

A SAW Workshop at the

Rencontre Assyriologique Internationale 61, Geneva and Bern, 2015

Math & Realia

Workshop on Mathematical Practices in Various Sectors of Mesopotamian Society

Organised by Cécile Michel and Christine Proust

June 26th, 2015

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The administration of irrigation systems in the Umma province of the Ur III state (2112-2004 B.C.)

Abstract - Managing an irrigation system, regardless of time and place, requires a considerable amount of planning. The irrigation infrastructure of canals and water control facilities must first be constructed, and then later regularly maintained. Water needs to be allocated to different parts of the system in order to meet the water demands of various crops. The smooth operation of the system depends on the timely performance of all necessary tasks, and a staff of full and/or part-time administrators is employed to plan and schedule the execution of the required work projects. The administrative documents from the Umma province during the Ur III period (2112-2004 BCE) provide an extraordinarily detailed insight into the administration of ancient irrigation systems and the various computations and quantifications employed in the planning of the execution of irrigation works. These documents bear witness to the level of scientific understanding of data acquisition and management in Ur III administration. In addition, the recording of the names of officials in charge of supervising and authorizing the various work projects not only allow us to reconstruct the chain of command but also determine the degree of centralized control in irrigation management. More importantly however, it also provides insight into the skill set that various administrators and officials mastered and helps us gauge the level of literacy and numeracy of an ancient society. This paper will discuss a set of texts which illustrates the individual administrative steps including the mathematical procedures involved in the planning and execution of irrigation works.