

CENTRAL MUNICIPAL MARKET OF ATHENS THE DETAILED SURVEY

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1. Introduction

The Central Municipal Market is situated right in the heart of Athens and within walking distance from the sacred rock of Acropolis. The Market was built during the second part of last century according to the late renaissance style, called neoclassical in Greece, of which it is a good and typical example. It was the building activity of this period which has set the foundations of modern Athens and, at the same time has produced some buildings of superb architecture, that could form one of the major attractions of the Greek capital today. Unfortunately the rapid growth of the Athens population, called for the immediate erection of large blocks of flats as close as possible to the centre and resulted to the demolition of a large number of those buildings.

However, things have changed lately, and the remaining neoclassical buildings form part of the Greek cultural heritage. In the general effort of preserving these buildings, the Athens Municipality Council decided to restore the Central Municipal Market building and develop its vicinity to a model Market Place. As a result, the Laboratory of Photogrammetry of N.T.U of Athens was commissioned to provide the detailed survey of the whole building.

The survey of an object with such a complicated nature presented a real challenge and, hence, the interest of the Laboratory was justified. The size of the building and the vast amount of detail present called for the application of photogrammetric techniques. Classical surveying methods would prove in this case time consuming, laborious and unsuccessful.

2. Description of the task

The main block of the Central Municipal Market of Athens is a large orthogonal building (25m x 40m) with a double row of little shops all around it. It is encircled by three narrow streets and one of the main shopping streets of

central Athens. The three streets are roofed at a height of approximately 4 m, thus forming a shopping arcade with the shops of the opposite buildings. The total height of the building is about 15m. At the 10m level of the main block there is a large flat roof. On top of that the central roof is built. It is 5m in height and has large windows on all four sides, which provide the lighting for the central interior area.

The central interior area with the interior shops forms the central fish market of Athens. The exterior shops are mainly butchers'. The market is one of the busiest places in Athens and is open from delivery time (04:00 am) to closing and cleaning up time (18:00 pm) every day except on sundays.

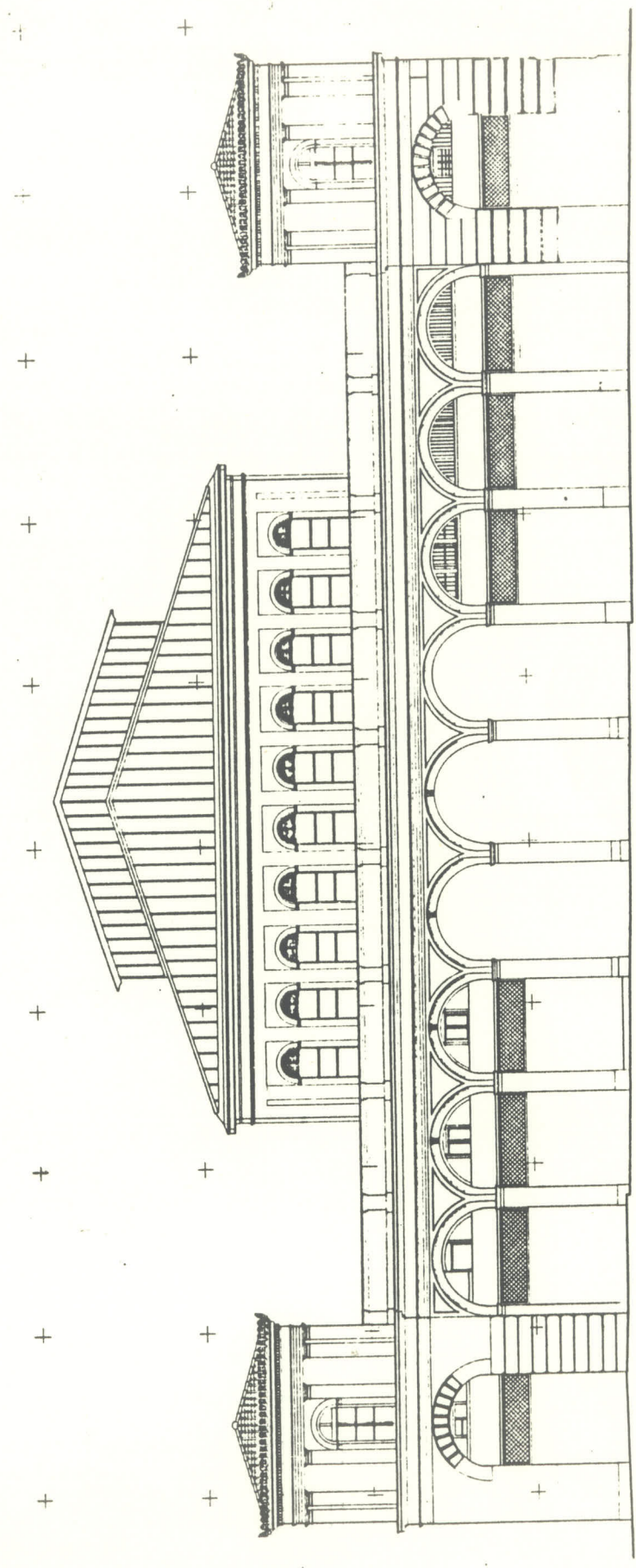
Furthermore, during the decades of operation of the market, the proprietors had added to the building an incredible amount of metal constructions, in order to expand their activities and, at the same time, display their merchandise in the best possible way.

The project of the detailed survey comprised the following products:

- a. Two floor plans at a scale of 1:100 at two different elevations
- b. Two exterior and two interior facades at a scale of 1:50
- c. Two mutually perpendicular cross sections at a scale of 1:50
- d. The facade of a typical interior shop at a scale of 1:20.
- e. Photomosaics for the main facades and the interior shop.

3. Methodology of the survey

Considering the above difficulties, it was necessary to carry out the field work during the evening hours and on sundays. However, even then, with the shops inactive, one could very easily smell the morning activities. As it is common practice, it was decided to use the optimum combination of photogrammetric and surveying measurements, in order to proceed to the required survey. An arbitrary reference system was established and kept the same for the whole job. For the field work a total of 24 man-days were necessary.



0 2 4 m

Fig. 1 Front facade

3.1 Topographic surveying

A dense network of theodolite stations was established in and around the building with an accuracy of 5 mm. From these stations the various detail points for the floor plans and cross sections were determined. Intersections from two theodolites were mainly employed. One of the two theodolites was equipped with a laser ocular, in order to overcome the lack of detail points on the walls and also to avoid mistakes of misidentification, while the accuracy was kept within the preset limits.

For the cross sections special detailed measurements were needed, where the construction of the building presented complicated ornaments. Where possible distances to detail points were also measured with steel tapes, in order to strengthen the calculations. For a team of three persons five days were needed for the completion of the surveying.

3.2 Photogrammetric surveying

The construction of the building presents mainly plane surfaces with very little relief. The ornamental detail, where present, would not deviate substantially from the main plane (Fig. 1). Therefore rectification was to be applied for the photogrammetric survey.

The pre-marked control points for the photogrammetric survey were determined in the same way as the points for the topographic surveying. Effort was made to observe each control point from at least three stations to provide for a first order check. Special self adhesive targets were used for marking the control points. A Zeiss (Jena) UMK 1318/100 phototheodolite was used for the photography. Approximately 30 glass plates were taken in and out of the building for the elevations and cross sections. These were subsequently rectified with a Zeiss (Oberkochen), SEG V rectifier. The rectified photography was later traced by the draughtsmen in order to produce the final plots (Figs. 2 and 3). For the photogrammetric fieldwork three days were needed for a team of three persons and a further five days were necessary for the rectifications.

4. Final products

The main obstacles have already been described as far as the field work is concerned. Further serious difficulties were encountered at the stage of the restitution from the rectified photography. They comprised, mainly, problems of

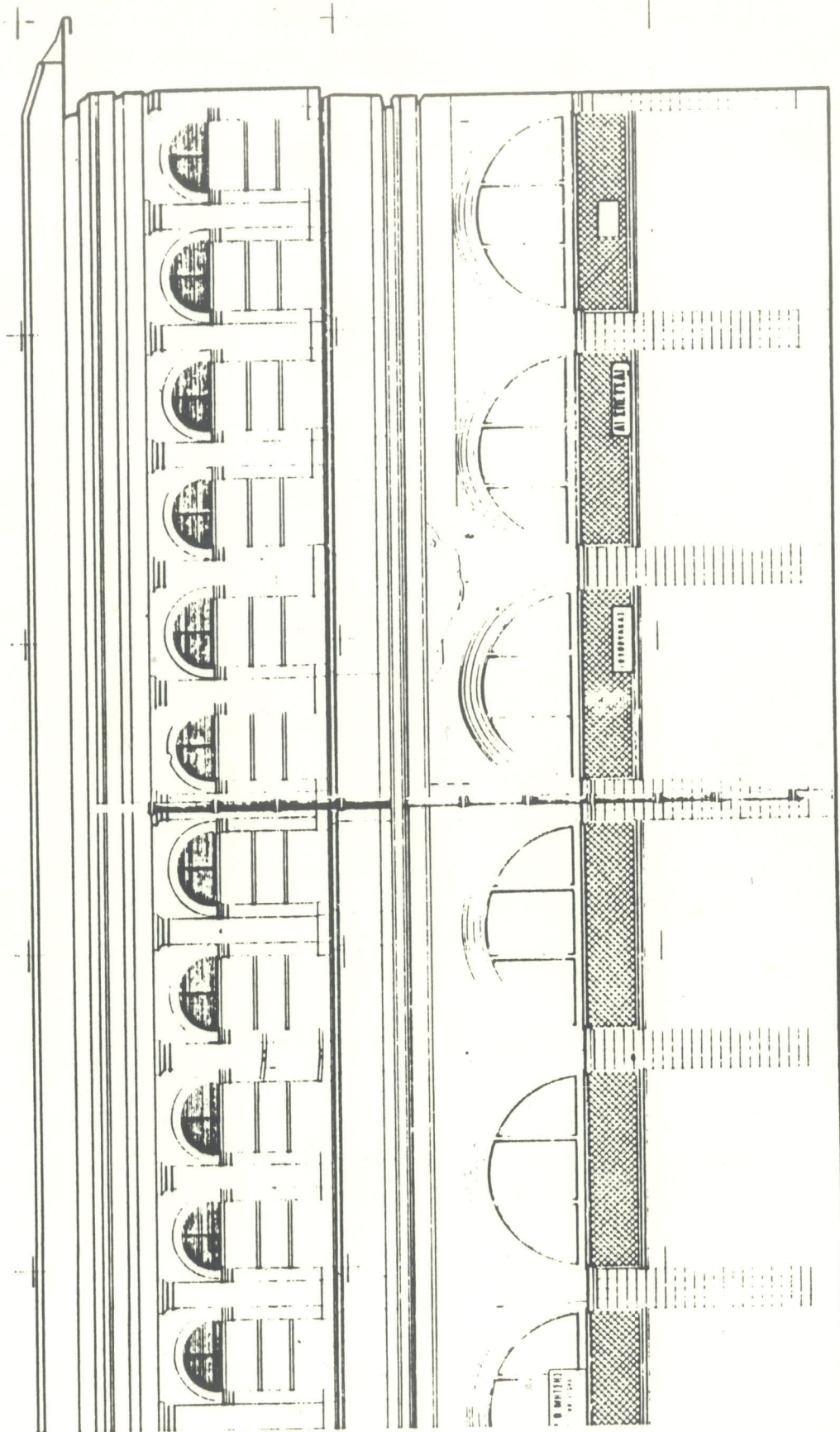
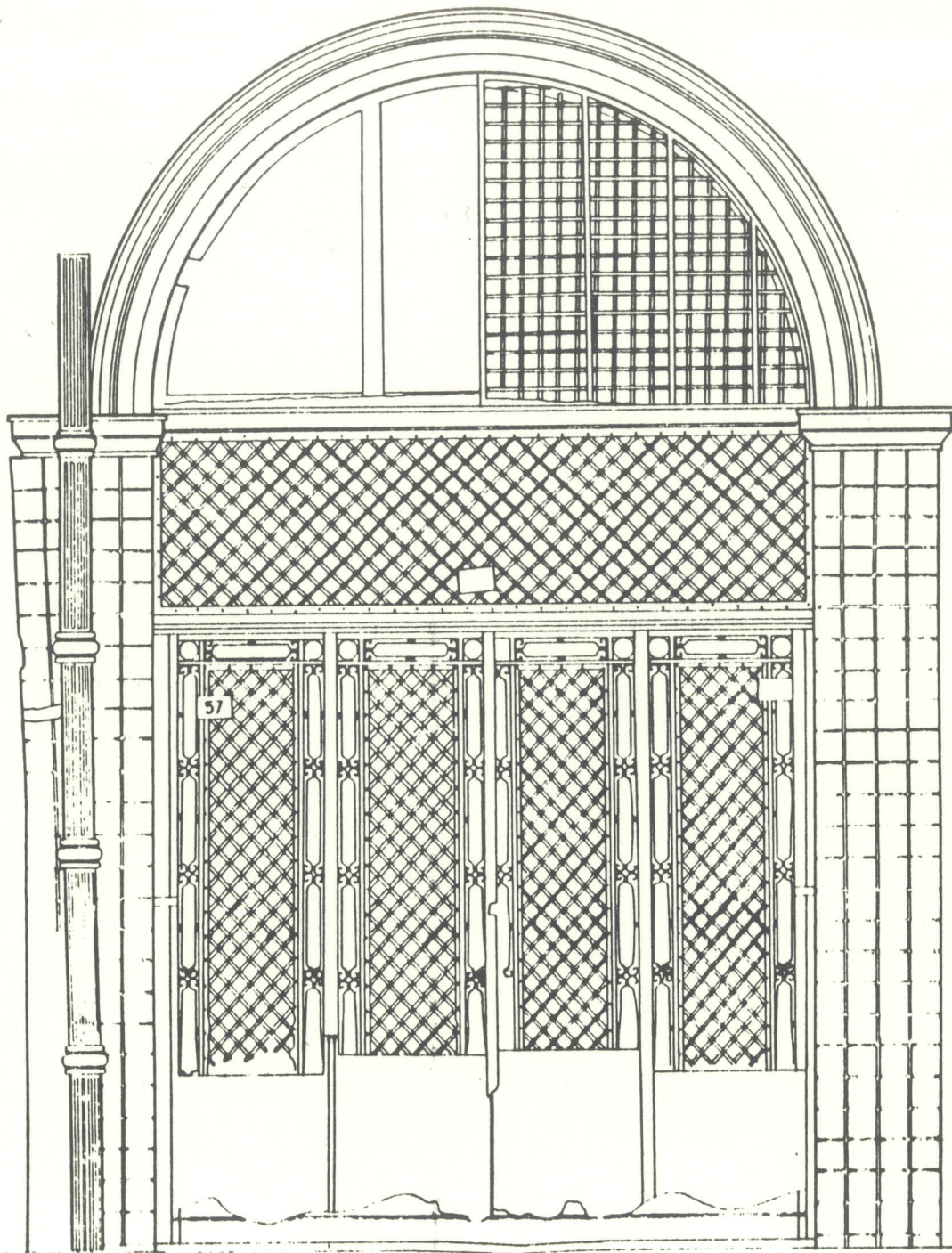


Fig. 2 Part of interior facade



0 0.5 1.0 1.5 m

Fig. 3 Facade of typical shop

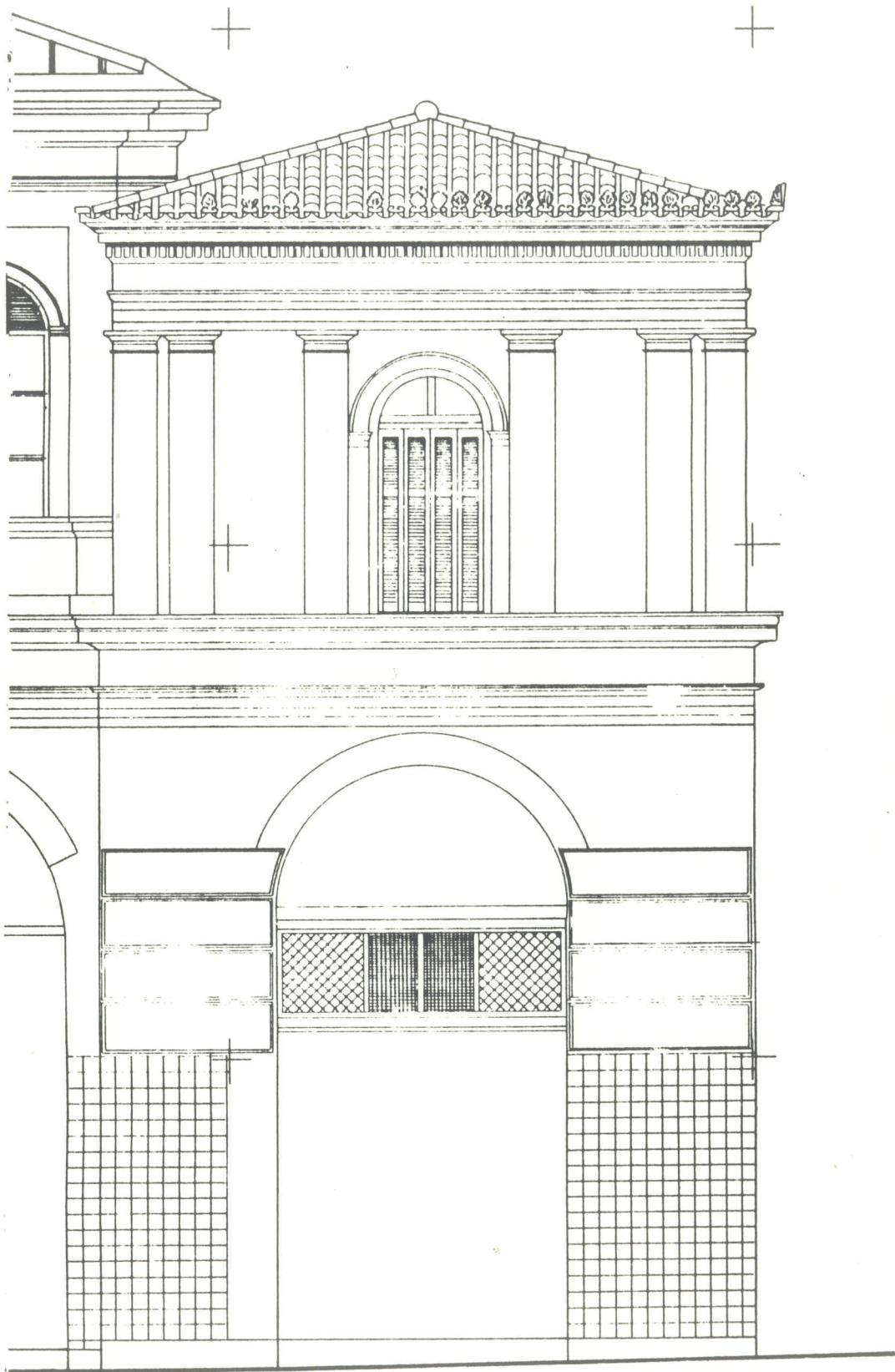


Fig. 4 Part of exterior facade

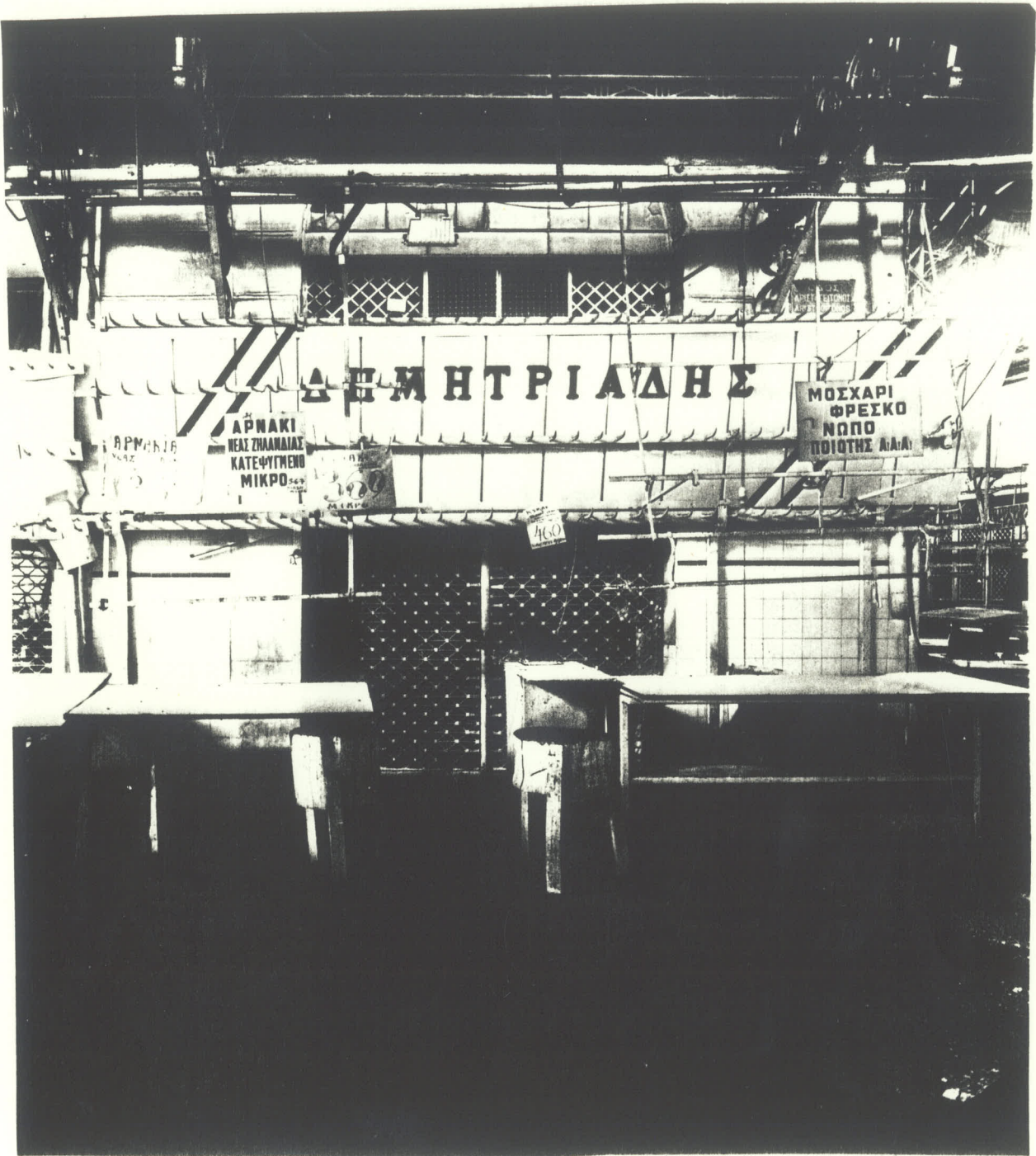


Fig. 5 Corresponding Photograph to Fig. 4

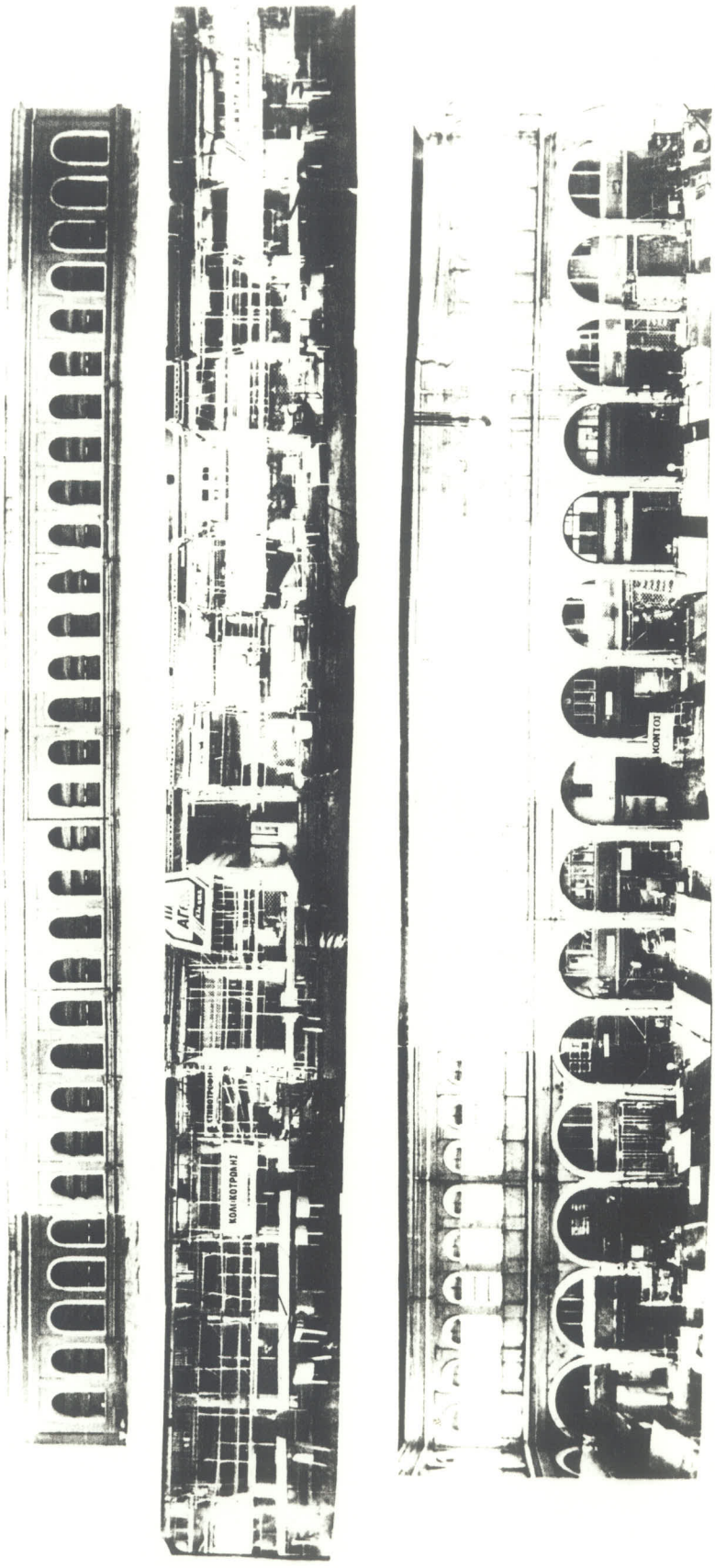


Fig. 6 Photomosaics

interpretation at the time of tracing the detail, in order for the main building with its features to appear on the final drawings. This called for a close supervision of the experienced draughtsman by an engineer with deep knowledge of the building and of the requirements of the survey, in order for an actually subtractive drawing to take place. This means that decisions ought to be taken constantly as to whether a feature, appearing on the photography, really belonged to the original construction, and hence should appear on the plot, or it was added by the shopkeepers at a later date. At this stage of the survey a number of additional measurements was carried out in situ, in order to provide clarification on the size of obscured features.

The result of the above efforts may be easily seen by a simple comparison of the final drawings and the corresponding photographs, an example of which appears in Figures 4 and 5. In terms of accuracy the final plots are well within the required limits set by the scale of plot. Finally the photomosaics were constructed using the rectified photography at the same scale as the drawings (Fig. 6). Contrary to the drawings, the mosaics show a more realistic view of the building, which may be used for different purposes by the architects, who are now composing their proposals.