

# CHAPTER ONE

## PRESENTATION OF THE METHOD

§I. *Comparative Stratigraphy.* During our stratigraphical research of the upper levels at Ras Shamra, we have observed, in most places as of yet explored on this vast tell, five particularly well marked layers always succeeding one another in the same order.

Near the surface, a layer of destruction and upheaval clearly indicates the end of the Late Bronze Age civilization and the disappearance of Ugarit as a city.

Around the middle of level I., a layer of burning and partial destruction is witness to a severe catastrophe which affected Ugarit at the time of the Late Bronze. The collapsed walls, sometimes only fissured, the characteristic shifting of the foundations immediately above the level of the ancient floor, as well as other clues make it possible for us to recognize in them the damage caused by a violent earthquake, fig. 1. The damages were later repaired and the houses were re-used.

At the basis of the layers of level I., there is everywhere a succession of several layers which are extremely poor in archaeological remains. They correspond to some kind of a hiatus which inserts itself between the Middle Bronze and the Late Bronze. This hiatus explains the extreme rarity of the types of products of industry which are common to both levels. The city's eclipse must not have been total, but, as a matter of fact, the break was severe, as finds made up to now and attributed to the transition period between Middle Bronze and Late Bronze are very rare at Ras Shamra. This rarity is in contrast with the wealth of the two levels situated immediately above and below, which bear evidence of the prosperity of the city at the corresponding periods.

At the basis of level II., a thick sterile, or practically sterile layer, indicates another interruption in the city's career, followed by fixes to repair some damages. Ruins of brick buildings were levelled in order to make place for the constructions of the Middle Bronze.

Finally, lower still, a heavy layer of ashes and of bricks hardened by a blaze is evidence of a catastrophe which ravaged Ugarit at the time of the Early Bronze.

Some of these layers indicate the beginning or the end of the levels recognized at Ras Shamra, others evidence temporary stops in the activity of the city. Such are the key witness-layers, or the landmarks, of the stratigraphy of Ras Shamra.

We have not been able to establish if these key-witness layers are not particular to the stratigraphy of Ras Shamra. It is possible to distinguish them in the stratigraphic cuts of most

of the sites contemporary to ancient Ugarit, be they situated in Syria-Palestine or even beyond that zone, in Asia Minor.



Picture Fig.1: Shifting undergone by the foundations of the façade of a building in Ugarit, collapsed during the earthquake of 1365 BC.

A first investigation allowed us to ascertain that the layer of destruction caused by the Ugarit earthquake in the Late Bronze Age corresponds to the catastrophe signalled by Abimilki of Tyre to Amenophis IV in the following terms: “Ugarit, the king’s city, has been destroyed by fire; half of the city has been burned down, the other half has vanished.”<sup>1</sup> The catastrophe must have happened between 1370 and 1360 BC, let’s say around 1365. If, as the Tell el

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<sup>1</sup> . Cf. our *Ugaritica*, I, p.35; J. A. Knudtzon, *Die El-Amarna-Tafeln*, pp.625 and 1017.

Amarna text is reporting, one half of the city has been radically destroyed to the point of “having vanished,” the 1365 earthquake must have reached force 8 according to the Mercalli scale or 9 to 10 according to the international scale.<sup>2</sup> Our deduction is confirmed by observations we have made among the ruins of ancient Ugarit where a great many very solidly built constructions had been toppled by horizontal jolts, fig.1.

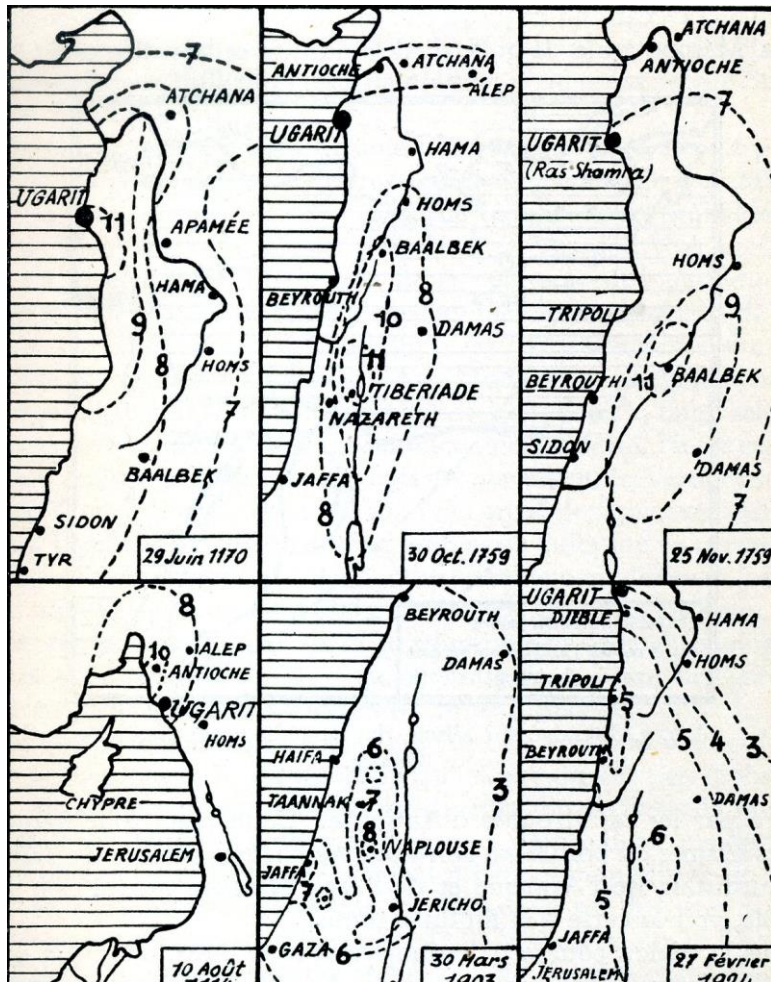


Fig.2 Reach of some earthquakes in Syria-Palestine (according to Ballore and Sieburg).

We know that Palestine and Syria, as well as the neighboring regions of Anatolia, constitute one of the most mobile stretches on the surface of the Earth, called geosynclines, fig.2.<sup>2</sup> Frequent and redoubtable, the earthquakes there have left deep memories, down into the Holy Books;<sup>3</sup> in several instances, they were mentioned and sometimes described by ancient authors. Out of 170,000 earthquakes registered until 1906, no less than 90,000, i.e. 53% occurred in the so-called Mediterranean geosyncline, which stretches from the Indian Ocean to the Western Mediterranean, passing through Mesopotamia, the gulf of Alexandretta [Iskenderun]<sup>4</sup> and the Orontes valley, famous for the catastrophes at Antioch. This vast

<sup>2</sup> F. de Montessus de Ballore, *Les Tremblements de Terre*, Paris, 1906, p.9 ; B. Gutenberg, *Handbuch der Geophysik*, iv, *Erdebeben*, by A. Sieburg, p.551 ff ; E. Rothé, *Les Tremblements de Terre*, Paris, 1942, p.108.

<sup>3</sup> Rahmer, *Die biblische Erdbeben-theorie*, Magdeburg, 1881; *Mitt. Der Geograph. Gesellschaft Wien*, 1896, p.1; A. Sieburg, op.cit., p.796.

<sup>4</sup> Note of the transl.

seismic zone is bordered at the North by the folded chains of Luristan, Kurdistan, Armenia and Asia Minor, whose grounds are no less unstable, see the map at the end of the book.

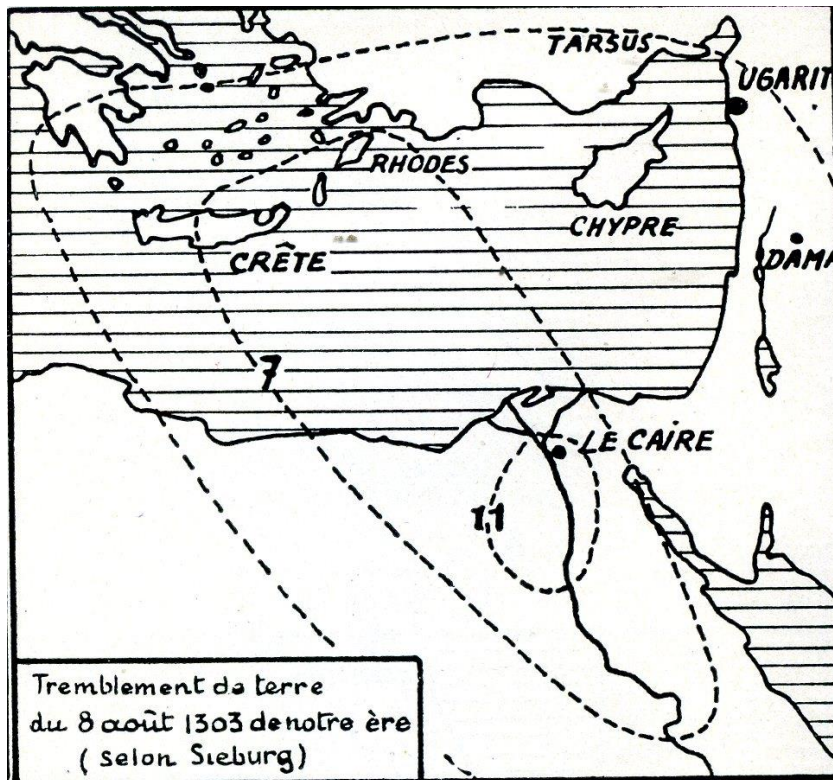


Fig.3. Reach of the seism of 1303 AD, according to Sieburg.

In the Syro-Palestinian coastal region and in the famous 750 km parallel corridor formed by the gulf of Aqaba, the Wadi el Araba, the Beqaa and the Orontes valley, seismicity increases from South to North.<sup>5</sup> The destructions in the cities signalled by ancient and modern historians make one realize the size of the reach of some of these earthquakes which have damaged, in the East, centres like Palmyra, in the middle of the desert, in the West the cities of the island of Cyprus and, to the North, other cities in the South of Anatolia, fig.3. The particularly well studied earthquake of 1927, the epicentre of which was situated in the area of Nablus, shook all the countries around the Western Mediterranean from Egypt to Bagdad, Anatolia and the islands of Cyprus and Rhodes.<sup>6</sup> But if local upheavals are frequent in the Levant,<sup>7</sup> the large earthquakes which level whole cities, or parts of them, are relatively rare. So that identifying damages caused by important seismic shocks which occurred during the high periods [of Antiquity] does not present us with insuperable difficulties, neither from a chronological, nor from a geographical point of view.

Through the meticulous study which we carried out, we were able to establish that the layers of destruction and fire at Beit Mirsim, level C1, those of the Late Bronze II at Jericho and very probably those at Meggido VIII, Beisan VII, Hesy V, Ashkelon V and, to the North, those of

<sup>5</sup> Montessus, op. cit., p.156 ; A. Sieburg, op. cit., P.793ff.

<sup>6</sup> A. Sieburg, op. cit., p.800, fig.438.

<sup>7</sup> Cf. the catalog of Perrez, 'Mémoire sur les tremblements de terre ressentis dans la péninsule hellénique et en Syrie,' in *Mémoires Acad. Roy. de Belgique*, xxiii, 1850.

level I of Tarsus, near the Northern coast of the gulf of Alexandretta, were effects of the same earthquake which ravaged Ugarit around 1365 BC. Farther away, Troy, a site placed at the centre of the seismic regions of Asia Minor, also sustained severe damages during an earthquake the date of which, according to American excavators, falls in the middle of the 14th century. Our own investigation *in situ* of the traces left by the catastrophe among the vestiges of Troy VI, and the identity of the archaeological material with the one at Ugarit and at the contemporaneous cities in Palestine, leave no room for doubt as far as I am concerned: we are dealing here with an earthquake<sup>8</sup> that was contemporaneous, or nearly contemporaneous, to the one at Ugarit around 1365. So that we find ourselves in the possession of a very precious landmark for the study of the stratigraphy and chronology of numerous sites of Western Asia, planted right in the middle of the layers of the Late Bronze Age.

In order to establish the zone touched by the earthquake of 1365 to the North and Northeast of Syria, we have at our disposal only few observations to date. However, at the centre of Asia Minor, Boghazheuy-Hattousas, the capital of the Hittites, sustained severe destructions, which Suppiluliuma strove to repair, precisely at the time of the 1365 earthquake. Finally, it is probably not a matter of chance that on the sites so well explored by our friend and colleague M.E.L. Mallowan on the Khabur and the Balikh, the archaeological record ends rather abruptly around 1350 or so.

Another disastrous earthquake, or another series of violent earthquakes, the traces of which have been observed independently from us by archaeologists from different nationalities, occurred, according to our investigation, around 2100 and 2000, in rounded figures. They seemed to have been centred in Asia Minor where, according to Turkish and American archaeologists, destructions were particularly severe at the Alaça Huyuk on the Anatolian Plateau, and at Troy and Tarsus on the coast. Precisely at the same period, two sites in the Syrian interior, already mentioned at the occasion of the 1365 earthquake, Chagar Bazar and Tell Brak, sustained grave damage. When in the 20<sup>th</sup> century BC the rebuilding of the palace of Naram Sim at Tell Brak was undertaken, the builders took care to reinforce the walls. Not far away, on the Tepe Gawra, Northeast of Mossul and still in the famous Mediterranean geosyncline, the inhabitants, in rebuilding their city, reduced its surface area and avoided building houses along the edge of the hill. The terrain must have proven particularly dangerous at the time of the 2100 to 2000 earthquakes.

At the same time, on the coast of Syria, at Ras Shamra-Ugarit, at Byblos, and in Palestine at Beit Mirsim, Jericho, Gaza, Megiddo and in other sites, the layers of destruction and fire indicate the end of the Early Bronze. In some cities, such as Ugarit and Megiddo, the builders of the Early Middle Bronze were compelled to undertake vast levelling work before erecting new buildings. Having succeeded in establishing a correspondence between these varied layers of destruction, we have obtained another precious landmark for the study of the

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<sup>8</sup> It is known that through a phenomenon of 'relay,' some earthquakes produce others in their wake, cf. E. Rothé, *op. cit.*, p.21.

stratigraphy of the numerous Early Middle Bronze sites affected by earthquakes between 2100 and 2000 BC, or having suffered the consequences of these disasters.

Two more great catastrophes, the nature of which is still problematic, had hit Western Asia and Egypt, one between 2400 and 2300 and the other towards the end of the Middle Bronze, beginning at about 1730. We could identify the corresponding destruction or devastation layers in the stratigraphy of most of the great sites, from Hissarlik-Troy in the North, to Beisan in central Palestine.

This is how we set ourselves to study the stratigraphy of the main sites of the Early, Middle and Late Bronze Ages in Syria and the neighboring countries, Palestine to the South, Asia Minor, Persia and the Caucasus in the North. Our investigations allowed us to clarify the relative and absolute chronologies of the Bronze Age in this whole vast zone of Western Asia, by applying to the corresponding levels of the sites of this period the dates obtained during our excavations of the ruins of ancient Ugarit. Sometimes, we were able to also elucidate the cause of some of the main events which have influenced the history of the countries of Western Asia during the 3<sup>rd</sup> and 2<sup>nd</sup> millennia.

In order not to risk skewing the results of our inquiry by applying too narrowly the chronology of Ras Shamra, we have decided to pursue our study by basing ourselves strictly on the materials and on the stratigraphic observations reported from each of the examined sites. It is only after having carried to end these analyses that we have tried to establish stratigraphic and chronological correspondences with Ras Shamra-Ugarit, as well as analogies which these diverse sites presented among themselves.

Our study has often been rendered difficult by the rarity in most excavation reports of observations about the destruction levels themselves which provide, as we have seen, the key to the interpretation of the stratigraphy of the different sites. As they were only running into ruins with a jumbled up plan, or formless masses of rubble, some diggers considered these levels unrewarding or of little interest.

We had of course to content ourselves with examining sites the stratigraphy of which has been adequately explored and which gave sufficient guarantee as to the precision of the observations. Indeed, it would have been possible to extend our study to include a number of other sites which have been excavated in Western Asia. But we were limited in time, as well as in the documentation available, through the circumstances of the war in the middle of which we have carried to end this investigation.

This is how we have come to elaborate a method of investigation called Comparative Stratigraphy.<sup>9</sup> The reader will be in measure to judge of its utility by the results which we are submitting in the chapters to come.

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<sup>9</sup> As our work was being composed, we were communicated the brochure by Mr D.E. McCown with the title: 'The Compared Stratigraphy of Early Iran,' in *Studies in Ancient Oriental Civilization*, no.23, Chicago, 1942. The term Compared Stratigraphy is used in a meaning that is different from ours. The author defines it thus (op. cit. p.xvi): 'As the title indicates, this is not a primer of Iranian archaeology, but a study of the divisions of the excavated sites into phases and periods and of the temporal relationship of these phases and periods to one another in Iran and to the established Mesopotamian sequence.' Examination of this excellent piece of work

## Chapter 2: Stratigraphy and chronology of the Bronze Age layers at Ras Shamra-Ugarit

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(which treats of periods anterior to those that occupy us here) confirms that it is a Compared Chronology rather than a Compared Stratigraphy. The same observation can be made about the work of Tahsin Özgüç, 'Öntarihte Güney ve Güney-Dogu Anadolu'nun Mukayeseli Stratigrafisi' (Vergleichende Stratigraphie des vorgeschichtlichen Süd- und Südost Anatoliens), in *Ankara Üniversitesi Dil ve Tarih-Cografya Fakültesi Dergisi*, Cilt IV, Sayı 3, 1946, p.251.