

# ARCHITECTURAL PHOTOGRAMMETRIC STUDIES IN TURKEY

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## ABSTRACT

The development, which have taken place from the beginning of photogrammetric education and architectural photogrammetric studies at the universities until today are discussed in this paper. Information is given about graduates and the institutions which are working on this subject and hardware/software used. Some suggestion is given for protection and documentation of cultural Heritage in Turkey.

## KURZFASSUNG

In dieser Arbeit wurde die Entwicklung des Photogrammetrischen Studium mit dem Zusammenhang der Applications der Architekturphotogrammetrie in der Türkei zur Diskossion gestellt. Über die Institutions, die mit der Architekturphotogrammetrie beschaefigt sind, und deren dabei angewendeten Hardware/Software wurde Information gegeben.

## 1. INTRODUCTION

Turkey has experience in accustomed applications of aerial photogrammetry since many years. Aerial photographs are used not only in production of topographical maps, but are also used in all areas such as forestry, mine and petroleum research, city planning and archeological researches and works. (National report, 1988) But terrestrial photogrammetric studies are fairly new. This study is limited with the terrestrial photogrammetric applications by architectural photogrammetry.

The culture is a basic element of the communities'. Cultural relies that symbolize the cultures are admitted as the common of communities' Heritage of the mankind, and the studies made for protection are supported. Turkey is a rich country on the ussue, because it was a motherland of several civilitazions over thousand years. Therefore it is possible to encounter and see the traces and remainders of all of these years. The international appointments which are to protect and document cultural heritage such as Lahey (1954), Venice (1964), Paris (1972) etc. impose obligations and responsibilities on Turkey and other countries.

Unfortuately, it can not be said that the concerned establishments in Turkey are successful on the documentation of cultural heritage by scientific methods. Essentially, the education of photogrammetry has not got a long time in Turkey.

## 2. THE EDUCATION OF PHOTOGRAMMETRY IN TURKEY

The education of photogrammetry has begun in 1948 with subdivision of Department of Geodesy and Photogrammetry Engineering of Yildiz Technical University, so up to 1950's photogrammetry was known as a method that was used in production of topographic maps by the public sectors. Up to 1960's the concept of non-topographic or close-range photogrammetry was not known exactly, and there were not expert staff and equipment required for this.

### 2.1 The Universities which have Department of Geodesy and Photogrammetry Engineering

The Universities which have Department of Geodesy and Photogrammetry Engineering has been shown in sequence of their establishments in Table 1 until 1998 (Serbetci,1999).

Table 1 The Department of Geodesy and Photogrammetry Engineering

Name of University	Date of Establishment of dep.	Number of Graduate (master)	Graduates until 1998 Undergraduate
Yildiz Technical UNI/Istanbul	1949 - 1949	261	3424
Karadeniz Tech. UNI/Trabzon	1968 -1969	150	1200
Istanbul Technical UNI/Istan.	1969 - 1970	100	1000

Selcuk UNI/Konya	1971 - 1972	40	1250
Karaelmas UNI/Zonguldak	1993 -1994	-	20
Afyon kocatepe UNI	1995 - 1996		
Ondokuz Mayıs UNI/Samsun	1998 - 1999		

Until 1998 are existing 152 Ph.D. of these graduates.

## 2.2 The Education of Architectural Photogrammetry

Only the Departments of Geodesy and Photogrammetry Engineering of the Universities mentioned above are taught the architectural photogrammetry. Up to 1990's was not taught it in the Departments of Architecture, City and Regional Planning, Archeology, Civil engineering etc. The architectural photogrammetry teaching begun first at the Faculty of Middle East Technical University and then at Faculties of Architecture of both of Yildiz and Istanbul Technical Universities in 1990's. But it is been not taught any more at the Department of Architecture of Yildiz Technical University.

## 3. ARCHITECTURAL PHOTOGRAMMETRIC APPLICATIONS IN TURKEY

The architectural photogrammetric applications have begun by setting up of Center of Photogrammetry at the subdivisions of Architecture Faculty of Middle East Technical University in 1967. And in sequence, important studies were made for documentation of cultural heritage at the Department of

Table 2. Hardware/Software Used in Architectural Photogrammetry in Turkey

Name of Institution	Hardware	Software
Yildiz Technical University	Wild A7, B8, Zeiss Topocart D, Workstations	Phodis
Istanbul Technical University	Wild A9, A40, B8s, wild P30, SMK 120, C40, Rolleiflex 6008 metric camera, workstations	PicTran, Rolleimetric, CDW, MSR
Middle East Technical University	Zeiss Terragraph, planicomp P3, SMK 120, SMK 40, TMK, workstations	PicTran
Selcuk University	Zeiss Topocart D, UMK	
Atay Mühendislik	Workstations, Rolleiflex 6008 metric camera	Rolleimetric CDW, MSR

## 3.2 The Samples of Photogrammetric Documentation of Cultural Heritage

Today in the field of architectural photogrammetry, documentation of cultural heritage, documental planning are not meanwile, among daily applications.

Geodesy and Photogrammetry Engineering of Istanbul Technical University in 1970's and in 1980's are being applied by Yildiz Technical University for documentation of cultural heritage, and were set up the Center of Photogrammetric Documentation in 1985. Thanks to these studies in 1980, the concepts of architectural photogrammetry and photogrammetric major surveys have begun to be known in society, and since 1990's public institutions have begun to work with universities in order to make photographic roleve studies for documentation of cultural heritage belongs to themselves. In spite of this, some public and civil institutions continue to work with private sector that are still making surveying of facedes of historical buildings with non-photogrammetric methods.

## 3.1 Hardware/Software Used in Architectural Photogrammetry

In table.2 were shown the institutions in Turkey, which are making applications of architecture photogrammetry and hardware and software, which they used.

In two samples of photogrammetric work are shown appendixes. In App. I "Frej Apartment" in Istanbul (XIX<sup>th</sup> c.), which was plotted with analogue instrument by Yildiz Technical University and Moslem school of theology in Sivas (XIII<sup>th</sup> c.) by Middle East Technical University, is shown App. 2. (National report, 1988).

Information systems parallel to the technological developments in the recent years have been used along with the classical photogrammetric surveys. The agreement, between Yıldız Technical University and National Palaces Department of the National Assembly of the Beylerbeyi Palace, is an example on this issue. Alongside photogrammetric plans of exterior covering and the interior columns of the palace, which belongs to the Ottoman period, has been created Palace Information System Design for it. It will be implemented and then presented on the internet milieu. This project is still going on.

#### 4. Conclusion and Remarks

Attention should be drawn to the points listed below:

- The NGO's which are increasing mainly after HABITAT II, 1996-Istanbul are making great contributes and participation into the preservation of cultural Heritage.
- NGOs must establish relations with public institutions, and improve the sensibilities of the public.
- Architectural photogrammetry courses should be taught in detail in the concerned disciplines of Universities, and drawbacks of using a method that are beside of photogrammetric major survey for

documentation of cultural heritage should be explained.

- A coordinating council , which compiles Universities and concerned public and private sector representatives, should be formed.
- This council should make a priority limitation for the aim of documentation for old buildings according to their value and quality; and photographs of these old buildings should be taken by photogrammetric method according to these list and these should be stored in digital media and

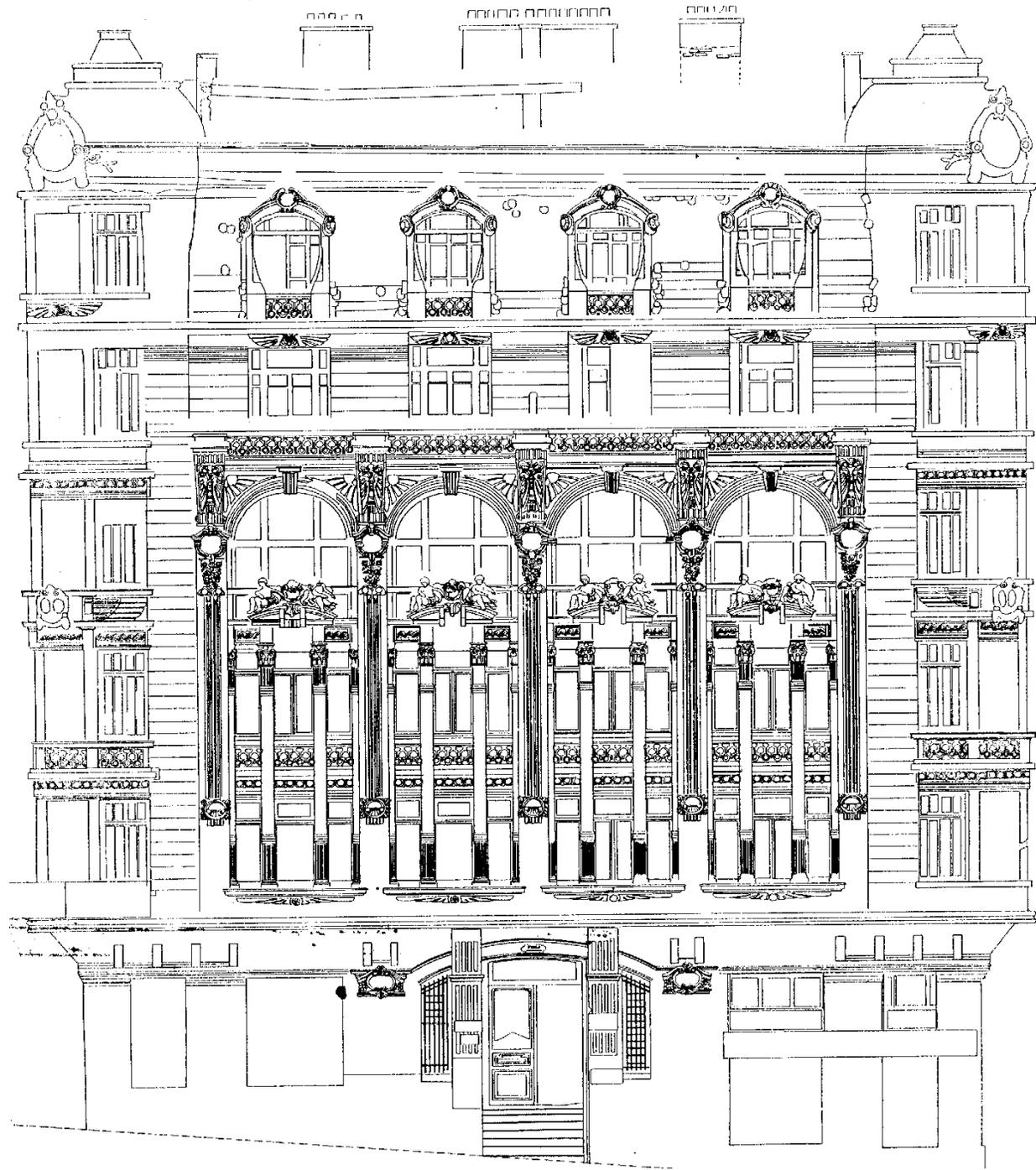
Inventory of cultural heritage in Turkey should be prepared as soon as possible.

#### References

National Report, 1988, presented to the 16<sup>th</sup> Congress of the International Society of Photogrammetry and Remote Sensing, Kyoto-Japan, Representing Organization Ministry of National Defense General Command of Mapping Ankara-Turkey

Serbetci, M., 1999, Cumhuriyetin 75.Y 1 nda Türkiye'de Haritacılık Eğitiminin Tarihi, Harita Bülteni, Sayı 40, Sayfa 17-19, Ankara.

## Appendix 1

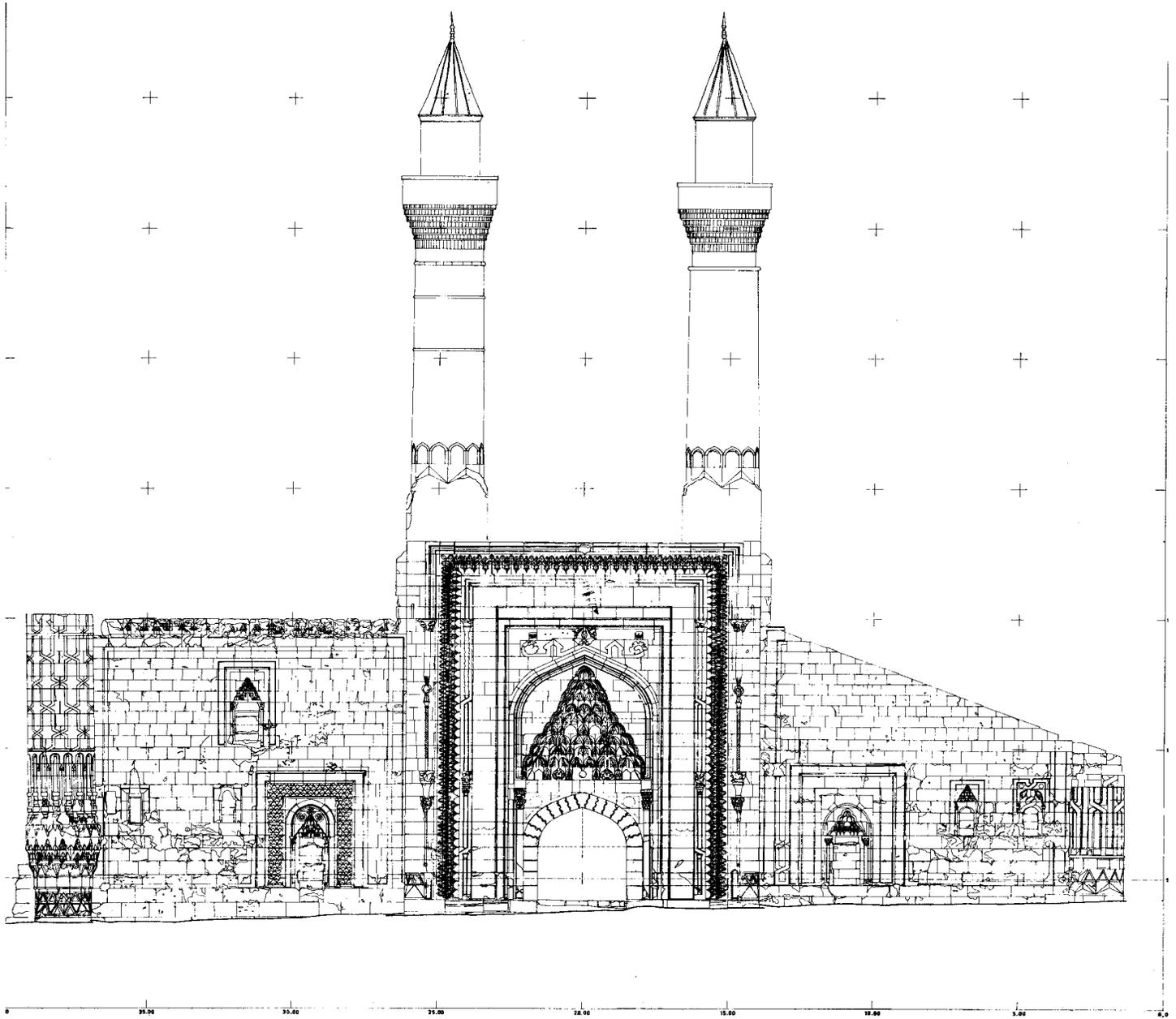


YILDIZ TECHNICAL UNIVERSITY  
Photogrammetric Plan

Proj. Name : Frej Apt./Istanbul  
Scale : 1/125

Camera : UMK 10/1318  
Plotting : Topocart-D

Appendix 2



M.E.T.U.Faculty of Architecture  
Architectural Photogrammetry Center

Moslem School of Theology with  
Double Minaret in SIVAS.