

COMMENTS ON THE PISTOIA WORKING PAPER

Note: These remarks are meant to be read in conjunction with the "Working Paper" SHC/CS/159/6 dated Paris, 9 July 1968. The various subjects are discussed in the same order.

INTRODUCTION

1. UNESCO's timely concern for the world-wide deficit of professional talent is deeply appreciated. An opportunity to talk with colleagues from other countries on these pressing issues is something I have for years been hoping for.
2. The need for discussion, agreement and early action seems almost desperate.

UNESCO'S PROGRAMME

3. The steps outlined in the Working Paper under the headings "Legislation" and "Mission of experts, etc." and "Exchange of Information" seem quite logical. When it gets down to preparing aids to practitioners, however, difficult problems are posed. The value of so-called "how to" manuals may well break down when exported because of the differences of national and regional technologies and the variations and contradictions of word meanings, a large part of which are not explained by dictionaries or glossaries. Builders' vocabularies in the past were never — to my knowledge — standardized. When one considers the American colonies in the Eighteenth century one finds almost completely different terms used by builders working only a hundred miles apart. The technical terms used by the colonial French along the St. Lawrence would have been unintelligible further south; their framing methods would have astonished a Yankee carpenter. This is likewise true of the early Dutch along the Hudson River and the Germans in the valleys of Pennsylvania and North Carolina. Even in comparatively modern times the builders' terms used on our Pacific Coast were foreign to mechanics on the Atlantic. The pathological problems of old structures are different too. In Europe "stone disease" is a major preoccupation; here we worry about forms of wood decay and sometimes "brick disease".

The quickest international profits may well come from (1) a sharing of experience in teaching methodology and (2) comparison of procedures used by various governments in staffing their projects and administering them.

LACK OF PERSONNEL

4. The unfortunate shortage of qualified personnel is shared by the United States, even though restoration work began here well over a century ago and is now underway almost everywhere. More serious yet, there seems to be little appreciation of quality in results among the laymen who need to know. And the situation may even be getting worse.

Within the last two years our Federal Government established under the National Park Service an Office of Archaeology and Historic Preservation. In theory, that agency now seems to have an ideal set-up. Although the construction budget for non-military Federal programmes has been shrinking in the last two years the future promises well. The Service, a bureau of the Interior Department, has the largest responsibility in historical work of any of the Federal agencies. The functions prescribed under the organic act of 1935 were enlarged and strengthened in 1966.

It must be remembered, however, that our National Government does a relatively small per cent, dollar-wise, of all the restoration work underway in the country. Some is done by State government bureaus, but as far as my personal observation goes, those organizations are all, or nearly all, architecturally inadequate to perform competent restorations.

MONEY FOR PRESERVATION: NEED FOR PRESERVING BUILDING GROUPS

5. In the United States the danger of having *too much* money is often a greater threat than having too little. As pointed out in the Working Paper the "heroes" in a community of buildings often require a supporting cast of ordinary buildings to provide a setting appropriate in scale and quiet in demeanour.

CONSERVATION : AN INTERDISCIPLINARY EFFORT

6. The concept of "teams" is a very stylish one here but should be used with care. Many teams are made up with an excess of persons who have little to offer. These can only await the group consensus to hide in — hoping their lack of any real contribution will escape notice. It is an expensive but common fault to be found particularly in the bureaus of democratic governments. In the end, everything hinges on the ability of a relatively few individuals. Teams, where actually needed, should be small in size to facilitate speed and efficiency and they should be structured to favour the individual talents of members.

7. "Architects and other specialist", starting with their early education, should be given some broad vistas of the world we live in. But, in the end, the native breadth of the individual will be what counts.

8a. In the United States, only the Columbia University School of Architecture offers a degree in Restoration and Preservation. The programme was initiated in 1964 and has developed steadily, though adequate funds are not yet available by which to expand the programme to its real potential. Our graduates have been offered responsible positions in the field and have already been installed in a variety of important programmes over a wide area. This year we could have placed many more graduates — had they been available.

The University of Pennsylvania several years ago approved a similar professional degree but no one could be found to initiate the programme at the time.

ARCHAEOLOGICAL TECHNIQUES AND EVIDENCE

8b-i. The word "archaeology", according to my dictionary, means "the scientific study of the material remains of past human life and human activities...". If that definition be accepted, every investigation of an early American building, including all of its architectural features, is archaeology.

In this country most people think the word is synonymous with the excavation and study of buried objects — and, more recently, those under water. This notion has unfortunately admitted considerable numbers of aboriginal anthropologists to the excavation of the remains of white men's structures — with just about the results one might expect.

If the Working Paper meant (a) *the underground search for the location and conformation of substructions* and (b) *analytical stratigraphy* then we must admit that our Columbia students get relatively little experience with the subject. Last year we were fortunate to have lectures by Jean C. Harrington of Richmond and Ivon Noël Hume of Williamsburg, two outstanding men. A whole summer of field experience — under competent direc-

tion — of excavating, interpreting and drawing up early American building remains would seem a valuable experience. So would work on a carefully supervised English dig, for our structures are closely related. And, because of our common language, documentary background would be more readily accessible to Americans. Annually two of our Columbia students have been awarded a travelling fellowship to the American Academy in Rome where they have worked in excavations at Cosa (sp?) Italy, under Professor Frank Edward Brown.

HISTORICAL SOURCE MATERIALS

8b-ii. All our Columbia students during their course work get experience in working with historical source material and using it to solve specific problems. We consider experience in such research very important. Both printed (books, periodicals and newspapers) and manuscript sources are examined in depth.

8b-iii. "Principles" are continually invoked but these vary in interpretation from one "authority" to another. In truth, I know of little that has been published on the subject that I can quote with much relevance or assurance. This is particularly true of European doctrine when one tried to apply it to American problems. This is mainly due to the differences in the problem types involved, but semantics are a major deterrent, too.

TOWN-PLANNING PROGRAMMES

8c. The assistance of architect-restorers should be utilized in town-planning programmes whenever historic buildings are involved.

Most of our town or city planners at the project level know little of historic problems and their solutions — and care less. At the higher levels in our Federal bureaus there is now some lip-service to historic values. But at the local level very little light seems to penetrate. Through general ignorance and clumsiness our urban renewal programmes in the past have caused the loss of untold thousands of worthy buildings that could — and should — have been saved for continued use.

The College of Architecture at Cornell University is considering some promising course work in city planning as related to historical preservation.

IN-SERVICE TRAINING

8d. Except for some lecture work for National Park Service summer student teams at Philadelphia (when the writer was Supervising Architect, Historic Structures, 1962 and earlier), I know of no in-service training programmes by the Federal government. The Park Service does, however, have certain architectural personnel who could give excellent instruction in many phases of restoration work.

LICENSING

8e. In this country anyone who has, or can borrow, the necessary money is legally entitled to start banging away on an old building, with or without an architect at hand. It seems to me that to protect what unspoiled buildings we have left, some kind of prequalification for architectural restoration practice is necessary — even to the extent of licensing restorationists. I have never heard licensing proposed for this one speciality, but the articulation of architectural registration into categories is currently being discussed.

WHAT RESTORATIONISTS NEED TO KNOW

8e-i. Probably it would be of value here to consider some of the qualifications of a competent restorationist. Far from being "specialized" the knowledge required of the practitioner must be of the widest range. A modern architect designs only the more expensive types of structure using a contemporary style and the materials and mechanical features popular at the moment.

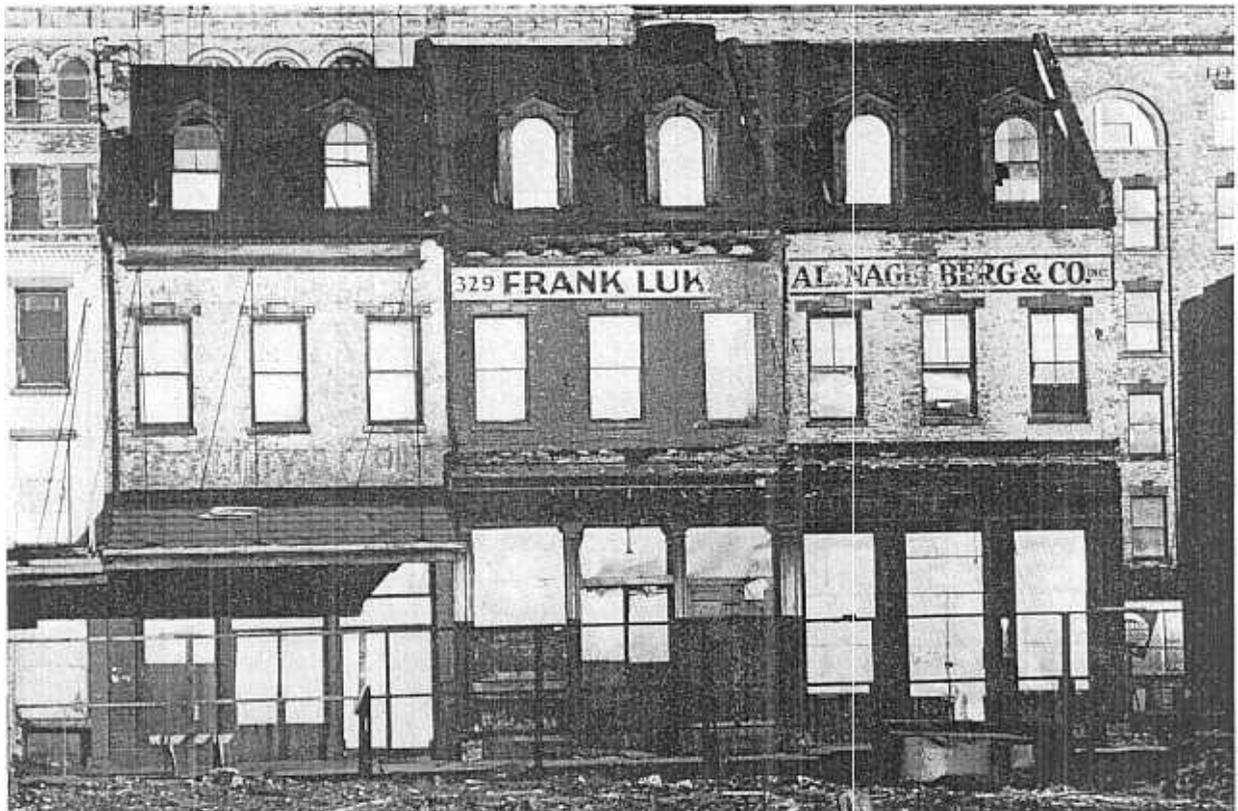
The restorationist must understand a number of technologies and period styles as they evolved through the centuries. He will need to have much knowledge of minor structures which have never before been studied by architects.

Among the specific products that the restorationist must provide with understanding and skill are :

Architectural drawings. Both structural problems and design effects must be studied on paper because it is not feasible to execute them first in building materials and then replace them if the effect is disappointing. Drawings are needed to secure the approvals of multiple clients (as in all public works), to secure estimates and bids from constructors and, finally, to inform mechanics on the job clearly — through scale drawings — as to what is desired.

Architectural specifications. Specifications became the qualitative guide to both suppliers and constructors. Proper materials for restorations are not available at just any corner lumber yard.

Fig. 1. — Typical urban renewal restoration problem. As a result of a hard-won campaign by New York City preservationists these houses at 327-331 Washington Street Manhattan, have been spared from the demolition that levelled the rest of the neighborhood. Substantial middle class residences of the 1820's sharing party walls, they later suffered separate remodellings with iron retail storefronts. The three houses now stand vacant and it is proposed to restore the fabrics for residential use. The student's problem was to find what the walls, doors, windows and steps looked like. (Photography by Robert E. Meadows.)



A comprehensive knowledge is needed :

Of old materials and how they were haped by the tools of their period in order to know what to save, what to discard and how to reproduce missing parts, as well as the expected effects of human use and exposure to weather.

Of historic decoration. For authenticity it is generally required to design missing or deteriorated parts that are harmonious in design on the whole. While in a particular instance an entire structure may not be restored to a single period, certainly the bed mould of an entablature, for instance, must be of the type and size consistent with the related parts such as the cornice.

Of structural problems, including the effect of one hundred thousand tourists per year passing through a frame house originally designed for the use of a private family.

Of how to select and adapt modern equipment for heating, lighting, air conditioning, fire detection and toilets to an old structure being readied for modern uses.

Of research techniques. Because the general historian seldom comes in with all the information needed for restoration plans the restorationist must understand himself how such information is located. The restorationist may not in practice have the time to do this but he must be able to select assistants who can produce results and spot check on the quality and adequacy of the reports as submitted.

Judging by the way things are going today, we won't know two hundred years from now what an early American building really looked like. Through ignorance and carelessness we will have denatured the architecture of the past beyond recognition.

Possibly the only effective way to stop this destructive trend is to require a license for restorationists which would guarantee the competence of the practitioner in advance of awarding commissions.

THE TRAINING OF TECHNICIANS

9a. The inspectors for the "national services" in my opinion should have been trained at least to the level of junior restorationists. They should be able to make at least preliminary diagnosis of field problems, advising on emergency measures for protection. A senior expert assigned to the problem would later make plans and estimates for permanent work. No training programme now exists in this country other than the opportunity of apprenticeship under practising private architects.

THE CONSERVATION LABORATORY

9b. I have been impressed during visits to laboratories abroad with the amount of money it must have cost to build, equip and staff laboratories devoted to building conservation. While I can appreciate the specific

technical problems presented by the treatment of ancient and waterlogged artifacts — or the rescue of a damp fresco painting — I have so far failed to see why a laboratory would be needed in support of most building restoration programmes in the United States.

We already have, I should point out, governmental corporation and private laboratories generally available for the analysis of special problems.

TRAINING ARTISANS

9c. The writer, working with Architect Henry A. Judd (who had originally been apprenticed as a carpenter and who gave up his own contracting firm fourteen years ago to join the National Park Service) worked out a programme which created the "Buildings Restoration Specialist", a new type of sub-professional position. This received the full approval and co-operation of the U.S. Civil Service Commission and a number of appointments were made over a period of years with notable success.

To qualify, the applicant must have had :

- (1) A high-school education (through the 12th grade).
- (2) Ability to read architectural plans.
- (3) A year's experience under a qualified architect on restoration work.
- (4) Personal recommendations from individuals acquainted with the quality of his work.

These men were picked up locally for work on particular restoration projects. If and when they showed special aptitude, they were encouraged to apply for a permanent appointment. Once admitted, they enjoyed year-round employment and were often transferred from project to project over considerable distances. While the salary offered sometimes did not meet established urban wage levels (on an hourly basis) fringe benefits such as paid vacation time, leave for sickness and a retirement plan made such positions acceptable to some excellent craftsmen. They were thus persuaded to make restoration work a career.

The use of experienced mechanics relieved the pressure for inspection by professional architects to a notable degree. This was especially important on projects hundreds of miles from architectural headquarters.

These BRS mechanics took great pride in their craftsmanship (which naturally increased with experience) and in their individual ingenuity in solving unusual problems — with which the restoration business abounds. For a morale-builder (as well as a training feature for summer students architects) once a year a live exhibition of work was held at Philadelphia. These, nicknamed "Carpenters' Carnivals", were a great success and attracted much attention, both within and outside the government. They in recent years have been allowed to lapse. Plans have been made to carry on this programme in a Historic Buildings Crafts Center at Philadelphia (see Appendix).



Fig. 2. — Restored First Floor Front Elevation, No. 329 Washington Street. The student was successful in finding several contemporary New York houses - probably by the same builder — with the original brick fronts still complete. Here he has designed again the missing parts to fit the Washington Street house, including its Flemish bond brickwork, Doric wooden door enframement with a typical fancy transom light, brownstone lintels and steps and wrought-and-cast iron railings. He has successfully re-created the local flavor. (Drawing by Robert E. Meadows.)

LENGTH OF UNIVERSITY COURSES

10. The tendency to spend more and more years in school is strong today. But none of the world's greatest architects ever went to a university for education in the modern sense. We must make sure that our students are not old men by the time they graduate, having passed the age when they can learn quickly. They will still have an infinity to learn once out in the world.

There has seldom been general agreement on how to educate architects. Perhaps today there is less of a consensus than ever before.

I'm personally inclined to believe that five years of course work at the university level is about all anyone should be asked to take. This should be followed by at least two years of apprenticeship under a qualified practitioner. It might be even better to run the practical work concurrently with classroom work as is done in France.

SHORT CUTS

11. It seems obvious that on a world-wide basis we will have to settle for something less than optimum education for the restorationist — for the time being at least.

REGIONAL TRAINING PROJECTS

12. I would be interested to know what kind of "regional training projects" were tried in Nigeria and in Mexico City.

THE ROME CENTRE

13. While I have read the bare outlines of the Rome Centre — University of Rome programme, as published — including its list of distinguished speakers, I have no personal evidence on which to judge the effective-

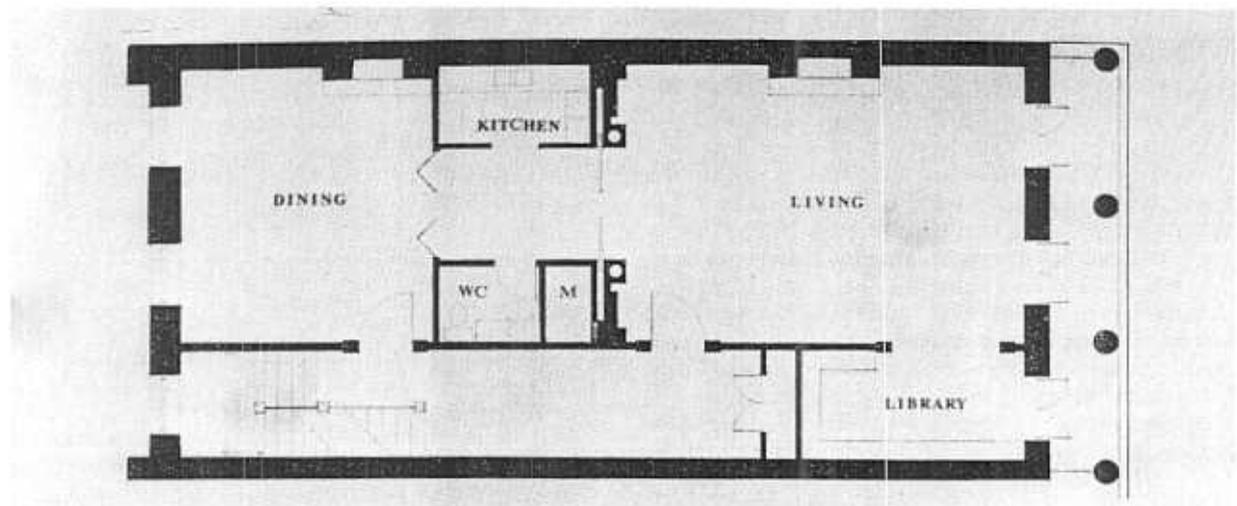
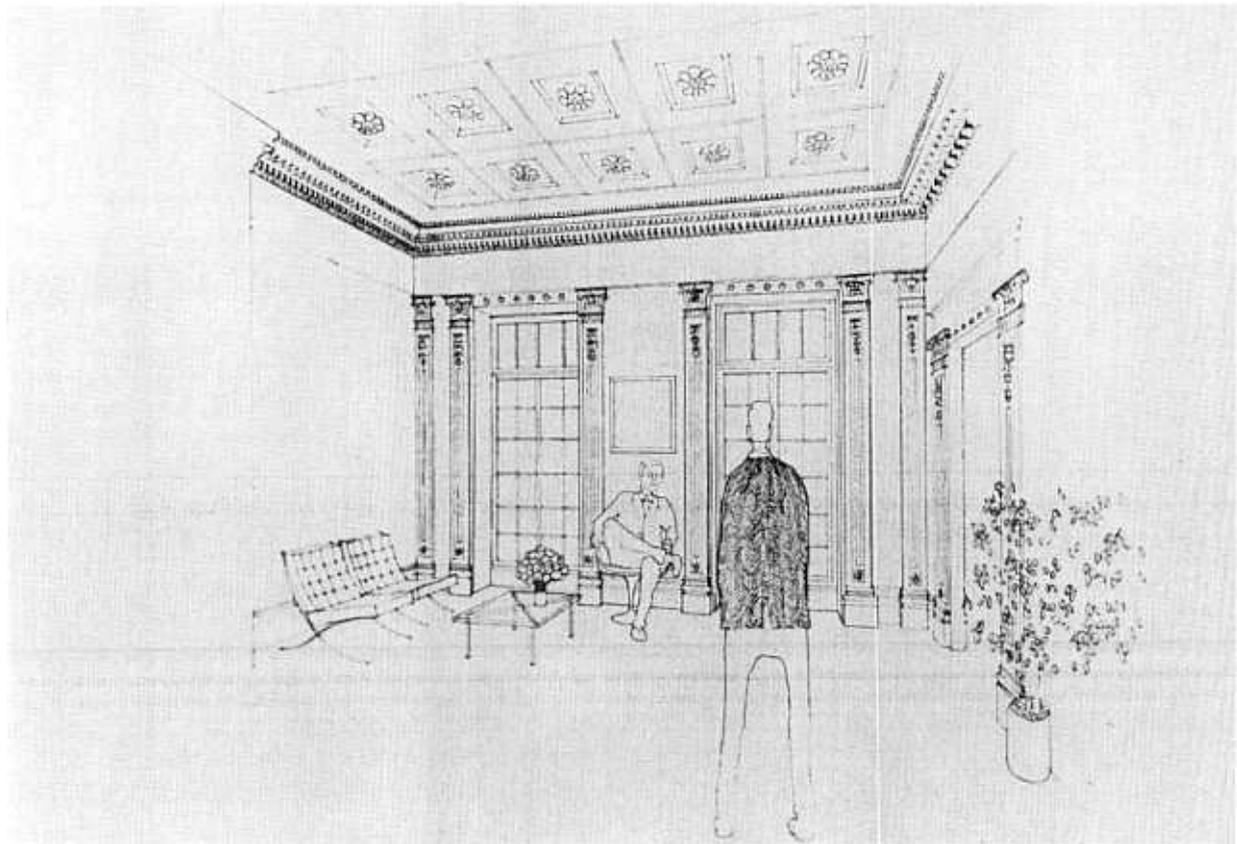


Fig. 3. — Restoration Design for Second Floor of Row House. Colonnade Row, Astor Place, New York City, is a set of monumental party-wall houses that have come down from the 1830's in a rather shabby, fragmentary way. The student's problem was to take one of the houses and adapt it for modern use. He found and identified enough details of the local Greek Revival style to re-create the missing wooden trim and molded plaster ceiling in the original character. While other spaces had to be sacrificed for modern conveniences, this second-floor room, the most important in the house, was reserved for a complete and careful restoration. (Drawing by Alexander A. Thieneman, Jr.)

ness of its methodology for training students for work in the United States. How do their students get practical on-job training? American students abroad generally have severe language difficulties — even though they may not admit it. Few of us are linguists, unfortunately. And the value of lectures alone is questionable in my own experience.

I hope to learn at the Pistoia conference what elements the general run of Italian restoration projects have in common with American ones.

SYMPOSIUM OF 1970

14. It would be important at the Pistoia meetings to lay down plans for a further review of all these matters to be held in the year 1970, as suggested.

ADAPTATIONS OF BUILDINGS

15. I get worried and suspicious whenever the term "environment" is used. It is becoming a catch-all for all kinds of vague unfocused programmes.

On the other hand, studies for the "adaptation of buildings ... for the needs of contemporary society" should be universally valuable. We all know that concept is the key to conserving large areas of buildings. The example of Warsaw is a particularly good one.

CONCLUSIONS

16. It is agreed that the current need for trained personnel is very great. I hope that we in the United States will have a chance to learn something from the experience in Europe in the methodology of teaching and the standards and techniques used for professional qualification.

17. I hope our ship doesn't capsize from overloading with too many "disciplines".

18. Anything that can be done to record and export to America the methodology of teaching restoration — without unduly standardizing it — will be most welcome here.

From what I have been able to learn, the French government has developed a formal training programme for architects that pretty well ensures professional competence. I think it would be splendid if a travelling exhibit on the subject were worked up in France (with English labels and a brochure) to travel in this country. Properly sponsored — and accompanied by live programmes — it could make a real impact.

August 8, 1968.

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APPENDIX

1. THE TECHNOLOGY OF EARLY AMERICAN BUILDING (TEAB)

"I have adopted the general name of Technology, a word sufficiently expressive, which is found in some of the older dictionaries, and is beginning to be revived in the literature of practical men at the present day" (Jacob BIGELOW, M.D., advertisement to *Elements of Technology*, Boston, 1829).

The building business is now acknowledged to be our largest industry — finally surpassing even agriculture in size. Yet no history of it has ever been written. The early builder was not a literary man, he had learned the trade mainly through apprenticeship and the sum of his experience was never committed to paper. The modern historian who has to rely solely on textual sources is confronted by a general lack of them. Few writers today are able to interpret what can be learned from an old structure which has been altered and obscured through decades of weather and human use. But the restorationist has to know all about such things.

One of the first steps in undertaking a restoration project is to examine and analyse the fabric in order to distinguish the older parts from the newer. The two principal criteria for identification come quickly to mind : period design and technological character. They need to be used with judgement. For instance, the trim of a building might quickly categorize it at Greek Revival in period but millwork "chatter marks" and the use of wire nails may reveal it as recent in origin. A roof of copper may have a fine, green patina of seeming great age, yet extended study of the use of that material has revealed that it could hardly have been in place before 1764 when the pioneering copper "thatch" was fastened into place on top of the New York City Hall.

To aid the restorationist, comprehensive reference works on such matters as building materials and construction methods — based on documented fact and expert opinion — are badly needed. The great size of the task of compiling such works is not an adequate reason for not starting.

A massive searching, reading and copying campaign — both in manuscript and letterpress source material — is necessary to fill in the outlines of the subject. A system of filling categories for storing such information has been attempted by the writer. A quick glance at the attached outline will show how complex the whole field really is. Almost any item now entered in it could be expanded and particularized. While the outline will continue to grow, it can be used in this form immediately, I believe, but updated as studies progress.

TENTATIVE BREAKDOWN FOR A FILING SYSTEM THE TECHNOLOGY OF EARLY AMERICAN BUILDING (DESIGN, MATERIALS AND CONSTRUCTION TO 1860)

I. *The Designer*

A. Professional Categories : Master Builder vs. Architect vs. Engineer.

B. Training : Apprenticeship, Architectural and Technical Schools.

C. Design Sources : Pattern books, builders' guides, trade journals, etc.

D. Building Regulations.

E. Plans, Specifications and Estimates.

F. Office Organization and Practices.

G. Construction Supervision.

H. Compensation : Fees, salaries.

I. Professional Societies.

J. Competitions.

K. Exhibitions.

II. *The Constructor*

A. The Mechanic : His apprenticeship and qualifications, tools and machines, working techniques. His organizations.

(1) Carpenters, joiners and turners.

(2) Stone cutters and stone masons.

(3) Bricklayers.

(4) Roofers.

(5) Plasterers.

(6) Glaziers.

(7) Painters.

B. The Contractor.

C. The Measurer.

III. *Building Types* (considered as problems in programming)

A. Dwellings :

Single, detached.

Multiple, with party walls : coupled, in rows.

Apartment houses.

B. Dependencies to dwellings :

Outside kitchens and ovens.

Well and spring houses.

Milk houses, ice houses.

Privies.

Barns, stables, carriage houses.

Granaries, hen houses, corn cribs, etc.

Greenhouses, conservatories, garden houses.

Servants' and slaves' quarters.

C. Transient Housing : Inns and hotels.

D. Religious Structures : churches, chapels, synagogues, shrines, convents, monasteries.

E. Social and Entertainment : Theatres, concert halls, auditoriums, club houses, lodges and taverns, sports and recreational.

F. Educational : Schoolhouses, college classrooms and dormitories, museums, libraries.

G. Commercial Structures : Shops, market houses, storehouses, banking houses, office buildings, exchanges.

H. Manufacturing Structures : Mills (water, wind and steam power). Factories, furnaces, shot towers.

I. Transportation Structures : Toll houses, railroad stations, lighthouses, bridges, viaducts, canal structures, tunnels.

J. Governmental : Capitols, town halls, courthouses, custom houses, post offices, hospitals, asylums, orphanages, firehouses, prisons.

K. Military : Forts and fortifications, powder magazines, arsenals, armories.

L. Gateways, Portals, Monuments and Tombs.

M. Miscellaneous.

IV. *Materials and parts generally procured off-site* : Occurrence in nature, characteristics, processing or manufacture, procurement, packaging, transportation and cost.

A. Earth, Sod and Thatch.

B. Wood and Lumber (felling, hewing, sawing, splitting, planing, moulding and carving). (1) Framing timbers. (2) Boards and planks. (3) Shingles. (4) Lathing.

C. Clay and Ceramic Products (handmade and machine-made). (1) Adobe and pisé. (2) Burned brick. (3) Tile. (4) Artificial stone. (5) Terra cotta.

D. Stone (quarrying, splitting, sawing, cutting, dressing and carving). (1) Rough and partly shaped. (2) Freestone. (3) De-

corative stone (marble, etc.). (4) Roofing material (slates, marble tiles, Bermuda stone, etc.).

E. Materials for Mortars, Concrete and Plasters. (1) Lime mortar (from shell, limestone, marble). (2) Hydraulic cement (native and imported, including trass or terras). (3) Gypsum. (4) Sand and aggregate.

F. Window Glass (plain and coloured).

G. Paints: Pigments, vehicles.

H. Ironwork: (1) The forge and the foundry. (2) Fastenings and reinforcements (including nails, screws, bolts and tie rods). (3) Finish Hardware. (4) Railings and gates. (5) Iron framing.

I. Sheets Metals: (1) lead, (2) copper, (3) tinplate, (4) terneplate, (5) galvanized iron, (6) sheet iron, (7) zinc.

J. Paper: Sheathing paper and roofing felts.

K. Bituminous materials and calking.

L. Prefabrication: Whole buildings and parts of buildings.

M. Other.

V. *Work at Site*: Site preparation, the cutting, fitting, fastening and finishing of parts.

A. Excavation (rock and common) and grading.

B. Walling: (1) Frames, their filling and cladding (mortise and tenoned frames, balloon frames, no-frame plank walls. (2) Log walls. (3) Stone masonry. (4) Bricklaying. (5) Veneering. (6) Furring. (7) Interior finish (plastering and panelling).

C. Roofs and Roofing: (1) Framing (simple rafters, trusses and arches of wood, trusses and arches of iron). (2) Sheathing and covering. (3) Cornices and eaves balustrades. (4) Rainwater disposal (flashings, gutters, downspouts, skylights). (5) Flats (including scuttles). (6) Domes, cupolas, lanterns, turrets, belvederes. (7) Towers and steeples. (8) Miscellaneous.

D. Porches, verandahs, balconies, pent eaves and breezeways.

E. Heating arrangements and chimneys.

F. Floors: (1) Wood, (2) Ceramic, (3) Stone.

G. Ceilings: (1) Plaster (plain and decorated). (2) Board. (3) Decorative painting.

H. Stairways: (1) Stone, (2) Brick, (3) Frame, (4) Railings and balustrades.

I. Doorways: (1) Frontispieces, (2) Frames, (3) Doors.

J. Windows: (1) Trim, (2) Frames, (3) Sash, (4) Glazing, (5) Shutters, (6) Screens, (7) Venetian blinds.

K. Interior Trim and Finish.

L. Lighting.

M. Ventilating.

N. Other.

VI. *Fixed and semi-fixed equipment*

A. Heating: gates, stoves, central heating equipment (hot air and hot water).

B. Apparatus for cooking, baking, hot water heating.

C. Lighting.

D. Wall coverings.

E. Floor coverings.

F. Water supply.

G. Waste disposal.

H. Other.

VII. *Post-construction*

A. Operation.

B. Maintenance.

C. Repair and replacement.

D. Restoration.

1. History and theory.

2. Training and qualification of restorationists.

3. Manuals of precepts and procedures.

4. Consultants.

5. Archives and museums of historic architecture and building technology.

6. Dealers in materials and equipment.

7. Publications.

8. Other.

E. Moving structures.

VIII. *Site and setting*

A. The Land: Its subdivision and legal restrictions (tenure, zoning, etc.).

B. Grounds: General arrangement of buildings, grading, plantings.

C. Gardens.

D. Enclosures.

E. Walks and drives.

F. Other.

Fig. 1. — Cas typique de réanimation urbaine. Une dure campagne a évité la démolition à Manhattan de ces habitations moyennes des années 1820 qui avaient subi des remaniements (vitrines entre autres). Destinées à la résidence, elles seront restaurées dans leur état primitif. (Photographie R. E. Meadows.)

Fig. 2. — Rez-de-chaussée restitué grâce aux comparaisons avec des œuvres du même architecte sans doute. On a pu compléter le parement et l'encadrement en métal et en bois de la porte

d'entrée afin de retrouver la saveur propre de la construction. (Projet de R. E. Meadows.)

Fig. 3. — Projet de restauration de l'étage de la Row House. Cette œuvre newyorkaise des années 1830 était en mauvais état. Elle servit de test. L'auteur du projet a retrouvé les éléments du « Greek Revival » qui ont permis de faire une restauration complète à cet étage en particulier. (Plans de A. A. Thieman, Jr.)