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## MUSLIM LAND AND WATER LAW<sup>1</sup>

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With any large scale pre-industrialized society, analysing the system of land control is fundamental to understanding the nature of government, the power of the élite and the stability of that society. That it may appear an urban society simply reflects the fact that government is centralized

<sup>1</sup> This article synthesizes far too great a range of material to try and reference it, other than exceptionally. It is almost impossible to indicate either the primary or even the main secondary sources on which the general thesis is developed and if there are those who recognize elements of their ideas unacknowledged, I can only apologise and hope to rectify the situation when eventually I complete the full study I am intermittently working on.

Further references for the main section on Islamic water law may be found in some of the author's previous publications, notably 'Islamic Water Law with special reference to oasis settlement', *Journal of Arid Environments* (1978), 1, 87–96; 'The origins of the *aflāj* of Oman', *Journal of Omani Studies* (1983), vi, 177–94; *Water and Tribal Settlement in South-East Arabia* (Clarendon Press, Oxford, 1977), and 'Traditional concepts of territory in South-East Arabia', *Geographical Journal* (1983), cxlix, 301–15. D. A. Caponera, *Water Laws in Moslem Countries* (FAO. Irrigation Papers No. 20/21, 1973), also covers a wide survey of relevant literature.

With specific respect to Islamic land law in the conquered lands I have used the standard references, Abū Yūsuf, Qudāma, Māwardī, Yahyā b. Adam etc., but have found the following particularly useful:

For the early Islamic period: S. A. El-'Alī, 'Muslim estates in Hijaz in the first century AH' *JESHO [Journal of the Economic and Social History of the Orient]* (1959), ii, 247–61. A. N. Poliak, 'Classification of lands in the Islamic law and its technical terms' *American Journal of Semitic Languages and Literatures* (1940), lvii, 50–62. F. Lokkegaard, *Islamic Taxation in the Classic Period* (Copenhagen, 1950). D. C. Dennett, *Conversion and the Poll Tax in early Islam* (Harvard University Press, 1950). D. M. Goodblatt, 'The poll tax in Sasanian Babylonia: the Talmudic evidence' *JESHO* (1979), xxii, 233–95. P. G. Forand, 'The status of the land and inhabitants of the Sawād during the first two centuries of Islam', *JESHO* (1971), xiv, 25–37. Ziaul Haque, *Landlord and Peasant in Early Islam* (Islamabad, 1977).

For the evolution in the following centuries, invaluable are: C. Cahen, 'L'Evolution d'*iqta'* du IX–XIII siècles', *Annales E.S.C.* (1953), viii, 25–52. A. K. Lambton, 'The evolution of the *iqta'* in medieval Iran', *Iran* (1967), v, 41–50.

For the early Ottoman period see, *inter alia*: Beldiceanu, *Les Actes des premiers Sultans ... de Mehmed II et de Bayezid II ...* (Mouton, 1960) and his 'Recherches sur la réforme foncière de Mehmed II ...' *Acta Historica* (1965), iv, 25–39; L. Barkan, 'Les formes de

and those with power over the land live in towns. It does not mean that trade is the basis of that society. Certainly, commerce may support a particular class and form an economic component in an individual city's wealth, or even, exceptionally, the prime basis of a regional economy. But in areas of primary urban generation, that is, in areas where urban based civilizations first emerged autonomously, whether in Precolumbian South and Central America, Egypt, Mesopotamia, the Iranian Plateau, the Indus Valley, or the North China Plain, the wealth of society stemmed from agriculture, with the vast majority of its members working in the primary sector of the economy. Indeed, the structure of power in these societies is such that, in general, this still continues to be the case, in spite of demographic growth, rural-urban migration and superficial modernization. Although exchange mechanisms are integral to the organization of these societies, analysis of their economic infrastructure needs therefore to begin with the relationship between their ideology (that is, the belief system which supports the élite in their power) and the mode of exploitation of the land.

It is apparent of the Muslim world that whatever the original structure of power in its Arabian homeland, the political basis of empire shifted to certain of these areas of primary urban generation and, in some measure, integrated and moulded their societies according to new ideological norms. Given the longevity of Muslim society these new values must have had a reasonably high degree of success in adapting to the new environmental requirements. Thus, insofar as the term 'Muslim society' is valid, analysis of its land management system must be essential to understanding its structure. It follows that, in the physical environment in which Islam developed its system of government, water management inevitably formed an important sub-set of the laws and practices subsumed under 'land management'.

### *Fallacies*

Such analysis, however, is beset with problems to which the problem of image is central. The values promoted are those of the élite who, as

*l'organisation du travail agricole dans l'Empire ottoman*, *Revue de la Faculté des Sciences Economiques de l'Université d'Istanbul* (1940), i, 165–80; S. J. Shaw, 'The land laws of Ottoman Egypt 960/1553 ...', *Der Islam* (1963), xxxviii, 106–37; B. Lewis, 'Ottoman land tenure and taxation in Syria', *Studia Islamica* (1979), L, 109–24; M. Bélin, 'Étude sur la propriété foncière en pays musulmans et spécialement en Turquie (rite Hanéfite)', *Journal Asiatique* (5th series, 1861), xviii, 390–431, 477–517; (1862), xix, 156–212, 257–308. For the post tanzimat code see *The Ottoman Land Code*, trans. F. Ongley, annot. by H. E. Miller (London, 1892).

already noted, are urban based. Since the vast majority of relevant source material reflects that cultural bias we have little information on which to reconstruct the history of land management in the formative years of Islam. A by-product of this has been that some scholars who understand land tend not to have great insights into Islam, whereas those who understand Islam generally have little understanding of the mundane problems of cultivation and irrigation.

As a result, many attempts to study the relationship between Islam and the land founder on the false syllogism—because a society is Muslim, what it does is Islamic. In science-based studies, for example, Islam is regularly used as a cultural carpet under which are swept whatever characteristics are not properly understood—often whatever does not accord with western norms. Even analysis of urban form all too often remains at this level in many such works. If there is such a thing as the ‘Muslim City’ (as opposed to a city inhabited by Muslims) then let us specify what is Islamic about it. Are the characteristics we are looking at fundamental to the *mores* of Islam or are they more to do with the mode of production, with pre-industrialisation, with the marketing and transport system, family organisation, etc: are these characteristics, at bottom, functional, regional or religious, and are they pre-Islamic or post-Islamic? To be sure, within an all-embracing belief system, Islam regarded *dīn* and *dunyā* as an integral whole. But need that prevent, for the purposes of study, separation of the all-embracing, rationalized outer form from the nub of its component institutions?

### BADW AND ḤAḌAR: THE CONQUERED LANDS

There are two features of land organization in Islamic societies to always bear in mind when seeking to generalize about this subject. The first is that in the areas where the early Islamic empire developed, there were two distinct, though mutually interdependent types of society, called by Ibn Khaldūn *badw* and *ḥaḍar*. Without necessarily taking on board his full thesis of the dynamics of their relationship, we can still accept the validity of his dichotomy. *Ḥaḍar* represents settled society, living primarily by agriculture, the surplus of which is exploited by an urban based élite whose values constitute *ḥaḍāra*, a term that, like the equivalent ‘civilisation’ (derived from the privileged status of *civis*, a citizen), has élitist connotations. *Badw*, on the other hand, does not mean nomads, but politically ‘primitive’, decentralized tribal society, incorporating also ‘settled’ peoples who cultivate and trade, and many of whom live in ‘towns’. Neither could exist without the other.

The nomads and oasis-dwellers were specialists and their economies depended on exchange of foodstuffs and services with the *ḥaḍar* regions,<sup>2</sup> which, in turn, could only interact through *badw* society which controlled long-distance land and sea trade.

The second is that this division was very largely reflected in the legal system which formed the basis of Islamic land law. Virtually all the *ḥaḍar* regions of extensive settlement, the dry land (rain fed) farming areas, the zones of extensive irrigation (which we may note was usually simple river flood irrigation, except in the Sawād of Iraq until the thirteenth century) were 'conquered' lands. The rules of '*ushr*, applicable in the true Muslim homeland, were waived and the laws developed were Islamic adaptations of existing systems. The 'state' continued to own the land, and its usufruct was given out in concessions of various sorts. For the 'state', we theoretically substitute the *bayt al-māl* of the *umma* (the treasury of the Muslim community's government) and the land becomes the inalienable *fay'* of the conquering élite. Further rationalized by the Ottomans, virtually all cultivated land was treated as *mīrī*, (that is under the control of the 'Amīr al-Muslimīn', i.e. the Caliph) whose *raqaba* (*dominium directum*) was inalienable, but whose *ṣaraf* (*dominium utile*) was provisionally alienable, subject to tax. The status of the land, not of the concessionaire, determined the dues: it did not matter therefore whether he was Muslim or Christian. Even though this land tax might be farmed as *iltizām* and—as the government sought to increase revenue in the seventeenth and eighteenth centuries by alienating certain of its land rights—the *ṣaraf* granted in various guises as hereditary 'fiefdoms' to the *a'yān*, the *raqaba* remained the sovereign right of the state. Rights over lands thus remained a concession from central government. When such government was powerful it tended to decrease the power of the 'intermediaries'; when it was weak their power grew at the cost of productivity. The measure of the independence of the local 'patricians'<sup>3</sup> from the central government was the proportion of the land revenues that remained in their hands.

Government control of the land was thus cyclic. At the height of empire the central authority encouraged agricultural development and appointed, directly, non-hereditary officials to supervise the villagers, collectively responsible for producing and paying tax on land according to some form of cadastral survey and also providing military

<sup>2</sup> Hence the title of A. M. Khazonov's masterly work, *Nomads and the Outside World* (English trans. Cambridge U.P., 1983).

<sup>3</sup> I refer here, of course, to the word selected by R. W. Bulliet, *The Patricians of Nishapur* (Harvard U. P., 1972).

service when required. At the nadir, the intermediaries gained effective hereditary control of the usufruct, adding their own abusive burdens to the taxes they had to remit to central government. The fertility of the land and the maintenance of irrigation systems then suffered; at the same time, the overburdening of the villagers with new exactions on top of the legitimate collective liability based on the outdated cadaster, led to the wholesale abandonment of settlements. Either the golden eggs ceased, or the goose had to be refattened and the cycle started again. This, briefly, was the history of land and empire for thousands of years in what we now call the Middle East, whether in the Nile valley, the northern dry land farming areas, the lowlands of 'Iraq' or the Iranian plateau, and whatever the religion of the regime. But never in the course of these cycles did the central government (pre-Islamic or post-Islamic) so far or so long lose control of the land that a true feudal system became established as in Europe. The Arabic neologism *iqṭā'ī* which translates the European concept of feudalism, is derived from *iqṭā'*, but in reality *iqṭā'* means the opposite—namely, a land concession granted by a powerful central government according to a universal constitutional law, not the hereditary fief of a lord of the land held by customary *seizin*. Only in the course of the present century have central governments deliberately alienated their control over the land to private ownership, with the result that the landlords became the government. Under revolutionary regimes these rights have partly been clawed back through land reform and control of cooperatives. But whatever the nature of the regime, the resources of the land are directed towards the interests of urban élites and the maintenance of their political power. In the past it was through taxation and ownership. Today it is a less unsubtle mixture, and market control (pricing, import and export policy, etc.) is generally the dominant mechanism for exaction: what does it matter if a peasant owns his land if every input and output passes through government or merchant controlled pricing systems?

Just as the modes of control over the land have deep roots in history, long antedating Islam, so too do cultivating methods and the organization of village societies. Thus we see Christian and Muslim groups of the dry land farming areas of the Ottoman empire using identical techniques, payments, and tenures. Women, for example, never inherit land rights, and when, with the development of privatized *mulk* rights, this problem came to the fore, the *Shari'a* system was either ignored or turned by legal pretences. But then the *Shari'a* rules had never been designed for private ownership of the extensive seasonal farming lands of the conquered areas. They derived from the oasis society of intensive perennial irrigated farming generally practised in the Peninsula (and

even there women rarely inherited land in reality, despite the reforms the Prophet introduced).

So it is the social values and the modes of production of *badw* and *ḥaḍar*, traceable to at least the third millennium BC, which should be our starting point for analysis of the basic relationship between land and Islamic society. If we really want to understand the spirit of Islam and the reforms it introduced with respect to the land, we do not go to the land of *baʿl*, a technical word in Islamic law which designates land naturally watered (by rain or ground water not requiring artificial lift), and derives from the biblical Lord of the 'settled' land, Baʿl (Bel, etc.); rather, we must go to the *badw* tribal homeland of the Prophet where the land carried no tax in itself and only the non-Muslim population was subject to *kharāj*. Here the Muslim owner or operator paid, in kind, only the tithe on storable, hence potentially marketable, products (basically grains and dried fruits) surplus to subsistence level (the *niṣab* allowance). No account was taken in this system of the capital cost of bringing the land into cultivation and installing irrigation. Two rates only applied, 10% or 5%. The sole criterion for applying the lower level was labour input: if irrigation did not involve physical effort for lift, the flow was treated as natural and the operator subject to the higher rate. Thus, on the capital-costly underground tunnelled *qanat* system (legally referred to as *kazaʿim*) the rate was the same as on rivers, wadis, springs, and other natural flows (*anhār*). Such a taxation system (if indeed the contribution can be called tax) was a major reform from the pre-Islamic systems operating in Arabia and of itself tells us quite a bit about Muslim attitudes and the internal view of their legal system.

## WATER LAW

To try and elucidate further what is Islamic about the laws and ethos of Muslim land management, we now turn to one set of laws, those concerning water. In them we will see many of the guiding principles, not just of taxation, but of ownership and how land rights are established. Examples will be taken from areas that practice the *Sharīʿa*, for by definition a Muslim society is one that obeys the code of Islam. The fact that many of my examples will come from the Ibādī code, developed in Oman and various parts of North Africa, should not be considered as exceptional. It is simply the school that I have primarily researched. For the purpose of the argument of this paper, I allow Schacht's premise that the Ibādī school shows no more difference from the other schools than they do from each other. The essential feature is

that Ibādī government has tried to observe closely the *Sharī'a* legal system at all levels of application, personal and governmental. It is in the theory and practice of the Imamate or of the *ḥalqa* system that the Ibādī school is unique. The water rulings are unique only in the fact that probably there is not a more exhaustive extant corpus of historical material for studying their evolution than in Oman. Nor is it mere coincidence that there the word '*sharī'a*' designates not only the true guiding path for its society, but also the pure source of drinking water that must be preserved on an irrigation system.

### *Basic principles and their application*

The fundamental principles (*uṣūl*) on which Islamic water and irrigation law are based are fairly simple, generally well known and quite evidently take into account pre-Islamic customary practice. The prime guiding rule, derived from the *ḥadīth* that man holds three things in common, water, pasture, and fire, enshrines the principle that water, in its natural state, is *res communis*. *Fiqh* elaborations (*furū'*) extend the principle to cover a vast range of other 'natural' resources, not only land resources like unimproved grazing and minerals, but the natural resources of the sea also. No legal person or ruler, therefore, may appropriate a river, for example, or try and sell or rent its water. Nor may tax be taken directly on such natural resources, only on the produce resulting from their exploitation (e.g. on crops, livestock, or on the profits of a pearling expedition).

As water is a scarce resource, however, there must be some rule over precedence in its use. Paramount is the right to quench thirst. Even appropriated water is overruled by the necessity to provide water for man and beasts where no other suitable supply is available. So, in places where an irrigation system passes through or under another village and the water is still in its pure, unpolluted state (see below), they may tap it for drinking purposes, so long as they do so in such a way as not to pollute it: conversely, their own surface or riparian rights may do nothing to impede the flow of that water supply or prevent access for such proper purposes as maintenance. These rules also derive, in part, from the rules of *ḥrm* whereby every piece of immobile private property or potential natural resource has an area integral to it which disallows illegal tapping or pollution and ensures access. This in turn avoids the necessity for demarcating property or enclosing it to prevent encroachment. In the case of a village irrigation system, for example, that assures access by members of the community to their common property and allows them to see that the irrigation administration and the principal landowners are maintaining it properly or not misappropriating their

rights. *Harīms* also ensure that not only surface rights are protected, but also groundwater flows.

Appropriation of water for irrigation purposes stems from *ihyā al-mawāt* rules, whereby natural land (*agro deserti*) is 'dead', belonging to no-one (*res nullius*), and belongs to the (legal) person who first vivifies it. Vivification, on the other hand, should not prevent other groups from using the land's natural, unimproved resources, or vice versa: hence some intriguing and sometimes conflicting rulings over the access of nomadic groups to areas within the village bounds. Appropriation stems from input of labour, in building an irrigation canal, in clearing the ground, etc. As in taxation laws on the land, capital as such is not recognized; it is the product and pains of labour which count. These channels and their irrigated fields, along with the appropriate *ḥarīm*, are then owned in alienable right of *mulk*. A very interesting problem now arises. The spirit of the law is that such appropriations of natural resources are only for the benefit of mankind, and if abandoned lapse. Such a ruling applies to incomplete 'colonization': after a certain time the original rights lapse and a better claim may then be established. One might expect, therefore, the same principle to apply to abandoned property. But that might well legitimize what originally was an illegal seizure. We would then be back to *possession vaut titre*, the notion that customary *seizin* is ten points of the law, not nine; in other words, back to a tribal (or feudal) situation. So *mulk* rights do not lapse even though the land is not cultivated. Hence those intriguing *fiqh* rulings in different schools and areas concerning absentee and untraceable owners and the 'revivification' of abandoned land.\*

Canalization proceeds downstream. This means that an upstream settlement normally has prior and better rights than a downstream. New upstream appropriations may only take place if they do not affect such prior rights. Further, the appropriation is only for the needs of the community. Islam sets its hand against any speculation or negative appropriation of water. The Prophet stipulated that the amount of water to be taken was an ankle's depth: in other words, the amount of water sufficient to provide soil moisture storage appropriate for a seasonal crop from a flash flood. As we shall see, this ruling has been applied essentially as a guideline. All Islamic rulings concerning irrigation systems start from the principle that even though the three essential elements of cultivation may be held separately in *mulk* ownership, water, land, and crop are in reality inseparable, and the water rights are

\* I have discussed these, in the case of Ibadi rulings in the Appendix to *Water and Tribal Settlement* (n. 1).

adequate for the crop area and no more. Temporary surpluses and shortages may arise, and water rights may be rented or temporarily sold, but the basic units of land–water allocation are fixed. This can cause problems, however, if there is a major change in the type of crop cultivated. In a place like Oman, for example, changes in the irrigation cycle may only be effected by joint agreement of the *falaj* community: in the Isfahan basin the Safavid regulation of the Zāyande Rūd endorsed by the Islamic authorities persisted until swept away by Reza Shah who wanted to switch from traditional to cash crops;<sup>5</sup> whilst Egypt had to pay dear to the Sudan from its prior appropriation of base flow rights recognized in the first Nile Waters agreement in order to build the High Dam and ensure a constant flow of downstream water for perennial irrigation.

Water quality is also a matter of major concern for any irrigation community. Nomads have an enormous range of terminology to describe the taste of well waters, whilst an early eleventh-century engineer's treatise<sup>6</sup> on ground water gives three tests for establishing the relative salinity of samples, specific gravity, boiling point and flocculation rates: only electroconductivity measures are missing! Similarly, no irrigation system ever allows surplus water from fields to pass back into the primary distribution network, whilst any farmer can tell you that the land at the end of the primary distribution system is less good than at the upper end, not just because a decrease in the quantity of flow will affect him more than one operating upstream, but because the salinity of the water will rise due to evaporation and transmission losses, and to infiltrations from the surrounding land. Hence a set of rulings that differ in the various schools about the communal responsibility of upstream users to share in the capital (e.g. cementation) and maintenance costs of the primary distribution system downstream of their holdings. The issue of actual water quality, however, is not normally treated under irrigation rulings but is subsumed under the rulings concerning 'purity' of water for ritual ablution (*tahāra*).<sup>7</sup> These recognize that water in its original source or in its distilled state is pure; it is polluted (*najis*) if it has changed in colour, taste, or smell, but may still be considered clean (*tāhir*) if it is flowing or stored statically in a sufficiently large body of water.

<sup>5</sup> cf. A. K. Lambton, 'The regulation of the water of the Zāyande Rūd', *Bulletin of the School of Oriental and African Studies* (1937–9) ix, 663–73.

<sup>6</sup> Muhammad al-Karajī: see A. Mazaheri, *La Civilisation des Eaux cachées. Traité de l'Exploitation des eaux souterraines composé en 1017 AD par (Mohammad al) Karagi* (Université de Nice), 1973.

<sup>7</sup> cf. M. E. Norvelle, *Water Use and Ownership according to the Texts of Hanbali fiqh*, M. A. thesis, McGill University, 1974.

*Relationship with 'urf*<sup>8</sup>

So the basic principles of Islamic water law can be seen to cover the major requirements of any water legislation, requirements not always recognized in European and American legal systems. The public interest in water is seen as paramount and the law reinforces the ethos that it is not an article for trade or speculation. Water is a scarce resource and is for the benefit of mankind, not a source of profit other than through the hard work necessary to utilize it in the agricultural system, or in the case of the poor urbanite, by portage. Since 99% of water in arid lands is traditionally used for cultivation, the emphasis is naturally placed on this aspect; but the rights of the nomad and the town-dweller are nevertheless safeguarded. An orderly right to appropriation is established and this lays down a set of prior rights, based on the principle that property so acquired may be held in private ownership, and thus alienable through purchase and sale, renting, inheritance, or bequest (subject to the Islamic inheritance and *waqf* laws). But even though irrigation and well-water rights may be held in *mulk*, separable from land and crop, the distribution of water for cultivation purposes ensures that land and water form an associated unit and that the appropriations are only suitable to the cultivation practices for which they were designed. This may produce a somewhat rigid system, but it does ensure that only basic needs are claimed and that any changes must be subject to negotiation. The existence of both surface and groundwater flows are recognized and the *ḥarīm* rules ensure that tapping does not occur, nor that a new irrigation system or well are constructed too close to an existing one. The existence of problems of water quality and pollution, as well as of water quantity, are also treated in the Islamic code.

The framework of Islamic water law is therefore most comprehensive. This is not surprising for, as we have noted, the whole system exploited very fully the pre-Islamic conventions, practices, and customs. These covered an enormous range of temporal and environmental experience, and the interaction of the technical specializations developed in the Arabian, Iranian, and 'Rūm'ish Mediterranean worlds were rapidly accelerated by their incorporation into the Muslim world. On the western side of the Pensinsula from Shām, down through the homeland of the Prophet to Yemen and Ḥaḍramawt, the old civilizations had tended to specialise in the harnessing of ephemeral surface flows,

<sup>8</sup> As F. J. Ziadeh, ('Urf and law in Islam' in J. Kritzeck, and R. Bayly Winder, (eds.), *The World of Islam ...* (MacMillan, 1960) points out, 'urf does not just mean customary law, but good customary law, contrasting with *nukr*; cf. the famous injunction of *al-'amr bi'l-ma'rūf wa'l-nahy 'an al-munkar*.

developing the fairly universal simple bunds by which such flows were first exploited from somewhere in the fifth millennium BC onwards, into a colossus like the Marib dam: similarly, simple techniques of improving flow recovery (run-off farming) by constructing meso- and micro-catchments were to the fore (they also saw a certain development in parts of North Africa). Terracing was well developed in certain areas and storage systems of cisterns, tanks, and dams were built. The Iranian domain, in contrast, seems to have seen a specialization in ground water exploitation, and the famous *qanāt* (also known as *kahrīz*, *kheṭṭara*, *foggara*, *falaj*, etc) had already been diffused well beyond the confines of the areas of Persian conquests, along with rotary systems for groundwater and river lift. But the Iranian domain also covered areas of major river development, not only in the weir and canal system of the Mesopotamian Sawād, but also the rivers draining from the Hindu Kush–Pamirs complex, the Oxus, Vakhsh, Kafirnigan, etc., and the extraordinary Halmand delta in Sijistān. In Bactria, the Greeks had also played a role in their development, whilst the sexagesimal system of Greek geometry (which still remains the basis for most temporal divisions of water rights) was melded with the *handasa* engineering based on the oriental decimal system. At the ‘university’ city of Jundishāpūr, two philosophies, two logics, two mathematics, and two astronomies continued for long to be taught alongside each other.<sup>9</sup> Mediterranean engineering techniques reached a culmination during the Roman empire (Rūm) with the construction of dams (vault as well as block), canals, bridges, and siphons: cementing formed an important technique for construction. The interaction with the Sasanid domain was particularly marked in one direction when Valerian’s army was captured by Shapur I in 260 and put to work in developing Khūzistān, and again with the shift of empire to the New Rome at Constantinople. In the other, the Persians had long since left their imprint on Oman and the Gulf, whilst the Achaemenids brought their technology into the borderlands of the Mediterranean world. In Sasanid times a new hydrological impulse was given, notably in Greater Syria and also South-west Arabia.

All this is not to forget the more elementary and universal techniques of water use based on simple well lift, springs, periodic and permanent flooding of depressions, etc. The Nile too (apart from Ptolemaic developments in the Fayyūm depression) was still only exploited by seasonal basin irrigation, and technical oddities like the Archimedean screw should not blind us to the fact that permanent cultivation was

<sup>9</sup> cf. A. Mazaheri, *La Civilisation des Eaux cachées*, (n. 6) commentary, and *al-Khuwarazmī*, (ed. G. van Vloten), *Mafātīh al-‘Ulūm*, 202.

only possible by primitive systems of lift direct from the river or where trees could root into the water table near its banks. It was not until Muhammad 'Alī's time that labour was mobilized into *corvées* to build the *ṣayfī* canals and it was not until the second half of the nineteenth century that engineering techniques allowed even barrages to be built across the river: storage dams had to await the present century. The modern period also saw two other techniques which allowed for the transformation of the hydrological environment in the general region with which we are concerned. Drilling, which allowed the development of the fossil waters of the confined aquifers, hitherto more or less only tapped through natural resurgences (e.g. Greater al-Baḥrayn, the Western Desert oases of Egypt, the Wādī Rhir etc.), and the motorized pump which mechanized wells. Nevertheless, these new techniques apart, the technology of irrigation and water exploitation had achieved its full panoply before the coming of Islam. And, it is worth noting, these traditional techniques were geared to the practical sustained yield of the natural hydrological systems they exploited. Unlike drilling and pumping, they did not over-exploit the natural recharge rates or imperil the quality and quantity of downstream settlement through tapping groundwater up the catchment area or by indiscriminate damming. If the traditional water codes had continued to be observed in modern times, as they were on the Nile, such international problems as are posed by the uncoordinated development of the Euphrates waters by the riparian states would have been diminished, whilst the salinization of large areas of settlement resulting from rising water tables or over-pumping of confined aquifers upstream would have been reduced.

### ISLAMIC INNOVATIONS

So it is fortunate that Islam was able to incorporate all this experience into its land code without taking a narrow view of the law. Had the Prophet's ruling about irrigating to an ankle's depth been applied rigorously to the letter and not wisely understood as a guideline, the results would surely have been ruinous for the Muslims. The ruling had arisen in the context of small scale ephemeral flash flooding and it is thus literally appropriate only in such an hydrological environment. In Oman, for example, I have only seen it referred to once in a vast corpus of land and water law, and then only in reference to water use in the minor mountain settlements high up the catchment areas. Oman's irrigation system is far more sophisticated, an ancient system based on exploiting groundwater (and occasional perennial surface flows (*ghayl*))

in the intramontane basins) through *aflāj* (mostly *qanāt*) and *zigar* hoist wells. On the other hand, in the Mzāb, where the same school of law is in use, the Berber Ibadis were forced to retreat to the unpromising Shabka where occasional flash floods were the only potential for settlement. The development of the Wādī Mzāb settlements from the eleventh century AD onwards was therefore most carefully regulated by their government, which was rigid in observing the *Shari'a*. Yet even there, the wisdom of observing the spirit of the Prophet's ruling rather than the letter is evident. This can clearly be seen from the contemporary *Kitāb Usūl al-arāḍīn* of Shaikh al-'Abbās Aḥmad b. (Shaikh 'Abdullāh) Muḥammad b. Bakr (d. 1111) and its recension in the master work of the *nahḍa*, the *Kitāb al-Nīl* of Shaikh 'Abd al-'Azīz b. Ibrāhīm al-Thamīnī (1718–1808). Instead of using the flash flood occasionally as it occurs, which would only have allowed seasonal cultivation every two or three years, the water is concentrated by diversion or behind dams to recharge the groundwater and thus allow permanent cultivation of tree crops. Equality of partition, on the other hand, is most carefully regulated by the way the water is spread (through a system of underground weirs and side channels in the case of the main settlement, Ghardaia). Thus the Prophet's ruling is seen as an exhortation to take the amount of water necessary for cultivation and to do so in an orderly and equitable fashion. The same applies in Oman where the majority of rules are concerned with the equitable distribution of water within the *falaj* community. Here the emphasis is on the responsibility of the members to the hydrological community and vice versa, that is, on how changes in flow should be dealt with, short and long term maintenance of the supply system, alterations in the rotation cycle, the rights and responsibilities of the large and small shareholders in the *falaj* administration, cementing the channels, etc. As the very etymology of the word *falaj* indicates, it is the irrigation distribution which is what the system is really about, and the absence of a word to indicate differences in the type of *falaj* system (*qanat*, *ghayl* or *sayl*) is indicative of the fact that when the Arabs took over the lands from the Persians with the coming of Islam it was the equity in, and of, the system that was of prime importance, not the methods of construction and requirements of maintaining a system that had been developed through years of toil and skill. The *aflāj* were 'unfailing springs', the miraculous work of Sulaymān b. Dawūd. Hence the attitude that generally applies in Islamic law: *kazā'im* are divine gifts, like *anhār*.

Of course, the Omanis rapidly realized that this was not the case as they saw their precious irrigation inheritance go into decline in the first century of tribal disorder following the eviction of the Persian ruling classes. The development of Imamate government from the end of the

eighth century AD thus saw a rapid evolution of the land and water code to meet this situation, but with the emphasis nevertheless on maintenance rather than *de novo* creations. The interpreters of the law quickly understood the need for an essentially flexible system: if it worked, leave well alone. And this characterized the Arab attitudes generally in their conquests. Hence the Muslim community was able to absorb into its system a vast array of experience, open up new lands (notably in the Maghrib and Saharan borderlands) and intensify others by the development of irrigation and the introduction of new crops.<sup>10</sup> But it was in the field of small scale intensive irrigation and cultivation that it was the greatest innovator, not the extensive systems of flood irrigation and dry land farming. So water law was flexible, and injunctions, which in certain other domains of the *Shari'a* would have been considered as absolute law (e.g. inheritance), were treated as guidelines. The account of the Prophet's willingness, in the case of the artificial pollination of female palms, to give way to the practical expertise of others, is well-known.<sup>11</sup> Comparably, and, therefore, quite properly, the *Shari'a* as a whole adopts a pragmatic attitude to the land and takes the basic principles as guidelines and not hard and fast rules. *Faute de mieux*, a ruling like the ankle depth may be applied literally as a solution if the parties involved cannot reach agreement, but otherwise it is the spirit of the Prophet's utterance that is obeyed. As al-Karajī states in his treatise on groundwater (1017),<sup>12</sup> 'I have now discussed all that Islamic law prescribes concerning *ḥarīm*, for it is preferable to follow it wherever there is no other ruling. But it may be that it does not always suffice and one must take into account the enormous variety of aquifers ...'

The purpose of Islamic water law therefore appears to be to act as a reference system for reconciling disputes in existing settlements or when developing new ones. By incorporating principles and practices from an enormous range of experience within a universal framework, it is capable of providing, and if necessary imposing, solutions that are acceptable to Muslim society, acceptable partly because they are Muslim, and partly because they are rooted in sound engineering and ecological practice. Furthermore, the flexibility of the code makes it applicable by *qāḍīs* in consultation with local experts: this, incidentally, helps refute the Wittfogelian thesis that large scale irrigation works require despotic government to create and maintain them.

But, seen in this light, Islamic water law would seem to be no more than a semi-codification of largely pre-Islamic practices and the Islamic

<sup>10</sup> cf. A. M. Watson, *Agricultural Innovation in the Early Islamic World* (Cambridge U. P., 1983).

<sup>11</sup> Yahyā b. Adam, *Kitāb al-Kharāj* (ed. Th. W. Juynboll), 79–80.

<sup>12</sup> A. Mazaheri, *La Civilisation des Eaux cachées* (see n. 6).

component simply the veneer which makes it universally acceptable. This is not the case, and we must now turn to see rather more specifically how the principle that anything goes, so long as it works, has been reconciled with certain ideas that are fundamental to the spirit of the propagation of Islam.

These ideas are essentially the concept of the *umma* translated into terms of the village and irrigation community. We have already touched on this concern of the law when we saw how the emphasis in water law was on the distribution system, on the rights of the individual and the mutual obligations of members of the group to each other. Rights are coupled to responsibilities and the binding cement of the group *'aṣabīya* is fair dealing. This does not mean the relationship is either egalitarian or democratic. There may be big landowners and small, whilst the control of the irrigation system may reside in the hands of certain families or clans, and the supervision of the administration may be the responsibility of a local council appointed by the leading shareholders or even of one landlord or shaikh. What Islam does do, however, is to ensure that the powerful do not encroach on the rights of the smallholder, and that the interests of the latter are taken into account when any major decisions are taken. More important, it tends to take the side of the small man and does everything it can to protect him. Hence the fact that the peasant labouring to irrigate his small plot by manual or animal lift pays only half the tax of large-scale riverine irrigation systems or *qanāt* built by the rich capitalist urbanites; and even then he is only taxable on his marketable surplus. The agricultural system is viewed in the perspective of the Arabian economy. The exemption of fresh produce and green crops from taxation is not meant to spare rich families specializing in such crops for urban consumption, but to safeguard the small farmer, laboriously watering his plot of fodder for his draught and other livestock, or growing vegetables for his daily needs. That is why, too, donkeys, which are the usual form of transport for the poor, are exempt of tax, whereas large herds of camels and livestock carry a liability.

Kister<sup>13</sup> has analysed certain *ahādīth* which again show the Prophet's inclination towards the interests of the small man. His preference for non-*ba'ī* produce originated from the fact that naturally irrigated or rain-fed land tends to be in the hands of capitalist farmers. My own researches from Ibādī *fiqh* similarly confirm that the law does everything possible to help and protect the small man. This stance is firmly brought out by A. Sa'īd al-Kudamī of the 4/10th century, who was the main formative figure in the final development of Omani *fiqh*. He starts his

<sup>13</sup> M. J. Kister, 'The social and political implications of three traditions in the *Kitāb al-Kharāj* of Yaḥyā b. Adam', *JESHO* (1960), iii, 326–34.

treatment of tenancy agreements with the pronouncement that all renting of land, whether for money, or produce, or by shareholding agreement is immoral: it ought to be given free. This ideology presumably stems from the idea that land is God's gift and that appropriations in *mulk*, as we have seen in the case of water needs, are for the benefit of the individual or group, not for profiteering. So in Ibādī development of land and water law in Oman, everything is done to ensure that the tenant is protected. Since the risks of cultivation are *ultra vires*, tenancy agreements are *majhūl* and both parties must share the risks, so that rent (like *zakāt*)<sup>14</sup> may only be taken in the form of a share of the crop (*qa'adat al-ard bi'l-habb*), even though an individual element of cultivation, like irrigation water, may be rented. Non-specifiable *majhūl* contracts also mean that *force majeure* may be more easily invoked and a *qāḍī* thus able to take into consideration extenuating circumstances when adjudicating a dispute between tenant and landlord. The landlord's responsibilities, on the other hand, are much more carefully defined. If the water supply diminishes, then it is his responsibility to do all he can to rectify this situation, and it is he who is ultimately responsible for the payment of *zakāt* to the Imamate authorities.

Sharp practices are also legislated against. A landlord, for example, cannot make an agreement for an area of mixed cultivation of one year's duration and then claim the rights to the produce of the tree crops on the grounds that it had not reached maturity or had not ripened within that year. Similarly, if a herd owner makes a monthly contract with a shepherd for looking after so many head of livestock, he is responsible for the full month's payment even if he disposes of some of them in the course of this period. Much work involved in constructing irrigation projects is also *majhūl*. One cannot, for example, contract for reserVICING or developing a *qanāt* by results. Surface workers are paid by the day and underground by the hour. It may be possible in some cases, notably in digging a well, to classify the types of rock and soil and make a contract specific (*thābit*) to completion or make payment by volume rather than time, but the factors affecting excavation are generally unknown (*majhūl*), *a fortiori* water flow. A man employed to excavate a *falaj* cannot be held responsible for such things as flooding, blockage by blown sand, collapse, though his contract may specify a responsibility for carrying out resulting repairs. The alternative to piece-rates is to contract for a complete job. The contractor (or contracting group) then has the benefits of the water rights for a specific period, which he may sell back for a fixed fee (*'anā*), but he is not liable for failure to produce

<sup>14</sup> This was one of the early judgments of the First Imamate, by Sa'īd b. Muhriz of the first third of the 3/9th century. It was a time when the majority of villagers still retained their old religion (*mājus*) and the *maqannī* class of the pre-Islamic period still survived.

or increase flow and he is still responsible for paying his labour piecemeal.

What Islamic law cannot legislate for is the amount of payment to labour or the share of the tenant. It may refer to traditional practices. In the case of the reseriving of an abandoned *qanāt* just mentioned, it was ten years of water rights, which seems to have been the practice in Sasanid times, whilst the customary payments of the *bayādīr* labour (generally one bunch of dates per tree in return for irrigating, weeding, fertilizing and generally looking after the palms) has very ancient roots in the Peninsula. But where such payments might be deemed inadequate, the law cannot reform them on the grounds that the payment is 'unjust'. As Firestone<sup>15</sup> has shown for areas outside the Peninsula, all schools (except apparently the Mālikī) do their best not to condone the abuses of traditional labour relations of the *khāmis* variety, whereby the worker receives one-fifth of the produce (or, as is frequently the case, a quarter in dry land farming areas), by allowing such pseudo-*sharīka* relationships to be subsumed under the rules of a true Islamic fiduciary *sharīka* partnership: share-cropping is not a true risk-sharing agreement between equals and the rationalisation that the peasant received one-fifth for his labour contribution and the landlord four-fifths since he provided the water, seed, land, and draught animals, is based on no common measure of input valuation. But the law cannot alter this system, any more than it has the power to introduce land reform. All it can do is to see that the community's land is not alienated in perpetuity. But once a piece of land has established *mulk* rights the ownership is sacrosanct. Such rights then become part of the personal status law that is still adhered to in many Muslim countries that in other ways do not observe *Sharī'a* law.

## PRIVATIZATION OF THE LAND

Privatization of the land in areas of large-scale and extensive cultivation in the Middle East arose very largely under direct European pressure or administration, or in emulation of western values. The chance to undo this fundamental error in the land reform era of the 1950s and early '60s

<sup>15</sup> Y. Firestone, 'Production and trade in an Islamic context: *sharīka* contracts in the traditional economy of Northern Samaria, 1853–1943', *International Journal of Middle Eastern Studies* (1975), vi, 185–209, 308–25; and 'Crop-sharing economies in Mandatory Palestine', *Middle Eastern Studies*, xi, 3–23, 175–94. See also A. L. Udovitch, 'Labour partnerships in early Islamic Law', *JESHO* (1967), x, 64–80; S. Hamzaoui, 'Non-capitalist relations of production in capitalist society: the khammeset in southern Tunisia', *Journal of Peasant Studies* (1979), vi, 444–70.

was lost when, again under western influence, peasant producers were generally granted full *mulk* rights, rather than decent tenure agreements. Private ownership was presumed to be the incentive that would turn the fellah into a sort of 'homestead farmer', the image the Americans cultivate in their history of pioneering the frontier. In fact the opening up of the American West was rooted in 'agribusiness'<sup>16</sup> which is the alternative modern solution that the West has introduced for Middle Eastern farming. Emulations of communist models have been no more successful. Nor has so-called 'fundamentalist' Islamic government showed itself any more able to deal with the problems of the land. The current unresolved debate about land reform in Iran is no more than a translation into Islamic terms of the struggle between the vested interest of the landlord class, intent on preserving the land system through reference to the letter of the law respecting *mulk* rights, and a radical school appealing to the purported spirit behind the words. Indeed the introduction of any land system based on dogma, whether religious, capitalist, socialist, or communist, is doomed to failure. Only a radical change in the attitudes of the ruling élites to the land, based on patient examination of the needs and problems of farmers rather than urbanites, of producers rather than consumers, will fundamentally alter the appalling failure of the region to increase food output.

## CONCLUSION

In the end it is the society that counts. Islam is the law of the *umma*. Until that ideal community is realised, no set of rules and recommendations is going to solve problems. The law is as good as the society in which it subsists. So all Islamic law can do is make pious exhortations and recommend generosity. As with an accepted institution like slavery, the good examples are there and the recommended conduct clear. Everything is also done to legislate against abuses of the institution. But that is precisely why most states in the Islamic world do not apply *Shari'a*, but *qānūn* law to the land. Land and water are much too tied up with the centralization of power and the mode of production to allow Islamic principles to interfere with *salṭana*.

Nevertheless, the land and water law of the *Shari'a* does provide a 'true path', even for modern legislation in a state that only pays lip service to Islamic principles. As we have seen, it is based on a vast range of water experience which western legal systems have not entirely caught up with. Had the rules and recommendations outlined above

<sup>16</sup> I. Vogeler, *The Myth of the Family Farm ...* (Boulder, Colorado, 1981).

been applied, many of the abuses from which the arid and semi-arid lands are now suffering would have been avoided, and a great deal more attention paid to gradualistic developments of the existing land system rather than at-a-stroke legislation and grandiose planning schemes. Traditional law could perfectly well be codified in up-to-date terminology consistent with good modern hydrological practice. But the principle that if an irrigation system has proved itself to be working properly the, unless one can be sure that it can be improved by consultation and agreement between all the interested parties, leave well alone, does mean that the law is essentially pragmatic and flexible in its approach and takes account of actual practices on the ground. And that involves not only rejection of dogma but also getting out into the field and finding out what really goes on. And that, with perhaps one or two exceptions in the societies with which we are concerned, is something government officials, legislators, and planners never do.

Although I have quoted it more than once elsewhere, I will point the moral once again by concluding with a small story from Oman's 'Golden Age' of the First Imamate.<sup>17</sup> One day the Imām Ghassān b. 'Abdullah al-Yahmādī (192–207/808–23) was out walking in Nizwa and inspecting what was going on. He noticed that water-moss was beginning to clog the main irrigation channels. Realizing that this was indicative of something going wrong he set out to determine why. Eventually he came to the conclusion that it was not the fault of the merchant class, nor of the land owners, but of his own officials. These he therefore changed, whereupon it was observed that the water-flow in the channels was restored.

<sup>17</sup> Al-Sālimī, 'Abdullah b. Ḥumayd (c. 1870–1914) *Tuhfat al-A'yān bi Strat Abl 'Umān*, (edn. A. Ishaq Ibrāhīm Atfayish), i, 125–8.