

Fig. 2
According E.
Wirth Agrar-
geographie des
Irak III. 11

have reached a soil salinity of 1% in roughly 500 years without any natural drainage⁽⁶⁾. Hence the cultivation of wheat and other crops would have been impossible⁽⁷⁾.

Also still today in places where there is this kind of natural drainage, e.g. along the Euphrates course at Hit, soil salinity is not worth mentioning⁽⁸⁾.

Moreover, the numerous connections linking the Euphrates to the Tigris probably caused a distribution of river waters, thus reducing the flooding danger.

This carefully planned artificial-natural river system, which not only reduced excess of soil salinity caused by flowing water but also limited the danger of disastrous flooding, were to be found not only in Middle Mesopotamia. According to fig. 1 this system was also used in ancient times in the Tigris area between Samawa and Baghdad. Main branch canals were built to flow downstream into the Tigris, making use of the natural slope, and smaller connecting canals were often built to link the

main branches to the Tigris itself.

Thus, by carefully exploring the Euphrates and Tigris regions and providing so accurate a description of both river networks with their systems of connecting canals, Ibn Serapion preserves over the ages the high irrigation standard of ancient Mesopotamian civilizations.

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3. K. Kreeb, Okologische Grundlagen der Bewässerungskulturen in den Subtropen, unter besonderer Berücksichtigung des Iraks, Stuttgart 1964.
3. Eugen Wirth, Agrargeographie des Irak, Hamburg 1962.

6) K. Kreeb, op. cit., p. 96.
7) K. Kreeb, op. cit., p. 108.
8) K. Kreeb, op. cit., p. 97.

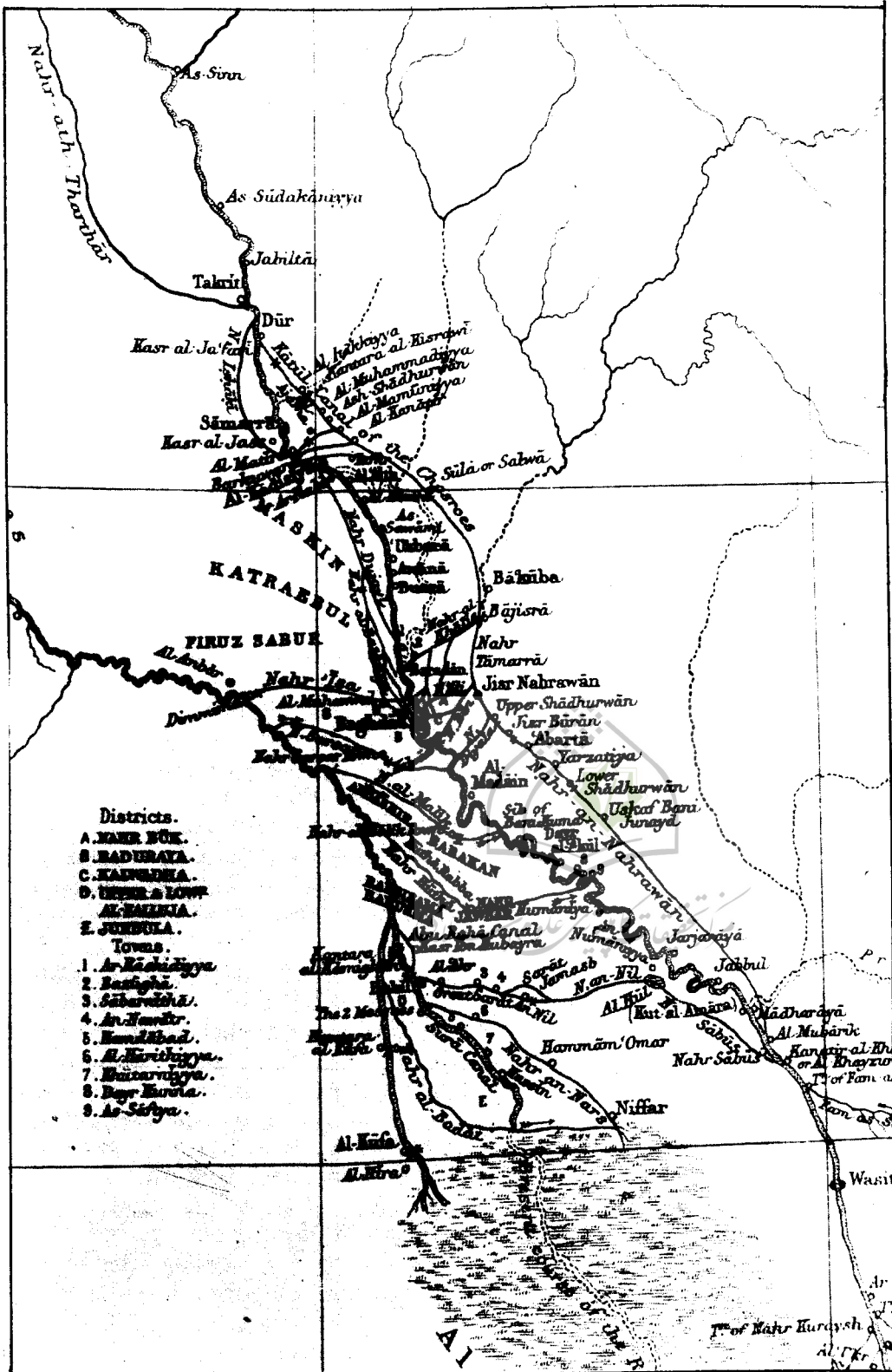


Fig. 1
Middle Mesopotamia and its high degree of agricultural irrigation at the time of the Caliphates. (Section of the map of Guy le Strange).

ditions for agricultural irrigation during 500 B.C. to 1000 A.D. This fact was the basic condition for a population density of one settlement per square mile according to R. Mc. Adams archaeological researches (5). The close

network of artificial river system shown in fig. 1, still existant in 900 A. D., supports these archeological results. The fact that this artificial natural draining system could last for 1500 years provides evidence that there had been no problems of salinity along these connecting rivers due to the natural drainage of the flowing water. According to scientific researches the Mesopotamian area would

5) Robert Mc. Adams, Survey of Ancient Water Courses and Settlements in Iraq, Sumer XIV, Baghdad 1958, p. 101 ff.

MIDDLE MESOPOTAMIA AT THE TIME OF THE CALIPHATES

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Two Mongol invasions, one led by Hulaga - Khan in 1258 A. D. and the other by Tamerlane in 1400, completely destroyed the elaborate Mesopotamian system of artificial irrigation. The brilliant cultural history of Mesopotamia, which had flowered for the last time during the era of the Caliphates, came to its end. The shattering of the many thousand - years - old irrigation system, which heretofore had functioned so admirably, deprived the peoples of the Euphrates and Tigris area of their life - base. The experiences in irrigation and the know - how made in thousands of years was lost to the world⁽¹⁾. It is of considerable significance, therefore, that Guy Le Strange should have come upon a manuscript in Arabic handwriting by Ibn Serapion in the Archives of the British Museum describing Mesopotamia at the turn of the 9th century.

On the basis of this detailed description given therein Le Strange was able to publish a paper in the "Journal of the Royal Asiatic Society London" in 1895 entitled : "Description of Mesopotamia and Baghdad, written about the year 900 A. D. by Ibn Serapion. The Arabic text edited from a MS. in the British Museum Library, with translation and notes"⁽²⁾

In this paper Guy Le Strange not only reproduced the Arabic text but also provided an English translation. Guy Le Strange was able to check and complete Ibn Serapion's exact descriptions of geographical positions as well as his accurate descriptions of rivers and canals by many detailed foot notes. Finally he was in a position to set down in a map the exact situation of Mesopotamia

around 900 A. D. by means of Ibn Serapion's careful description.

Fig. 1 shows the central section of his map of Mesopotamia. Owing to this map the high degree of agricultural irrigation of Mesopotamian cultures at the time of the Caliphates is passed on to the future generations.

The devastating influence of the two Mongol invasions to Middle Mesopotamia in the following centuries is shown on a map of this territory, with its settlements, based on agricultural irrigation round 1800 A. D.⁽³⁾ (see fig. 2). A comparison between fig. 1 and 2 clearly underlines the historical significance of Ibn Serapion's records.

An astonishing feature of fig. 1 is the network of connecting canals linking the Euphrates and the Tigris rivers, described in great detail. According to Ibn Serapion's records these connecting canals held "flowing water". This fact suggests that the difference in slope between the two river beds was skillfully made use of when building the canals, thus creating some type of small natural connecting rivers between the Euphrates and Tigris. An extraordinary high level of surveying technique must have been available at the time when planning these artificial waterways. However, "flowing water" might have meant a natural draining of water into the Tigris, which would account for a reduced vulnerability to soil salinity⁽⁴⁾. For this reason this well arranged network of connecting canals with drainage effect might have provided the Middle Mesopotamian area with excellent con-

1) K. Kreeb, *Ökologische Grundlagen der Bewässerungskulturen in den Subtropen, unter besonderer Berücksichtigung des Iraks*, Stuttgart 1964, P. 97.
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3) Eugen Wirth, *Agrar-geographie des Irak*, Hamburg 1962, ill. 11
4) K. Kreeb, *op. cit.* p. 97