their books (although such dependants were always present); access to a pool of temporary labor in time of particular need was more important. Cultivation did not require much manpower, but harvesting the vast institutional fields under permanent threat of flooding did (high water coincides with the harvest period in southern Mesopotamia). Furthermore, the network of irrigation installations needed a regular input of labor; maintaining it was overall the most important task of governmental institutions on the local, regional, and even interregional level.

In the third and second millennium BC irrigation networks in southern Mesopotamia were not closely interconnected; planning and management were apparently done mostly on a local level, though they always involved representatives of the central government, the Crown. Only from the sixth century BC onward does one find a qualitative shift: genuinely interconnected regional and interregional irrigation networks begin to appear. This development eventually led to the unparalleled degree of centralization and integration of the irrigation network in the late Sasanian period.[14] In the Iron Age and thereafter, the input of labor and resources in the irrigation system was therefore higher than in earlier periods. This must reflect different governmental structures (and mentalities), as well as a larger surplus that could be extracted from society for this purpose.[15]

The basic structure of the agrarian economy largely determined the way the states harnessed society's resources; as we will see throughout this section, labor service was the single most important contribution that was exacted from the Mesopotamian population by its rulers. While obviously present and indispensable, payments in kind or money were, in comparison, overall of lesser importance.

"Fiscal structures" from the end of the third millennium to the fourth century: the evidence

Generalities

The principal purposes for which the Mesopotamian states and their elites drew on the resources of society at large fell into two basic categories: public works and military expense, on the one hand; and the upkeep of the ruling elites and the religious system, on the other.[16]

[14] Adams (1981).

[15] A case for a higher prosperity of Iron Age Babylonia in comparison to earlier periods of Mesopotamian history is made by Jursa (2010: esp. 99, 804ff.).

[16] We do not make here the traditional distinction between temples (religious institutions) and palaces (or, generally, institutions of central government) within the institutional sphere. This supposed dichotomy has played an important role in the discussion of early Mesopotamian states, but more recent research has shown that temples, the specificity of their social, religious, and economic function notwithstanding, were in the final count controlled at least indirectly by the Crown; they were institutions of the state at least at one remove and did not have an independent political function. See, for example, Kleber (2008).

The first category includes: maintenance of the irrigation system; military expenses; the construction of "prestige buildings" (palaces and temples); the construction of defense systems (against floods as well as against human enemies); and seasonal work on institutional estates (Crown or temple).

The second category includes, foremost, the day-to-day costs of the official cult and religion, and the costs of government and of the requirements of the elites (court life, conspicuous consumption, etc.).

Public works, whether on the irrigation system or devoted to large-scale urban construction, required by far the largest input of resources. Owing to the ubiquity and cheapness of the principal construction materials (mud bricks, reed, bitumen), the main resource that was consumed by these public works was labor. On the level of individuals with service obligations there was frequently the possibility to commute a labor obligation into a payment for a substitute worker. Such a commutation could also happen on a lower or higher level of the administrative structure extracting the labor service, thereby in practice turning the payment for the substitute into a tax payment. Mesopotamian taxation cannot be studied independently of labor and military service obligations.

Mesopotamian sources from the second millennium onward offer much evidence for tax-farming, both for direct and (especially) indirect taxes. The importance of the phenomenon (which cannot be discussed in any detail here) increased radically in Babylonia in the sixth century concomitantly with the broadening of the tax base. Collection costs were high, and efficiency a permanent problem. This was one of the main incentives for tax-farming, in fact: the state wished to pass on the risk related to tax collection to the tax farmer. Contracts were of the fixed-rent type, which helped keeping transaction costs low. Tax estimates in Mesopotamia were typically made on the basis of rules of thumb ("Every hundred ewes will produce sixty-six lambs every year, and ten ewes of 100 will die"), which owed as much to Mesopotamian arithmetic and metrology as to practical experience. Such estimates frequently produced unrealistic expectations, but they had the advantage of being very easily applicable. Tax farmers were frequently hard-put to meet the goals set them by the state.[17]

[17] These matters are discussed by Jursa (2002).

Anecdotal evidence suggests that in all periods maximizing the efficiency of revenue collection (or, rather, minimizing inefficiency in this respect) and securing the necessary cooperation of the agents of revenue extractions (usually members of local elites that had been co-opted by the state in different ways) was a huge problem.[18]

The role of credit in Mesopotamian taxation is in need of additional study. There was no public debt, but credit was indispensable for the functioning of the system, on the level of the individuals who were subject to tax and service demands made by the state. The role of merchant creditors in this respect is portrayed as negative in Mesopotamian literature as well as in partly propagandistic royal debt remission documents,[19] but in fact the merchants' access to liquid funds was essential for bridging gaps between state demands for money payments and the limited means of taxpaying agricultural producers.

The Ur III period (end of the third millennium BC)

In this period Mesopotamian society was dominated by large institutional households that were controlled by the elites of society. In fact, the majority of the population (if not its entirety, according to some scholars) was subject to the authority of one of these households. These households included temples under the control of a small number of priestly families holding the highest offices in the temple administrations, the extended households of provincial governors, and of course also the extended household of the king and his family.[20]

The richness of the documentary record dating to this period reflects the desire to achieve centralized control of the economy and society's resources of manpower on the part of the ruling elites, in particular the king and his family.[21] This was done by extending the control exercised by the

[18] These matters have not yet been discussed in print comprehensively; a detailed study would be a desideratum. Such a discussion would have to be framed from a theoretical and methodological viewpoint in terms of North's New Institutional Economy; for similar thoughts on the basis of the Ptolemaic evidence, see Manning (2003: 10–11, 136).

[19] See also, for example, Hudson (2000: 13–16).

[20] The following is based foremost on Garfinkle (2008). Other important studies for our purpose include those by Sharlach (2004) and, in particular, Steinkeller (1991). A general introduction to the period is provided by Sallaberger (1999). A new approach to the history of the period is now provided by Michalowski (2011).

[21] This is in particular true for the second king of the dynasty, Šulgi, in whose reign a series of administrative reforms were introduced that clearly aimed at strengthening the authority of the king and his administrative apparatus, thereby diminishing the importance of divergent local traditions. Among these reforms one should note in particular the creation of a standing army, the reorganization of temple households, and the introduction of a uniform taxation system (see below) and an administrative apparatus (and the scribal schools necessary for the training of the scribes) that was

administrative apparatus of the kings' extended household over the other institutional households, or at least by attempting to do so. These households were intended to be bound together by a closely interlocking network of obligations monitored by the kings' administrators. Ur III administration was predominantly concerned with the control of such obligations through an (in theory) unbroken chain of records monitoring the transactions undertaken by one administrative entity with another. These primary records were consolidated into interlocking yearly settlements of accounts, with surpluses or debits carried over to the next accounting year. For this reason the Ur III state is frequently considered to have been a "bureaucratic" state, but this label does not do justice to the fact that the control over individual institutional households was monopolized by elite families whose power was based on local social networks and who were motivated by status concerns, not by "objective" principles of a rational bureaucracy in a Weberian sense.[22] The principal political tensions within the Ur III state resulted from the interaction of the kings' authority with the local power structures. The central government never achieved the full control over local institutions it strove for.

The regions dominated by the Ur III state have to be divided into a core area, essentially central and southern Mesopotamia, and a periphery, the flat land east of the river Tigris extending from the delta in the south into northern Mesopotamia. A third zone is formed by the Zagros Mountains in the north and in the (western) Iranian highlands; there, a number of vassal states of the Ur III kingdom were located.[23]

The core area was divided into about twenty provinces, the seat of provincial government being formerly the capital of an earlier independent city state that had been integrated into the Ur III state. The governors (*énsi*) were in theory royal appointees, but in practice the office was hereditary: local elite families dominated the various provinces; they were presumably descendants of the ruling houses of the earlier independent city states. These governors were the focus of particularistic, even secessionist tendencies throughout the history of the Ur III kingdom. Their power was in part counterbalanced by the provincial "generals" (*šagina*), royal appointees who also resided in the provincial capitals and who seemed to have enjoyed full independence from the provincial governors, being answerable

designed to meet the particular needs of the king's government. See, for example, Steinkeller (1991: 16ff.).

[22] See, for example, Michalowski (2011: 9–12), with further references.

[23] The following is based on material expounded by Steinkeller (1991: 19ff.) and Sharlach (2004). See also the brief summary provided by Paoletti and Schrakamp (2011: 163–4).

only to the king and his chief minister (the *sukkal-maḫ*). The generals did not originate from the province in which they were stationed; some of them were related to the royal house. Others were of foreign ethnic origin (that is, they were not Sumerians, but bore Semitic, Elamite, or Hurrian names); these men formed a new upper class that owed its position directly to the king. The governors seem to have controlled in particular the temples, their estates, and their dependants, while the generals were responsible for Crown land and the soldier-colonists who were settled on these royal estates. The sector of the population that was entirely independent of these two large sectors of the institutional sphere of the economy and society was at best small, if not non-existent in some provinces.[24]

The contributions of the country to the needs of the central government, which obviously included the "conspicuous consumption" of the elites, were structured by the provincial system. Within this system, there was a distinction between the three sectors of society and economy listed above: the temples and generally the part of society dependent on the provincial governors owed different services and taxes from the royal domain controlled by the generals, and the small institutionally unattached part of the population was taxed in yet another form (about which we know very little).

The royal domain provided the military and labor service of its inhabitants according to the demands and needs of the central government; the fruits of the labor of the royal dependants, agricultural and industrial products, particularly the mass-produced textiles, were likewise the generals' and – in the final count – the kings' to dispose of, without an intervening mechanism that might have limited or structured the grip of the central government on this sector of the economy.

The taxation of the domains of the provincial governors was achieved through what was called a "rotation" (*bala*) system. Provinces – or, rather, the temples located in the different provinces – were supposed to deliver to the government up to about 50 percent of their supply of certain key commodities.[25] The requirements made by the central government took note of certain economic specializations. Some provinces produced

[24] Merchants engaged in long-distance trade, some craftsmen, and men with professions requiring much mobility and independence (shepherds and fishermen, in particular) seem often to have been free of ties to sectors of the institutional economy.

[25] This is at least known for the province of Umma, which was supposed to deliver about 1,500 tonnes of barley – 48 percent of its total production, according to one summary record (Sharlach 2004: 160). Usually it is impossible to establish the relation between the *bala* requirements and the total production of a province.

predominantly barley, others livestock and wool or finished goods, especially garments. These goods were to be delivered to a small number of collection centers run by the central government.[26] Provinces also had to field a stated quantity of laborers for public works (canal building and the like) for a stated period of time. The aspect of "rotation" that was inherent in the name of this type of taxation is best visible in the provision that, normally for one month, individual provinces were responsible for providing the animals for the sacrifices in the most important shrines of the country. Additionally, some other expenses that benefited the king and his entourage, as well as certain households under the direct control of the Crown, were supposed to be met by the province in question.[27] Moreover, the cost of transporting the taxed goods (the cost of boats and barges, packing, loading the goods, and hauling the boats upstream or downstream) were added to the tax load during the taxation (or *bala*) period.

The provinces' obligations were monitored by the royal administration. A sophisticated accounting system was in use that allowed the conversion of the value of every imaginable commodity into either silver, grain, or labor time, and these three could also be converted into each other. In the final accounts for a taxation period, the total value of a province's contribution was computed and compared to expectations (thus, a shortfall concerning, for instance, grain could be balanced by an excess of labor time worked for the king by the province's labor force). Overall credits or debits were carried over to the following accounting period.

The *bala* taxation system was, in essence, a complex redistribution system. Provinces not only contributed substantial parts of their surplus, they also received, through the decentralized spending of the royal administration (via the collection centers), parts of the *bala* contributions of other provinces. In this way it was possible that some provinces, such as the province of Umma, were taxed for nearly half their production of essential goods such as grain; in good years southern Mesopotamian agriculture could achieve a surplus of 100 percent – that is, it could produce enough grain to pay for the costs of production (seed, fodder, transport) and feed the entire workforce and as many people again for an entire year.[28] This

[26] Tens of thousands of tablets originated from the administration of one of these collection centres (for livestock), Puzriš-Dagān.

[27] This is documented by the *šag$_4$ bala* texts.

[28] At least, this is what one can deduce from the accounting for institutional agriculture. The same is true, by the way, for northern Mesopotamian irrigation agriculture: Wiggermann (2000).

would not have been the case always, however, and redistribution throughout the state must have been essential to make the system viable.[29]

Other forms of taxation of the production of the core of the Ur III state include a cattle tax, paid to the king and his household either in beasts or in silver by the provincial governors and the chief priests.[30] These payments were made around the New Year's festival (in spring, after the lambing season), and may have (also) been intended to finance the extensive spring festival in the capital city, Ur. There was also a "generic" tax called *gún* ("impost"), which is not yet well understood. In some cases at least, this word seems to refer in fact to the *bala* contribution, which in any case was undoubtedly the principal form of provincial taxation.

Moving from the core to the "periphery" of the Ur III state, an entirely different taxation system is encountered. There has not yet been a thorough study of the matter, and details remain opaque. The main contribution made by the periphery, the sheep- and cattle-breeding zones east of the Tigris, consisted in livestock, but was usually accounted for in silver. The tax in question was called *gún ma-da*, "impost of the land/provinces."[31] According to the way this tax was accounted for, it was paid *by* military personnel garrisoned in over ninety locations in the peripheral areas, according to a fixed rate: for a "general" (*šagina*), the annual contribution was ten oxen and 100 sheep, or 1.66 kilograms of silver according to the standard conversion rate; for a senior 'captain' (*nu-banda*), two oxen and twenty sheep (332 grams of silver); for a common soldier, 1/300th of an oxen and one-thirtieth of a sheep (0.55 g of silver).[32] In actual fact, the tax must of course have been paid by the sheep- and cattle-breeding population of the periphery, and the taxation rates quoted have to be understood as a goal set for the occupying military force that it was supposed to achieve through (more or less forcible) extraction. The garrisons were maintained (that is, fed) to a large extent through redistribution of the *bala* contributions of the core of the Ur III state: large quantities of grain were shipped to the periphery from the core. The rational, but entirely schematic, manner in which Ur III accountants established a system for estimating the benefits and costs of the military occupation of foreign territory as a direct function

[29] It has been suggested that an agricultural crisis contributed substantially to the fall of the Ur III dynasty at the end of the third millennium BC, but the evidence is far from clear: Michalowski (2011: 173–6).

[30] The *maš-da-ri-a* tax: Paoletti in Paoletti and Schrakamp (2011: 164).

[31] Steinkeller (1991: 25ff.); Paoletti in Paoletti and Schrakamp (2011: 153).

[32] Steinkeller (1991: 30).

of the size of the occupying force is entirely typical of the bureaucratic[33] mentality of this administration.

Tribute and booty, as well as gifts, obtained from vassal states and other political entities beyond the peripheral sphere of the Ur III state contributed substantially to the income of the state, but there is no reason to believe that they were indispensable for the survival of the system.

The resulting image is that of a fairly coherent and centralized system of resource extraction that tapped most, if not all, areas of economic production, withdrawing, according to a very rough estimate, on average perhaps about one-third of the output.[34] It is important to note that, impressive as the evidence for the Ur III government's interest in administrative standardization and effective bureaucratic control over the state is, this interest was directed exclusively toward the maximization of resource accumulation (which included, most importantly, the mobilization of manpower) for the benefit of the ruling family and the local elites.[35]

The Old Babylonian period (c. first half of the second millennium BC)

Only a few hundred years after the Ur III period one encounters an entirely different economic and social system in the very same region. After the political domination of Sumerian elites during the Ur III period, the Old Babylonian city states, and the unified state created by the first dynasty of Babylon, especially by Hammurapi, were dominated by Semites – that is, by Akkadians (Babylonians) and Amorrites. The language of accounting was Akkadian and no longer Sumerian (which continued to be taught in the schools, however, and was the established language of learning).

In the early Old Babylonian period the southern Babylonian city states financed themselves mostly through the production of the royal domain, which was under direct management and was worked by dependent laborers.[36] Later in the period the nature of public finance changed. Particularly in the north of the country, the large institutional households underwent a transformation: temples still farmed a part of their domain with dependent personnel, but much land was rented to free tenants. Overall, one notes an "individualization" of agricultural production. Royal land was in large part not under the direct management of the royal administration anymore. It was mostly in the hand of numerous (soldier-)tenants, who owed the state service and rents in return for the

[33] The word is used in a non-technical sense here.

[34] Paoletti in Paoletti and Schrakamp (2011: 163).

[35] Garfinkle (2008: 60).

[36] Documentation for the following and further references can be found in the surveys of the evidence offered by Renger (2011) and Stol (2004: esp. 747–76).