UNPUBLISHED OTTOMAN ARCHIVAL INFORMATION ON THE SEISMICITY OF THE BALKANS DURING THE PERIOD 1500 - 1800

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Introduction

The addition of Ottoman sources to the corpus of material available for the study of the seismicity of the successor states of the Ottoman Empire, appears to offer a chance to enhance our understanding of the earthquake hazard of these regions. Among the voluminous archival legacy of the Ottoman bureaucracy, whose reach extended into every village, we might hope to find a somewhat full record of the effects of earthquakes throughout the empire.

The question which we want to pose here is how much Ottoman archival sources add to written material in other languages for the area and period under consideration, that is, Albania, Bulgaria, Greece and former Yugoslavia during the three centuries between 1500 and 1800.

The type of data which is of use to the earth scientist to assess earthquake hazard is that which can be accorded some numerical value that can be used to determine chiefly the epicentral area of an earthquake, in terms of its geographic coordinates, and the size of the event, in terms of its magnitude. This requires knowledge of the distribution of the intensity of an earthquake, that is the degree of the severity of damage or shaking, at as many sites as possible, including those at great distances where the shock was merely felt, as well as knowledge of the effects of the earthquake on the ground itself and of its association with secondary effects such as the generation of landslides and seismic sea waves.

The two pieces of information which are of interest to the earth scientist and which need to be assessed from written sources, are the location (epicentral region) and size (magnitude) of an earthquake; that is: (a) where and how large was the area of maximum destruction and (b) how far away the shock was felt. Other information such as the human and material losses incurred, and the social and economic impact and consequences of the event are of interest more to the historian than to the earth scientist, although sometimes this kind of information can help to assess the size of the epicentral region.

The method we employed to retrieve information has been first to identify earthquakes in the Ottoman Balkans during the period 1500 to 1800 from published occidental sources, and then to look for additional information in Greek

and Slavonic (mostly) published documents. Having thus prepared a preliminary list of earthquakes, supplementary information was sought in Ottoman and Italian archival material and consular archives; this supplementary information proved invaluable for the second half of the 17th and for the 18th centuries. In the process, quite a few new events were found which added considerable information that led to additional searches in other sources.

The Ottoman archival material utilised for the present study consists for the most part of the documents from the Maliyeden Müdevver (MMD) series in the Ottoman central archives, the Başbakanlık Osmanlı Arşivi (BBA) in Istanbul. These documents and the registers into which they were copied for the central bureaucracy record, are extremely disparate in topic but have in common that they all concern financial matters, as do most of the other Ottoman documents utilised here. The aim of the writers of the documents which refer to earthquake damage was to assess the exact costs for the repair or reconstruction of structures affected by the shock, to dictate the administrative route to be followed in effecting the repairs and to ensure that the money assigned was spent as decreed. Another series of Ottoman documents which might have been useful and have given further information from disparate sites is the records of the kadi courts, but those for the Balkans are for the most part lost or cannot be located.

Among the most detailed documents are those relating to the repair of public buildings, in which are found a record of the dimensions of the damaged part of a structure and a complete accounting of the costs involved. The material relating to each event located is copious, but in isolation is for us of little value since it usually relates to damage to individual buildings and in particular to military structures. It is only rarely that there is any reference to damage elsewhere or to casualties and material losses.

Venetian correspondence relating to earthquakes in our region shares some of the same characteristics: both Ottoman and Venetian sources suffer from a lack of information regarding non-pecuniary matters, the very information which is of most interest to the scientist. Both Ottoman and Venetian documents rarely name affected sites other than those that had petitioned for or required financial assistance for repairs or reconstruction, seldom mention casualty figures and almost never list sites at which an earthquake was felt without damage.

Each type of source reflects the concerns of its author. By contrast with the narrow administrative concerns of the Ottoman bureaucracy, the contemporary accounts of merchants and travellers, for instance, provide an impressionistic and personal picture of the effects of an earthquake, while church records are often careful in giving the date of an event - which the Ottoman records are usually not; consular reports and newspapers give a wider view of the event but are few until a period well into the 17th century. Thus, for the region and period under investigation here, such vital features of an earthquake must be retrieved from these types of non-Ottoman sources.

When we consider the diversity of sources, the different languages involved and the paucity of libraries of the relevant types of material, it is clear that such re-

search is extremely time-consuming. This is especially true with respect to the retrieval of earthquake-related material from Ottoman sources. Indeed, when we consider the following statistic, we may wonder whether it is cost-effective: of some 500 earthquakes known from non-Ottoman sources for the period and area of our interest, only 41 were found in Ottoman sources and of these 21 are already known from other sources.

Most Ottoman documents relating to earthquakes provide no date for the events they describe and only a terminus ante quem can be established from the date of their issue. This makes it almost impossible to establish simultaneity and the association of such information with earthquakes known from other sources can only be tentative. Some of the entries in the catalogue which we present here may relate to the same event but at present there is not sufficient information to justify their amalgamation, or their association with known events.

Another difficulty in assessing the severity or intensity of an earthquake at a particular locality is that in many cases earthquake damage in Ottoman documents is reported together with or as a result of more than one cause, such as ageing, weathering, neglect or military operations, or as the result of more than one earthquake. The collapse of or damage to a dilapidated building is not always an indication of severe shaking but rather a measure of the vulnerability of the structure. Large, distant earthquakes can destroy this class of buildings at distances of hundreds of kilometres from where the earthquake happened, particularly those built on soft and saturated ground, and their collapse can give the false impression of severe shaking. The lack of interest of the Ottoman administration in the maintenance of public buildings often contributes to false estimates of intensity.

Summary case-histories of the 41 earthquakes occurring in the Balkans between 1500 and 1800 which are recorded in hitherto unpublished Ottoman archival sources are presented below, and listed in Table 1. Fig. 1 and Table 2 show the location of sites mentioned in the text together with modern names.

Case histories

In what follows we present summaries of the information relating to earthquakes retrieved from Ottoman sources, including those reported earlier in Ambraseys and Finkel (1992). For events known also from other, non-Ottoman sources, this information is followed by a brief statement, supported by the most appropriate non-Ottoman source.

a.H. indicates dates according to the Hicri calendar and a.M. refers to anno Mundi. All other dates are a.D. according to the Gregorian, so-called New Style, calendar unless the Julian calendar is indicated by O.S. The sign < indicates that the date given for the event is a terminus ante quem. The sign * indicates events which are known only from Ottoman sources.