

**Extensional tectonics along the Dead Sea Rift :
the separation of northern Arabia from North Africa?**

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The Dead Sea Rift is a 600 km long, 20 km wide geomorphological depression, that shows topographic reliefs of 1,000 to 3,000 m from the axial depression to its mountainous margins in many places. The Rift is the northern extension of the young oceanic spreading center of the Red Sea, and it is built of a series of internal basins, dispersed along the axis of the Rift with 60 - 120 km spacing. The Rift is primarily the product of vertical displacements that downfaulted its floor and uplifted its margins, but some sinistral strike-slip offset affected the Rift as well. The tectonic evolution of the Rift probably started in the Pliocene, subsequent to the termination of the intensive tectonic activity in the Suez Rift in the late Miocene. The transition of the tectonic activity from the Suez Rift to the Dead Sea Rift is due to a probable clockwise jump of the northern edge of the Red Sea spreading center. It is suggested that the morphological and structural similarities between the Suez and the Dead Sea Rifts stem from comparable, though noncontemporaneous, tectonic regimes. The Dead Sea Rift, with its internal basins and its faulted precipitous escarpments, presents an outstanding example of the earliest stages of the evolution of continental break-up and of nascent passive continental margins.

Tectonic interpretation of the voluminous geological and geophysical data from the Rift and its margins is complicated because the information is ambiguous. Part of the data suggests that the Rift is an extensional structure, whereas another part indicates that the Rift is a product of regional sinistral strike-slip faulting. However, it is suggested that the equivocal data are not necessarily conflicting, because the evolution of the Rift is probably associated with resultant displacement of oblique displacement, combining normal and strike-slip faulting. Whereas the interpretation of the oblique offset along the Rift is generally accepted, the quantitative ratio between the extensional and the lateral displacements along the Dead Sea Rift is controversial. There is ground to presume that large downfaulting of the Rift floor and intensive erosion of its uplifted margins obscured and removed critical data that could have provided reliable correlation between the eastern and western flanks. Nevertheless, reconstruction of Triassic, Jurassic and Cretaceous depositional facies zones across the Rift apparently indicates that the lateral displacements along the Rift are approximately 10 km, and various late Tertiary and Quaternary geological features in Syria and Lebanon are in agreement with this interpretation. The amount of displacement by normal faulting is considerably larger than the morphological relief, and seismic reflection profiles suggest vertical offsets that reach 7 km in places. The series of secondary internal basins in the Rift, that seem equivalent to the linear system of axial basins in the northern Red Sea, support the concept that the present Dead Sea is under a tectonic regime that is comparable to the one that affected the Red Sea during the Miocene. These findings are supported by the 25 to 50 percent reduction of crustal thicknesses underneath the Rift. It is suggested that the Dead Sea Rift is an incipient, oblique oceanic spreading center, separating northern Arabia from North Africa.