *The Testimony of Christ's Second Appearing* . . . by Benjamin Seth Youngs published in Albany.

Another title published in 1810 is *Transactions of the Ohio mob*, called in the public papers, "An expedition against the Shakers" by Benjamin Seth Youngs, Miami County, State of Ohio, Aug. 31, 1810. This pamphlet, noted by Mr MacLean as one of the scarce pamphlets, is in the Library's collection in its original form.

One of the blank books mentioned by Mr MacLean to record new music and new songs is in the Grosvenor collection. This unique volume is a *Manuscript Hymn Book* of the Shakers, containing some 567 songs with words and music all noted by hand. The hymnal opens with "A Valient (*sic*) Worrior (*sic*)" dated September 10, 1843, with the note "The above song was taken from the little book given by the Holy Savior and was represented by six seals showing the good qualities of a brave soldier."

The complete list is published in the *Grosvenor Library Bulletin*, (Vol. 22, No. 4, pp. 65-119, June 1940, by Esther C. Winter and Miss Ross. This report states (p. 69) that the Newberry Library of Chicago has 209 items.

10 *Wisconsin Historical Society*, Madison, Wis. This society, as reported by Annie A. Nunns, assistant superintendent, has "nearly 100 items in book and pamphlet form, about equally divided, referring to Shaker literature. The earliest book was published in

1807 and the earliest pamphlet was published in 1815. They contain material on the history, industries, doctrines, principles, sermons, hymns and catalogues issued by and about the Shakers."

11 *Connecticut State Library*, Hartford, Conn. James Brewster, state librarian, very kindly sent a detailed record of the Shaker materials in the Connecticut State Library. This consists of two series. The first is "The Enfield Shaker Collection," consisting of 275 cards, including: Shaker History; Theology, ideas on current topics, hygiene and diet, and music. The second series forms the "General Library Collection," and consists of 322 cards, including Shaker letters, religious writings, history, philosophy and sanitation. Of these 47 cards, 28 list 226 separate items, of which 213 duplicate the Enfield Collection.

2. **Shaker Historic Objects.** In addition to the above-mentioned library materials bearing on the Shakers, there are historic objects, from bricks and furniture to buildings, that must be taken into account in any adequate study of Shakers. Some of these are:

1 The sites of existing and former Families. In New York State these are located at Sodus Bay, Sonyea, Watervliet and Mount Lebanon. Excavations would no doubt also reveal old materials of value. There are also many sites in other states in varying degrees of preservation. That of the Canterbury Shakers, north of Concord, N. H., is the best existing example. Mention should also be made of the Sabbathday Lake Shakers in Maine and those at Hancock, Mass.

2 Shaker furniture has long been on sale and is widely distributed, as well as certain other items such as oval boxes. There is probably a large amount of such material in existence.

3 Berkshire Museum, Pittsfield, Mass. Has a small Collection of Shaker materials, which has at times been exhibited.

4 Fruitland and Wayside Museum, Inc. This is conducted by Clara Endicott Sears, Harvard, Mass. This private exhibit and collection is described by O'Brien ('29).

5 Darrow School, New Lebanon, N. Y. This boys' school purchased the property of the Church Family at Mount Lebanon and thus acquired a considerable collection of Shaker materials. Cf. Richards '36.

6 Ohio State Museum, Columbus, Ohio. Has a small exhibit of Shaker objects.

7 Western Reserve Historical Society, Cleveland, Ohio. This exhibit consists of a small, well-displayed series of Shaker objects.

8 Shakertown, Ky. Efforts have been made for the public to acquire the 800 acres of Shaker property for a public museum. For an excellent account of the Kentucky Shakers see D. M. Hutton, *Old Shakertown and the Shakers*. 1936. 2d edition, Harrodsburg, Ky.

9 New York State Museum, Albany, N. Y. The Historic Collection of the State Museum contains the largest collection of Shaker materials possessed by any museum. The collection is particularly noted for its industrial materials, wood products, tinware, wood and metal working tools, herb and broom material, the largest collection of photographs and architectural drawings, and mechanical equipment, particularly that used in the herb industry, and a valuable series of baskets. Textiles are represented by samples of linen and wool and textile equipment.

TEMPORARY SHAKER EXHIBITS

In recent years several temporary displays of Shaker photographs, Shaker furniture and other objects have been made. Those known to me may be briefly mentioned as follows:

1 **New York State Museum, Albany, N. Y.** This exhibit was prepared by William F. Winter jr, Dr and Mrs Edward D. Andrews and Sister Alice Smith. This was on display from June 17, 1930, to July 1, 1932, (figures 27-30).

2 **New York State Museum, Albany, N. Y.** A second exhibit was prepared by William L. Lassiter and was on display from September 1, 1932, to July 1, 1933.

3 **Albany Institute of History and Art, and the New York State Museum, Albany, N. Y.** A joint exhibit was prepared by R. Loring Dunn and William L. Lassiter, and was displayed from November 2 to 30, 1938. Mr Winter displayed 40 Shaker photographs, to which reference is made later (figures 58-63). A number of individuals also contributed to this exhibit.

At the same time that this exhibit was on display at the Albany Institute of History and Art, a loan of Shaker photographs made by Vincente, Herlick and Vincentinn, was on display at the State Museum, from the Works Progress Administration, Federal Art Project, through the courtesy of Mrs Audrey McMahon (figure 64).

4 **Berkshire Museum, Pittsfield, Mass.** The Berkshire Museum displayed a collection of photographs by William F. Winter jr, and furniture by Dr and Mrs Edward D. Andrews from November 3, 1938, to January 2, 1939.

5 **Lenox Library Association, Lenox, Mass.** An exhibit of Shaker furniture by Dr Edward D. Andrews, and photographs of "Applied Photography" by William F. Winter jr was displayed from August 23 to September 8, 1934.

6 **Whitney Museum of Modern Art, New York City.** An exhibit of Shaker furniture by Dr and Mrs Edward D. Andrews, and of "Shaker Portfolio" by William F. Winter jr, was displayed from November 12 to December 12, 1935. Cf. Andrews ('35); Winter ('39) and H. D. Adams, Brooklyn Daily Eagle, November 24, 1935, p. C. 13; and New York Herald Tribune, November 12, 1935.

Public recognition of the esthetic quality of Shaker furniture seems to have expanded with the recent wave of interest in antiques. But it would be a very serious error to assume that it has been limited to that field. Competent artists have visited the Shaker villages, studied them carefully, and have gone away fascinated with their charm and simplicity. Thus Charles Sheeler has utilized their results (Rourke '38; Williams '39).

THE SHAKER COLLECTION OF THE NEW YORK STATE MUSEUM

The Shaker Collection of the New York State Museum is the outgrowth of a sustained plan to make it supplementary to all printed and documentary materials in portraying every important aspect of the life of the Shakers from the industrial, economic, social and esthetic points of view. The zeal with which the early converts devoted themselves to their cause and the very strict discipline of the sect are fundamental to understanding the quality of workmanship which characterizes all Shaker undertakings.

The economic system which the Shakers built was basically agricultural. They possessed large farms and cultivated them extensively and intensively. Their religious beliefs restricted their lines of activity, and as a rule they did not emphasize animal industries, although they had dairies, poultry and sheep; but they concentrated primarily on field crops, such as broom corn, corn for canning, orchard crops for dried apples and applesauce, herbs for medicine, and a variety of plants for the seed package business. From the forest they obtained wood for baskets, furniture, chairs and cooperage. In order to dispose of the surplus beyond the needs of their Families, as well as to produce an income, a rather extensive trade was developed with traveling agents, as in the case of the seed business. The textile, herb and chair businesses were important, as were also the products of the machine shops.

To preserve the objective evidence of all these activities, including the physical environment, physical plant, the means of production, manufacture and distribution, makes necessary the collection of many pieces of bulky equipment. The buildings, work shops or factories, and foundries could not of course be preserved, but with the aid of drawings and photographs, supplemented by the smaller equipment and tools, a useful record has been made. Little evidence remains of the tanneries, machine shops and brick yards, other than photographs, mechanical details and certain products.

The physical environment and physical plant. Some of the older photographs in the State Museum collection show the appearance of the Shaker buildings and grounds, and an extensive series of photographs, made in recent years by Winter, Stein and Baldwin, supplemented by diagrams of the Watervliet and Mount Lebanon Families property, and architectural drawings of many of the important buildings, give a good idea of the setting and the physical plant.

Materials and equipment. The herb industry is well represented by machinery used in preparing the herbs (figures 30, 39) and in cutting and compressing them into package lots. The collection also includes a large number of the original packages of herbs. Of broom corn the main stages are represented from the raw materials to the finished brooms, including the machinery and tools for wiring and sewing them. The paring and quartering machines for dried apples and apple butter are well represented. Included also are knives for cutting the corn for drying, and photographs of the drying pans, placed over the laundry to utilize the heat.

Some of the equipment used in making the medical extracts are yet intact, and are shown in photographs, but others, such as the vacuum pan used by Gail Borden is now in the United States National Museum (Report of the U. S. Nat. Mus. for 1932, p. 88, 1932).

Equipment for the textile industry includes carding combs, hatchels, spinning wheels, yarn reels, looms, large and small, for chair tape and cloth, and samples of a great variety of cloth, including garments, neckerchiefs, linen grain sacks and towels.

Among the woodworking industries are numerous samples of woodworking tools, chisels and planes, pails, barrels, firkins, oval boxes, series of bulk measures, chairs, chests, built-in drawers, store and work counters, beds, cheese presses, tables, baskets and many small articles of special interest.

The metal industries include a variety of tools, wooden patterns, tinware, brass kettles, Shaker stoves of several patterns, laundry and pressing irons, shovels, handmade and cut nails, and a variety of minor objects.

The Shakers made for medical purposes friction electric machines, of which the Museum has two, and fragments of others. Unfortunately the collection contains no Shaker-made clocks.

The photographic series is as follows:

1 James Irving, Troy, N. Y., made between 1861 and 1868, 195 photographs.

2 Edwin J. Stein, New York State Museum, 1927, 77 negatives.

3 William F. Winter jr, Schenectady, N. Y., 1930-31, 218 negatives.

4 Nelson E. Baldwin, Works Progress Administration Project No. 50,470, 1939, 221 negatives.

Holger Cahill, director of Works Projects Administration Art Program, after a recent visit to the Shaker Collection in the State Museum, wrote:

It seems to me that you have a collection of unique value from a historical, industrial and esthetic point of view. Certainly the history of these extraordinary communities is part of our country's cultural pattern, and we need to know much more about it.

From the industrial point of view the design of these Shaker objects of everyday use which you have in your Museum should be of the greatest inspiration to the designer and craftsman as these objects become better known to them. In this connection I would like to quote a statement of a distinguished artist and designer, Mr Charles Sheeler, who says: "I respect these examples of Shaker craftsmanship not because they are antique but because I wish that the spirit which produced them were still active in our society."

From the esthetic point of view these examples of Shaker craftsmanship are in every way remarkable. They are beautiful in themselves, and they should be an inspiration to all craftsmen and designers of objects of everyday use. The utensils and inventions of the Shakers also, it seems to me, throw a very interesting sidelight on the score of Yankee inventiveness.

WILLIAM F. WINTER, JR., PHOTOGRAPHER OF SHAKERS

(Figure 67)

Attention has been called to the contribution which Mr Winter has made to the recognition of the cultural significance of the Shakers and to the development of the Shaker Collection of the New York State Museum. His contribution also has a broader significance. Americans have long been too prone to accept certain European



Figure 67 Portrait of William F. Winter jr

opinions of American culture and science, but for a generation conditions have been changing and more independence has developed. It is of special interest, therefore, to note the recognition of the intrinsic and relative value of our native culture and science. There was a tardy realization that there is beauty and significance in our local culture. Mr Winter was one of those who have been able to recognize these unusual values in our immediate environment. He saw beauty in the Shaker handicrafts and recognized the importance of their contribution to American life. He began to study them about 17 years ago and to make a record of their culture by photography. He made friends among the Shakers, informed himself of their history and ideals, and was able to interpret them almost from within as well as from without. Possessed of a reflective mind, he devoted much thought also to the perfection of his technic, no doubt greatly aided by his years of experience in the research laboratory. He had worked out a program for an experimental study of his ideas in his endeavor to develop them. This resulted in part in his "Shaker Portfolio." He contemplated a text to accompany these photographs. The depression thwarted the completion of this comprehensive plan, but a preliminary series of photographs was made for Mrs Juliana Force of the Whitney Museum of American Art. His untimely death left this major objective unfinished. Very fortunately we have a sketch of his ideas and ideals in his illustrated article in the U. S. Camera (Vol. 1, No. 3, p. 22-25; 73, 1939). He was in hearty accord with modern documentary photography as expressed by Newhall ('38) and as practised by Berenice Abbott ('39).

Mr Winter was born in Albany, N. Y., October 10, 1899, attended the public schools, studied engineering courses at the General Electric Company at Schenectady and became a laboratory research assistant there. He died October 25, 1939, and is buried at Albany. He is survived by his wife, Mrs Nellie Oyer Winter who is keenly appreciative of his work and has given generous cooperation in the preparation of this sketch.

To the cooperative exhibit of Shakers conducted by the Albany Institute of History and Art and the New York State Museum, Mr Winter contributed 40 photographs. Regarding this loan, R. Loring Dunn, curator of the Albany Institute of History and Art, wrote in the Albany Times Union, November 20, 1938:

An important part of the large Loan Exhibition of Shaker Furniture and Crafts, now on view at the Albany Institute of History and Art, is the collection of photographs from the "Shaker Portfolio"

by William F. Winter of Schenectady. The 40 large photographs arranged around the walls of the gallery afford the visitor an opportunity of seeing many of the buildings and rooms of the various Shaker communities in which many of the pieces in the present exhibition originally belonged. The photographs illustrate in a very complete and comprehensive manner the daily life of the Shakers—how they lived and worked—at Niskayuna, Mount Lebanon and Hancock.

Some years ago, Mr Winter was one of the first to realize the historic and artistic possibilities to be found in recording the manners and customs of the Shakers—their daily life and work. As a result he has made a superb collection of photographs showing the buildings in the Shaker communities in New York State and in Massachusetts as well as many interior views of the rooms with their original furnishings before many of the pieces were sold or moved to other settlements.

Mr Winter's photographs from his "Shaker Portfolio" include both exterior and interior views of such objects as "The Blacksmith's Shop of the North Family at Mount Lebanon," "Laundry and Ironing Room at Hancock," "Tannery and Barn of the Church Family at Mount Lebanon," "Sisters' Shop and Kiln for Drying Fruit of the Church Family at Mount Lebanon," "Brethern's Shop at Niskayuna," "Cobbler's Shop at Mount Lebanon," "Weave Room at Hancock," "The Chair Factory at Mount Lebanon," "The Medicinal Shop at Mount Lebanon," and the "Sisters' Shop in the Church Family at Niskayuna." Several still-life subjects of great charm are called "Hands at Work," "Oval Box," and "Basketry." Some of these photographs are quite unusual, many are interesting as illustrating the various crafts, and all of them are exquisitely beautiful. Of Mr Winter's mastery of photography one has nothing but praise. His textual rendition is unbelievably fine. Hardly a detail escapes the camera's eye, so admirably has the photographer brought out the latent image by intelligent processing.

It has been argued that photography is purely a mechanical process, which is true to a certain extent, because it is possible for anybody to buy one of the ever popular small cameras and after an hour with the instruction book go out and make very good photographs. However, the success of the result obtained depends entirely upon the inspiration of the man behind the lense and his technical ability to express himself adequately. The various processes within the field of photography are so many and so varied that the possibilities for developing an individual style are unlimited. Mr Winter is only another example of the inescapable fact that in art the medium of expression is nothing, that the peculiar idiom is nothing, that it is the individual who uses them which signifies.

In all Mr Winter took about 400 Shaker photographs.

The most accessible series of Mr Winter's photographs are the 48 plates illustrating Shaker furniture in the Andrews ('37) book on Shaker Furniture. The authors state (p. 65): "The authors wish

to acknowledge their indebtedness to Mr William F. Winter, of Schenectady, New York, whose skill as a photographer, high artistic standards and understanding of the Shaker theme itself were invaluable aids to truthful interpretation." Without question these form a very essential part of this valuable contribution on the Shakers.

Mr Winter's superb photographs were an essential quality in justifying the Yale University Press to expend special skill in making the furniture book outstanding in the printing field. As Wheeler ('38) has said:

It was with these ends in view that The American Institute of Graphic Arts inaugurated, sixteen years ago, the Fifty Books of the Year exhibitions. So well have they succeeded, that not only publishers, but book lovers in the dozens of American cities to which the exhibitions travel, have come to regard them as representative of the highest standards of American book production. . . . To Carl Purington Rollins and the Printing Office of the Yale University Press go first honors in this year's exhibition. Four distinguished volumes bear their imprint, including . . . "Shaker Furniture," which is a perfect example of the fine "academic printing" referred to above.

Mr Winter also made an important photographic contribution to Janet Waring's *Early American Stencils on Walls and Furniture*, 1937.

Mr Winter's industrial photographs were largely made for the General Electric Company, and a large number have not been published, and those that have, as is customary in private business, are not credited to him. In their publication "When You Can Measure," all the photographs used are by him except those at the bottom of page 9, the top of page 10, and the top of page 28.

Mr Winter's photographs were published in the *U. S. Camera Annals* as follows:

- 1936, p. 20, "Shaker Sister"
- 1937, p. 162, "Shaker Doorway"
- 1940, p. 136, "Shaker Settlement"

ACKNOWLEDGMENTS

An outstanding feature of the present Shaker survey and the Shaker Collection in the State Museum is that its development has been largely a voluntary and cooperative activity. Although the Education Law authorizes the State Museum to develop collections of history and art, these phases have never been properly stressed. No adequate provision has ever been made for technical skill in

these fields equal to that provided for the natural history sciences. As frequent appeals to remedy this deficiency proved fruitless, other methods were found by enlisting volunteers. Reference has already been made to the assistance given by the late William F. Winter jr. Profiting by his acquaintance and friendship with the Shakers and his assistance, the State Museum began field work at the Church Family at Watervliet because of the imminent destruction and adaptation of the buildings to the Albany County Poor Farm. Thus the photographic survey was begun as has been mentioned. As the buildings were demolished, authority was secured from Leo Doody, as previously mentioned, for preserving parts of the building materials for the State Historic Collection, and by this means, doors, window frames with the old glass, peg boards, and similar materials were secured, but many valuable pieces, such as some of the old stair rails, old iron hinges and latches could not be preserved. Valuable materials were found in the old schoolhouse, the loft of the old barns, the old mill, the canning factory, and most of all from the herb house, where several kinds of herb presses were secured, and the entire contents of a herb storeroom, including hundreds of original herb packages.

Later (1929) at the South Family, many pieces of furniture were secured, including some of the unique walnut furniture made by the Groveland Shakers at Sonyea, and taken to Watervliet when that family disbanded in 1892.

As the West and North Families property at Watervliet had previously been sold not much attention was given to them. On April 15, 1927, the large barn and other buildings at the North Family burned.

It was not until the fall of 1930 that Mr Winter accompanied me to Mount Lebanon, and work was begun there at the Church and North Families. Thus began a pleasant acquaintance with Dr and Mrs Edward D. Andrews, which resulted in part in the State Museum exhibit of 1930, and in preparing for the State Museum two publications ('30, '33), a project which was of mutual advantage.

Watervliet. Assistance from Shakers at Watervliet included friendly cooperation of the late Eldress Anna Case and Sister Jennie Wells and Eldress Caroline Tate at the South Family.

Mount Lebanon. At Mount Lebanon, at the North Family, cooperation was received from the late Eldress Sarah Berger, Eldress Ella Winship, Sister Jennie Wells and Sister (now Eldress)

Rosetta Stephens. There has also been generous cooperation in making the survey for the architectural drawings and the photographic records, by Works Progress Administration architects and draftsmen.

Church Family. At Mount Lebanon, through the generous cooperation of Eldress Emma Neale and Sister (now Eldress) Sadie Neale, much valuable unique material, particularly the broom, herb and basket materials, was acquired.

South and Second Families. As this report goes to press, through the active cooperation of Eldress Lillian Barlow, very valuable materials have been secured from the Second Family. Eldress Sarah Collins, formerly of the South Family, now at the Second Family, has given excellent cooperation.

Hancock Shakers. At West Pittsfield, Mass., hearty and very intelligent cooperation was received from the late Sister Alice Smith. The careful notes which she made to accompany the valuable collection which she assembled have been most helpful.

Canterbury Shakers, East Canterbury, near Concord, N. H. A visit to the Canterbury Shakers, eight miles north of Concord, N. H., resulted in finding much Shaker material that supplemented our own collection. Through the kind service of Sister Aida Elam and Sister Marguerite Frost, a fine series of this material was secured.

Finally, one of the most pleasant features of this Shaker project as a whole has been the unfailing courtesy shown by them, their generous cooperation and patience, and the very pleasant personal relations which have continued throughout the years.

Works Progress Administration workers, including several architects and draftsmen, who had been engaged on the Historic American Buildings Survey, were transferred to the State Museum Project No. 50,470 and their architectural survey was extended to the Watervliet Shaker buildings, and later to Mount Lebanon.

Members of the State Museum staff who have devoted much time to this project are: William L. Lassiter, who since 1928 has spent each summer cataloging and caring for the Shaker Collection, and who has given intelligent, enthusiastic and diligent support to this program; also Chris A. Hartnagel, Dr Robert D. Glasgow, Kenyon F. Chamberlain, and the late Edwin J. Stein. Acknowledgment is made to the cooperation of two other Education Department officials, who have shown appreciation of the value of historic materials—Regent William Leland Thompson and Dr Lloyd L. Cheney, Assistant Commissioner for Personnel and Public Relations.

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