

ON THE TRAINING OF ARCHITECT/RESTORERS FOR TURKEY AND THE MIDDLE EAST

THE EXPERIENCE AT THE MIDDLE EAST TECHNICAL UNIVERSITY IN ANKARA

INTRODUCTION

1. The following report is submitted to review the experience at the Middle East Technical University in establishing a graduate program for the training of architect-restorers. By reviewing the aims and facilities of the program, it may stimulate general discussion on a definition of training programs and the international hierarchy of institutions to be pursued.
2. The department's formation within a developing country may also raise discussion about the restoration difficulties peculiar to such countries and the types of training programs most suited to their needs.
3. The main problems faced today in Turkey may be summarized as follows:
 - a. There is a pressing need for qualified architect-restorers to staff national offices.
 - i. existing personnel are insufficient and lack the means to develop their qualifications;
 - ii. the quality of conservation work is consequently lower than desirable.
 - b. Existing undergraduate programs in architecture do not orient the student toward a career in historic monuments.
 - c. Young graduate architects cannot fully benefit from programs offered in Europe at present because of
 - i. the difference in their undergraduate training;
 - ii. the historic, environmental and administrative problems peculiar to Turkey and the Middle East.
 - d. Government offices will not be in a position for a number of years to carry out alone the survey activities and applied conservation research necessary for proper restoration projects.
 - e. There is a lack of public concern for the preservation of cultural heritage.
4. These problems are elaborated below and the formation of the department reviewed to demonstrate how the Middle East Technical University is attempting to confront this challenge.

REASONS FOR FOUNDING THE PROGRAM ELABORATED

5. Prior to the department's formation, there were no training facilities for either architect-restorers or the technicians concerned with historic monuments in Turkey. Architects entered the Vakiflar and Department of Antiquities, the two institutions concerned with monuments and sites, and learned "on the job". This

was a time-consuming and costly system of apprenticeship which severely affected the quality of restoration.

6. Following 1960 the Government began to make heavy investments in tourism. Neither the Vakiflar nor the Department of Antiquities had sufficient qualified architect-restorers to properly carry out the projects required by their increased budgets.
7. Social and economic change are rapidly causing many of Turkey's historic monuments and sites to disappear. There has been a lack of public awareness of their value. Widespread urban planning activities give little attention to integrating old and new structures into a functional whole. Since there is no comprehensive inventory of sites and monuments, many destroyed by public works go unrecorderd.

PREPARATION OF THE PROGRAM

8. In consideration of these needs, the Faculty of Architecture at the Middle East Technical University conducted in 1964 a survey of existing programs abroad for training architect-restorers. A proposed curriculum was then prepared and later revised after being circulated to restorers in Turkey and abroad for criticism. We are especially grateful to Dr. Harold J. Plenderleith and Professor Charles E. Peterson for their advice and assistance.
9. In 1965 the program was established as the Department for the Restoration and Preservation of Historic Monuments. It trains solely graduate architects in a two-year course of study leading to a degree of Master in Restoration.
10. The budget of the Middle East Technical University and a grant from the Ford Foundation jointly finance the program.

PURPOSE OF THE PROGRAM

11. The purpose of the department is to train graduate students in architecture with specialized skills for the restoration and preservation of historic monuments. These include all the techniques necessary to preserve existing monuments and to restore those damaged by man or natural forces of those discovered by archaeological excavation.
12. The curriculum aims to develop the students previous training and broaden this background with a knowledge of the many other skills required of an

architect-restorer. The students also become familiar with the materials and techniques of restoration by laboratory experience in photography, chemical analysis, and the treatment of all types of structural and ornamental samples. A copy of the curriculum as it appears in the catalogue is appended for reference.

3. The program recognizes the interdisciplinary nature of restoration and draws on chemistry, engineering, archaeology, urban planning and art history in addition to architecture. The student follows a core of courses in the Department and may elect additional courses given in other departments and faculties. The graduates are expected to be conversant with these fields, but himself to be a specialist only in architectural restoration.

4. The program is specifically oriented towards problems peculiar to Turkey and the Middle East. Courses in the history of architecture, archaeological field methods, and the legal and administrative aspects of conservation and restoration are based on Middle Eastern experience.

15. The program prepares the architect-restorer to be able to instruct technicians involved in the care and repair of monuments and sites. Thus the graduate performs the role of both specialist and educator when he enters an office. This enables an immediate improvement in the quality of restoration projects, pending the establishment of a program for technicians.

REQUIREMENTS FOR ADMISSION

16. An applicant for admission is expected to fulfill the following requirements:

- a. to possess an honors bachelors degree in architecture from a recognized school of architecture;
- b. to demonstrate proficiency in written and spoken English, the language of tuition at the Middle East Technical University;
- c. to have followed some courses in the history of art or architecture as an undergraduate.

Aptitude for restoration shown by undergraduate performance in courses on the history of architecture or by field and office experience is weighed when considering a candidate.

17. Requirements a) and b) deserve particular attention. Only graduate architects are eligible as students from other disciplines would require a much more diverse program. The department elected to concentrate its resources on developing a quality program which could utilize the common technical background of architectural students. Students from other disciplines may elect courses in the program, but may not pursue them to a degree.

English is the required language of tuition at the University, as it enables students from Turkey and other Middle Eastern countries to benefit from the broad technical literature in that language. The Department expects visiting experts to deliver their lectures in English, although upon occasion a translator may be

provided for a single lecture. In general, a common language has proved necessary to ensure understanding and full participation of students in the seminars.

THE CURRICULUM

18. The Curriculum is designed to build on the architect's technical training and to broaden it with those humanities and sciences related to restoration. In Turkey, like most developing countries, the architecture undergraduate has had only limited exposure to the humanities. Thus the graduate program must provide basic instruction in the history of architecture and art (Rest 521-522; Rest 621), while introducing the student to the more advanced use of historical and archaeological sources (Rest 531, Rest 541, Rest 512).

19. The program emphasizes learning through both courses, seminars, and practical experience. Courses give basic grounding in the subject, while seminars offer an opportunity for intimate exchange between a few students and the teaching staff or visiting expert.

FIELD WORK

20. Field work is an integral part of the two-year program to enable the student to immediately apply the skills he is learning.

It supplements class lectures with actual cases, introduces the student to survey and archaeological field techniques, and in the second year involves an actual restoration project as an individual masters thesis. Field work is of two basic types: the first, two-week programs undertaken during the academic year in conjunction with the curriculum; the second, extended summer field practice between the first and second years.

21. All staff members and students participate in the two-week field trips. Each year different architectural periods and restoration problems are selected for study. First-year students are instructed in survey methods, while second-year students undertake more advanced work such as ecological studies for analysis in the Department's chemical-physical laboratory.

22. In 1966, the Department surveyed the monuments and sites to be flooded in 1970 by the Keban Dam on the upper Euphrates. This survey of Byzantine, Armenian, and Ottoman stone structures has been published by the Department as *Doomed by the Dam* and helped initiate the international salvage campaign now underway at Keban. In 1967, Ottoman residential timber structures were selected for study. The town of Göynük was surveyed and problems such as urban planning's relationship to historic ensembles were investigated.

23. The summer practice period is a longer apprenticeship in a specific aspect of restoration. During the latter part of the student's first year he selects a thesis topic, usually a particular monument or site. During the summer he carries out the field work for his project. In

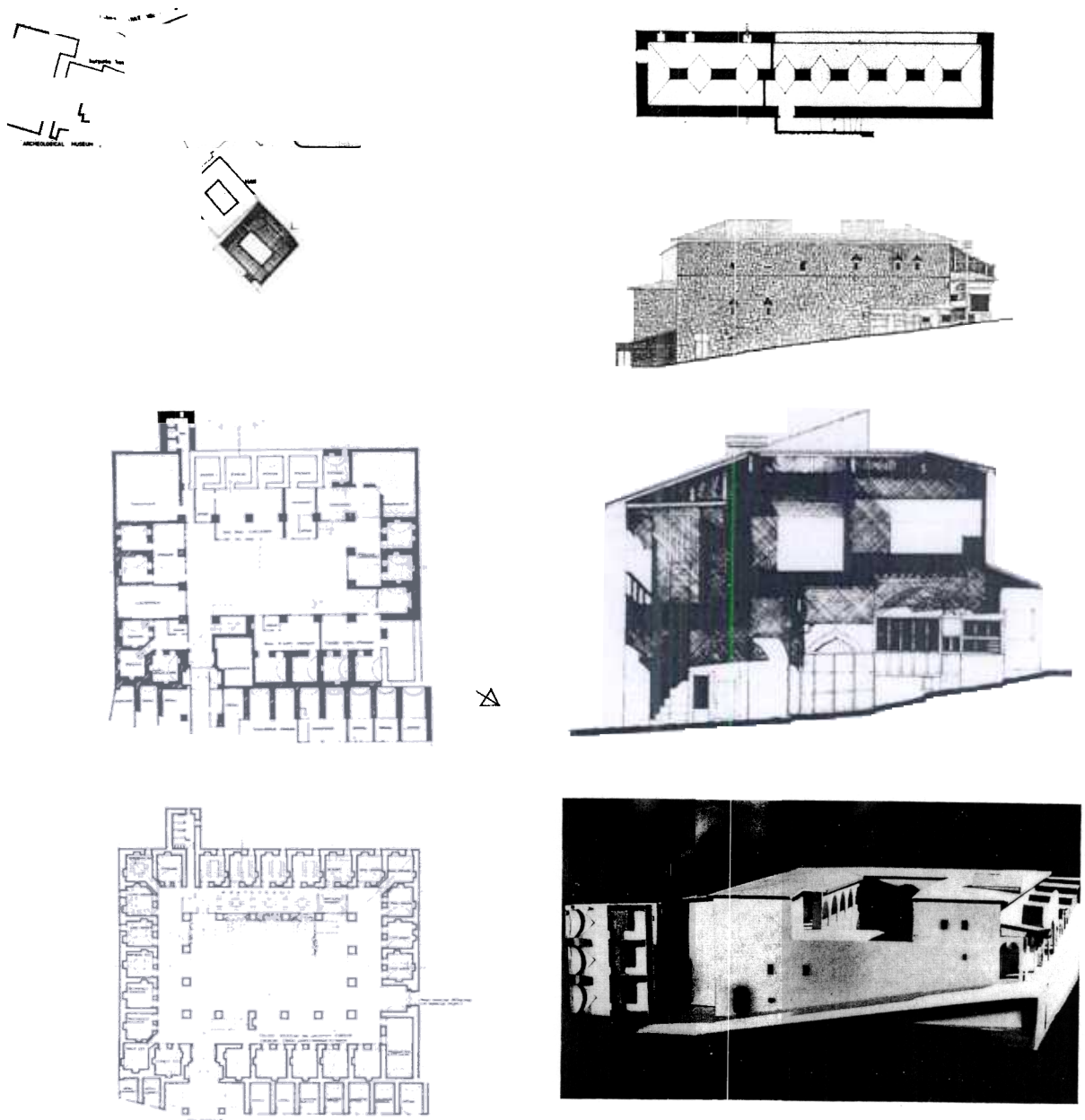


Fig. 1. — Selection from a project of first-year students, the ÇENGEL HAN of Ankara dating from 1522. The project involved a complete survey analysis of the building, its restitution, and its refunctioning: a) site plan showing the relation of the building with its surroundings; the program stresses integration into the environment; b) the ground floor plan showing the building's present condition as used by tanners; c) the ground floor plan showing the arrangement of a proposed restaurant; d) the first-floor plan of the north wing and north-west elevation; e) section through the entrance; f) study model of the building.

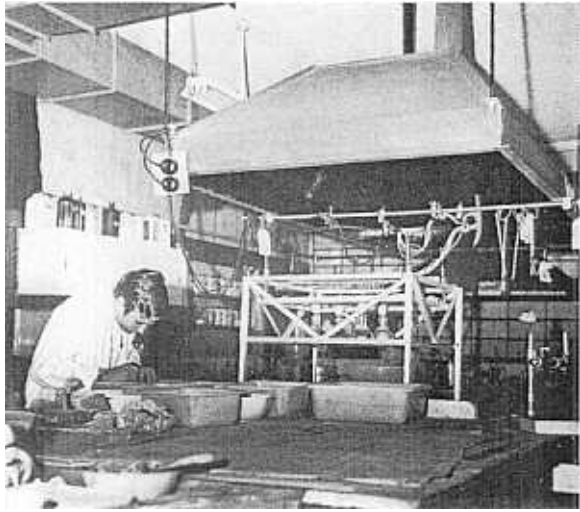


Fig. 2. — A student analysing building materials for his thesis in the department's chemical laboratory. The laboratory is a complex also includes a photogrammetry laboratory, a physical laboratory, and smaller staff research room. These are in addition the photography and workshop facilities of the Faculty of Architecture.

the summer of 1968 all students selected subjects in the Keban area, thus contributing to the salvage campaign while preparing their theses. During the following year each carried out the historical and technical analysis, finally defending the restoration project before a jury

IN-SERVIC TRAINING

24. The department emphasizes continual cooperation with the government institutions involves in conservation activities. Government restorers participate in the department's seminars as both lecturers and observers, while students may utilize the offices' facilities for their projects. The Vakıflar provides scholarships as well as financial support for the summer projects of selected students. During the later part of their course of study, certain students may be employed by the Vakıflar as architect-restorers while completing their theses. This close cooperation gives the students practical experience and enables the department to immediately contribute to the solution of restoration problems in Turkey.

THE DEPARTMENT'S PHYSICAL PLANT

The department possesses numerous facilities for education and research in addition to the broad resources of the University and the libraries and museum of Ankara. The Museum, physical-chemical laboratory,

monuments archives, and photogrammetry laboratory are arranged for both student and staff use. The purpose of each is discussed below.

26. MUSEUM

The museum houses the finds of the University's archaeological excavations. It also serves as a training area in identification of structural and ornamental samples and in exhibition techniques. Selected students participate in the museum's excavations, thus acquiring valuable archaeological field experience during their course of study.

27. PHYSICAL-CHEMICAL LABORATORY

The department has been developing a physical-chemical laboratory since 1964 for instruction and research. We are especially indebted to Mr. Pierrick de Henau of the Institut Royal du Patrimoine Artistique, Prof. Dr. Selim Augusti of the Capodimonte Museum, and Mr. Henry Hodges of London University's Institute of Archaeology for their expert assistance in the formation of the laboratory. Students receive instruction from the laboratory's director and its chemist, who assist them in their research as well. The laboratory's staff and facilities are also available to interested institutions seeking the solution of specific restoration difficulties. Recently, it has been especially helpful in analysing and treating the finds of the Phrygian tumuli excavated in Ankara.

28. MONUMENTS ARCHIVES

Turkey lacks a comprehensive inventory of Turkish monuments and sites. The Department has prepared an archival system (cf. *Doomed by the Dam*) similar to the American Historic Buildings Survey. It regularly adds to the archives with the aim of eventually forming a rich inventory for the use of all interested restorers and scholars.

PHOTOGRAMMETRY LABORATORY

The success of the archives depends on the application of photogrammetry to the monuments survey. Dr. Hans Foramitti of the Bundesdenkmalamt in Vienna has advised the department on the acquisition of equipment and instructed staff, technicians and students in the use of photogrammetry for recording historic structures. Photogrammetry makes it possible to record monuments more rapidly and accurately than the classical methods now used by Turkish offices. At present the department's mobile photogrammetry unit is being made available to the Turkish and foreign teams participating in the Keban Salvage Campaign



Fig. 3. — Students during summer practice surveying the Pertek citadel in cooperation with the General Directorate of Antiquities and Museums.

30. STAFF

A permanent teaching staff is considered necessary to give the student basic training in restoration and assure continuity and interrelationship between courses in the program. The low student-teacher ratio makes frequent and close interchange possible. Only after some training and experience is the student prepared for the more advanced type of loose colloquium. During the graduate program he still requires close supervision and assistance.

31. The department provides the "educators" for the program, but regularly calls on experts in different areas of restoration to deliver lectures and conduct seminars. This distinction between teacher and expert is an important one, especially in conservation. The conservation of historic monuments is a new area of education involving a very diverse and still unsynthesized body of knowledge. The educator, although a specialist in one aspect, must be able to present the theory and principles of conservation at the student's level.

32. Visiting experts are required to supplement the program for the following reasons :

a. the permanent staff is not yet sufficient to expose the student to the many different areas of current restoration practice;

b. the practicing restorer is in contact with the latest developments in his field of interest. He adds a practical orientation to the program by lecturing on his subject, but is often unwilling or unable to handle a semester or year-long course requiring preparation beyond his own immediate field of competence;

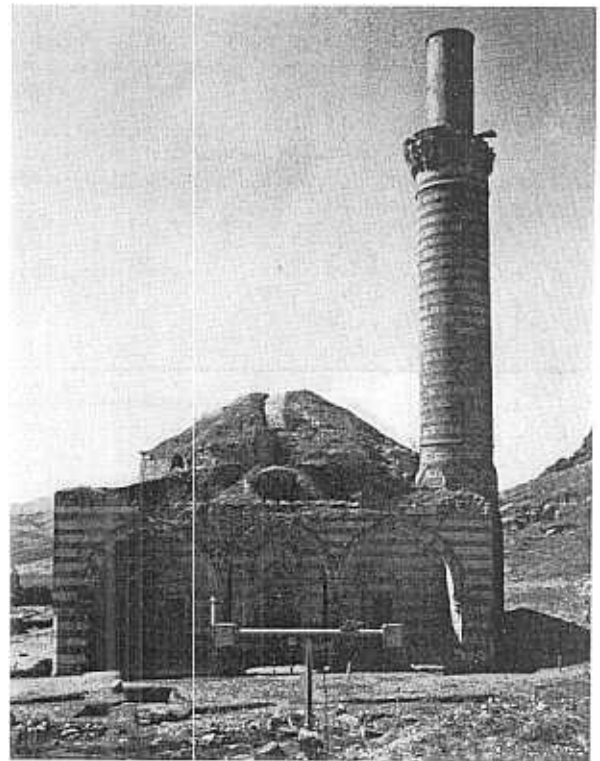


Fig. 4. — The Baysungur Mosque built in 1572 will be removed from the flood area of the Keban Dam. Students and staff did the field research as a summer project in cooperation with the Vakiflar.

Fig. 5. — The Karamagara Köprüsü. An unknown VIth century. A.D. byzantine bridge on a branch of the upper Euphrates first recorded and published by the department. Further study and proposals for its removal from the Keban flood area were done as a summer project in conjunction with the General Directorate of Highways.



c. foreign restorers are invited to relate experience in their own countries, as conservation is still a very new field in Turkey. Government restorers as well as students and the department's staff take part in their seminars;

d. experts of international distinction are not in a position to join the department on an extended basis because of the demands of their own offices.

33. Young foreign restorers of promise join the permanent staff as visiting lecturers for a year or more. They are expected to be architects trained in restoration and to have had a number of years of prior office and field experience. The department then selects scholars and restorers who have established an international reputation to deliver lectures of a month or longer duration. Finally, Turkish scholars of note from other universities are called upon to present particular topics, especially in art history and archaeology.

ADVANCED TRAINING

This report has emphasized that the graduate program offers basic training in architectural restoration. Only after completing the course of study is a graduate qualified to enter an office as an architect-restorer or pursue advanced restoration studies abroad. In fact, the course of study is a prerequisite for profiting from existing programs in Europe. During the two-year period the student has acquired fundamental restoration skills and learned at first-hand the problems peculiar to Turkey and other Middle Eastern countries. Superior graduates are then in a position to concentrate in one area of conservation at a European center, then returning to a government office or to the university as an instructor.

35 SUMMARY

In conclusion, regional centers for developing countries may fulfill the following functions :

- i. provide architect-restorers for their nation's offices through a "second-level" training program;
- ii. offer programs directly oriented to the peculiar restoration needs of their regions;
- iii. carry out regional survey activities;
- iv. undertake applied research in restoration for educational purposes and as a national service;
- v. prepare especially qualified students to pursue advanced studies abroad.

Cevat ERDER,
Middle East Technical University
(Ankara)

APPENDIX

CURRICULUM

DEPARTMENT FOR THE RESTORATION AND PRESERVATION OF HISTORIC MONUMENTS (*)

The purpose of this Department is to train graduate students architecture with specialized skills for the restoration and preservation of historic monuments. These include all the techniques necessary to preserve existing monuments and to restore those damaged by man or natural forces or those discovered by archaeological excavation. The increase in scientific and cultural interest in monuments, and the economic emphasis due to tourism, have led to greater attention to this field, particularly in the Middle East.

The curriculum aims at developing the students' previous training and at broadening this background with a knowledge of the many other skills required of an architect restorer. The students also become familiar with the materials and techniques of restoration by laboratory experience in photography, chemical analysis, and treatment of all types of structural and ornamental samples.

Admission is open to students with a Bachelor's Degree in Architecture. The two-year graduate programme leads to a Master's Degree of Architecture in Restoration.

GRADUATE CURRICULUM 196

FIRST YEAR

1st. Semester

Rest 501 The Descriptive Analysis of Buildings

Rest 511 The Theory of Restoration and Conservation

Rest 5 The History of Architecture in the Middle East
Materials and Craftsmanship in Historic Building and Architectural Ornament

Rest 541 Historic Structural Systems

2nd. Semester

Rest 502 The Descriptive Analysis of Buildings

Rest 512 The Historical Analysis of Buildings

Rest 522 The History of Architecture in the Middle East

Materials and Craftsmanship in Historic Building and Architectural Ornament

Elective

Rest 59: Summer Practic

(3- 3-3) (

(3- 0-3) (

(8 weeks)

SECOND YEAR

Semester

Rest 601 Design

Rest 621 The History of Architecture in the Middle East

Rest 631 The Laboratory and the Conservation of Structure and Ornament

Rest 651 Legal and Administrative Aspects of Conservation and Restoration

*) Middle East Technical University; General Catalogue 968, p. 72-75.

Lective	0-3)	6
2nd. Semester		
Rest 602 Thesis	(0-36-0)	36
Rest 612 Seminar and Resto-	(3- 0-6)	

DESCRIPTION OF COURSES

Rest 501-502 The Descriptive Analysis of Buildings (0-18-0) 18
 Student is introduced to conducting research on which a restoration project is based. This includes the methods of making a thorough measured survey of the building or the site by means of various techniques and instruments including architectural photography and photogrammetry; the analysis of the design and structure by pictorial or verbal descriptions; the examination of historical studies on the building. As the course proceeds, the student is shown how to present his analysis in the form of detailed report, describing the history, environment, structure and condition of the subject in sufficient detail to be the basis of a subsequent restoration project. Field studies are conducted and seminars held to discuss examples of restoration techniques currently used.

Rest 511 The Theory of Restoration and Conservation (2- 1-3) 6

Evolution of international restoration and conservation standards from the experience of different countries. Their history of restoration in practice is compared with the approaches in Turkey.

Rest 521-522 The History of Architecture in the Middle East (3- 0-3) 6

Rest 621 (3- 0-6) 9
 A study on the period from the earliest known remains up to the end of the Ottoman Empire with particular emphasis on the effects of geography and climate, cultural demands and cross-fertilization. During the third semester, 621, the student prepares a paper on some aspects of architectural history, preferably one not included in the course of lectures.

Rest 531-532 Materials and Craftsmanship in Historic Building and Architectural Ornament (3- 3-3) 9

Characteristics and provenance of the materials used in the construction and decoration of building commencing with the study of its decay and conservation. Crafts of building and architectural ornament to be found during this period. The faults and defects likely to develop in the fabric and ornament of a building, remedial techniques of conservation and restoration that can be employed.

ILLUSTRATION

Çengel Hanı
 Ankara (2). Le projet prévoit une analyse exhaustive de la bâtisse reconstitution et sa réanimation. a) Plan de situation de l'œuvre et de ses abords, auxquels il doit s'intégrer; b) chaussée utilisé présentement comme atelier de tannage; c) de-chaussée aménagé en restaurant; d) première nord et façade nord-ouest; e) coupe dans l'entrée.

Fig. 2. — de matériaux de construction au laboratoire de chim. ; i) globe des sections de photogrammétrie

Rest 541 Historic Structural Systems (3- 0-3) 6

General introduction to the various structural systems to be found in the past, as well as the techniques and materials employed in their construction. Their development is traced through various civilizations with primary emphasis on the Middle East.

Rest 512 The Historical Analysis of Buildings (2- 1-3) 6

Use of inscriptions and documents, archaeological findings and field observations in evaluating a building. Examples are given to illustrate the interpretation of historical material in restoration projects.

Rest 592 Summer Practice (8 weeks)

The student is assigned to a site where conservation or investigation is in progress. Here, under the tutelage of the site-director, he assists in the work, and prepares a report on what is done. This practice may be coordinated with the Department's projects.

Rest 601 Design (0-12-0) 12

The first part of this course is devoted to work based on material gathered by the student during his summer practice. The remaining part of the course takes up the selection of a subject for the thesis in the following semester, and to the preparation of a preliminary report.

Rest 631 The Laboratory, and the Conservation of Structure and Ornament (3- 9-3) 15

The use of laboratory facilities in the analysis and treatment of structural or ornamental materials, showing, how a project of laboratory research is carried out, and guiding the student in a conservation research project of his own, preferably based on his summer work.

Rest 651 Legal and Administrative Aspects of Conservation and Restoration (3- 0-3) 6

Law and state or local organizations concerned with the conservation of historic monuments and sites in Turkey, and their comparison with the systems practiced in other countries.

Rest 602 Thesis (0-36-0) 36

The student is expected to present a full report on a single building or a complex of buildings of some architectural significance, and to prepare a scheme for its conservation and restoration. Particular attention is paid to assuring the building an appropriate function in its modern environment.

Rest 612 Seminar on Conservation and Restoration (3- 0-6) 9

This seminar covers general problems of conservation and restoration. The students prepare and present papers on different projects including the review of examples of recent practices.

et de physique et un local pour les chercheurs qui ont accès aux services et ateliers de la Faculté d'architecture.

Fig. 3. — Etudiants en stage pratique d'été à la citadelle Pertek avec le directeur des Antiquités et des Musées.

Fig. 4. — La mosquée Baysungur (1572) sera déplacée. Etudiants et chercheurs préparent la mission en coopération avec le Vakıflar.

Fig. 5. — Pont byzantin inconnu du VI^e siècle, le Karamagari Köprüsü sur un bras du Haut-Euphrate. Sa transplantation fait l'objet d'une étude en accord avec la Direction des autoroutes