

CONTINUITY AND CHANGE IN RURAL IRAN: THE EASTERN DESERTS

By DR. BRIAN SPOONER

Professional ethnography did not enter Iran until the late fifties. For a variety of reasons which are largely non-Iranian and non-anthropological the anthropologists who have worked in Iran since then have concentrated their attention on pastoral nomads, and little work of any anthropological significance has been done in the village sector of Iranian society. My general interest in the historical ecology of the desert areas of eastern Iran led me to embark in the summer of 1969 on a series of preliminary studies of oasis village communities. This essay relies on the data collected in two short seasons¹ and a long familiarity with the Iranian deserts in general. Small isolated settlements in eastern Iran are of course in no way representative of Iranian villages in general. However the fascination of the deserts for a fieldworker interested in social processes lies in the immense distances and the low density of population. Problems which are difficult to isolate in the more typical areas of relatively high population density may be exposed in simple relief in the deserts. The solutions may of course not be the same. At this stage I am suggesting only that what can be extrapolated from the results of preliminary studies in the east may prove valuable in future studies of more typical and more densely populated areas of the country. Because these villages are so isolated modern types of change have been slow to reach them and such modern processes of change that have touched them are easier to isolate.

Most of the factors in the processes of change which I trace below are not internal but derive from changes in the larger national situation into which all peasant villages, however isolated, are integrated. The discussion should also, therefore, serve the function of outlining a larger context for the study of Iranian villages, similar to that which has grown up in what I would submit are culturally related areas of

Mediterranean and Latin American Studies. Finally, this effort will have been more than worthwhile if it induces anthropologists interested in the Iranian area to turn their attention more to settled, rather than nomadic groups.

More specifically, my aim here is, after a brief introduction to the context of the Iranian deserts, to describe the more significant features of two villages, Nayband and Deh Salm (which are situated approximately 150 km. apart in the southwest of the province of Khorasan), and then to show some of the types of change which are taking place now, and how they differ from or resemble earlier processes of change. I conclude with some remarks about the place of such "marginal" populations in a modern nation-state.

Geographical and cultural context²

The Alburz, Zagros and Hindukush ranges enclose a saucer shaped plateau averaging some three thousand feet in altitude and covering some 500,000 square miles of mostly desert plains and barren ranges in eastern Iran and western Afghanistan. There is an all-pervading dichotomy in Persian culture between *abadi*, which may be glossed "improved environment" or "place of fixed residence and investment of any type of social unit," and *beyaban*, which is "wilderness"—the unimproved natural environment where there is no investment or fixed residence. The latter is always in the popular conception associated with nomads, and is generally country which would not support fixed residence based on agriculture. Naturally, the terms are to some extent relative to the position of the speaker: to a city dweller *beyaban* may cover territory which to a village dweller may be *abadi*. The linguistic and cultural dichotomy represents an ideological polarization between peasant and nomad. The desert and semi-desert plains of eastern Persia and western Afghanistan fall within the category of *beyaban*, and this leaves the small oasis settlements within them in an ambiguous cultural position *vis-à-vis* the ideological polarization. They are peasants, but live in territory which is associated with nomads. Further, their location obliges them to maintain a different relationship with nomadic groups which come into contact with them, than would less isolated peasants.

In fact, there is not a very large nomadic population in the area, and vast expanses, particularly in the north, are quite devoid of nomadic activity. This is due to the fact that unlike the Arabian deserts,

the availability of pasture depends not on occasional rain, which may fall anywhere, but on the location of fertile soil and the passage of run off. Therefore, whereas in the sandy deserts of Arabia pasture may appear anywhere and the news of a fall of rain will draw scouting parties of nomads far out into the desert in the winter, in eastern Persia possible locations of pasture are fixed, and most of the desert can never bear any pasture. There are, however, other activities which attract highly mobile parties into and across these desert areas: smuggling and raiding. Since nomads are by definition always potentially highly mobile, these activities are associated with them particularly, and have often formed an essential component of their subsistence system. Deserts are areas where mobility is at a high premium. There is little to cause travelers to linger on their way, and slowness may result in death from thirst and exposure. Smuggling takes people across from one side to the other with as few stops as possible on the way. Raiding, though at one level it may be directed at large settlements on the far side, is more commonly aimed at caravan traffic and isolated settlements within the deserts. Deserts are the natural element of raiders, as the Persian Gulf, and other such enclosed bodies of water, is of pirates. Raiding and general considerations of security have always been important in the formation of the ways of life of small isolated communities in the deserts.

There have never been any settlements within the deserts large enough to take on the function of regional centers. The Iranian deserts are unlike most other deserts in that from the beginnings of our historical knowledge of the area they have lain at the heart of a single cultural area. From our present vantage point in time they would appear always to have divided the eastern half of the Iranian world from the western. Now that most of the eastern half is excluded from the present borders of Persia, the effect of the deserts in separating the agricultural parts of eastern Persia from the capital is exaggerated. But the deserts were not always so empty either as they are thought to be by Persian city dwellers or as they in reality now are. A glance at the wealth of toponymy which has found its way on to such maps of the area as are available in itself provides a clue to a higher level of activity in the past. The deserts were never a vacuum. In the vernacular taxonomy the whole is divided into a number of named regions which have traditionally been considered administrative appendages of one or another of the towns or cities on the periphery which have always been concerned about the security of their backdoors.

The point of reference for the definition of most of the regions is an oasis or group of oases, or an area of pasturage. It is logical to expect that people do not colonize such marginal areas unless the pressure of population on resources in more lush neighboring regions makes it worth their while. It would seem likely, therefore, that human and social use of the deserts is generally characterized by two considerations: firstly, colonization increases and decreases up to the maximum set by the carrying capacity of the scanty resources and the technologies at hand for their exploitation, according to the pressure of population on the peripheries; secondly, the requirements of efficient communication between the cities on either side encourages traffic across them. The second also influences the first. Finally, the quality of political organization and leadership on the periphery influences the degree of investment in the environment, which determines the optimum population of the more fertile regions, and which in turn affects the two above considerations which determine the degree of exploitation of the deserts.

We may, therefore, divide human activity within the deserts into two main categories: communications and subsistence, with the corollary that raiding derives from both of them. Subsistence may be subdivided into three main types: agriculture, pastoralism, mining. Finally, security has always been a preoccupation with all who are in any way concerned with the deserts—at least until the establishment of the present regime. To complete this brief discussion of the cultural context of life in the deserts we must indicate the essential elements of the various technologies which have been used for subsistence in the deserts, and relate them to the social organization of the oasis settlements and the ethos or ideologies of the people—which constitute an important, though often intangible, factor in any process of change.

Agriculture requires cultivable soil and a supply of water. All agriculture within the deserts must be irrigated. Irrigation may be from a river, a spring, run off controlled by dykes (*band*, cf. Raikes 1965), or from a *qanat* (cf. English 1968). There are no rivers within the deserts, with the exception of the Helmand which is excluded from the discussion of this essay (cf. note 2). The most significant difference between the other types of irrigation is that *bands* and *qanats* require engineering and investment, and springs generally do not. For this reason springs generally are not owned. The flow of water from them is divided among the community according to their respective shares

in the available cultivable land, which is owned. In the case of *bands* the amount of investment required is not too great, and can generally be borne by the parties immediately concerned. However, the run off is often violent and carries with it sections of the dykes, which may have the result of diminishing one man's holding to the advantage of his neighbor. Such processes are a built-in source of frequent dispute in communities dependent on *band* irrigation. The extreme form of investment-intensive irrigation is the *qanat*, which is the sole source of water for irrigation in Deh Salm (described below). Though *qanats* within the deserts are generally relatively short, they nevertheless represent years of work by a team of men, and yearly maintenance thereafter. There is no recorded example of a community successfully achieving this level of continuing investment as a group enterprise, and *qanat* irrigation invariably leads to a situation where title to water is separate from title to land, or a minority in the community controls the greater part of both the water and the land while a proportion of the community contributes a combination of labor, seed and animals on a sharecropping basis.

Choice of crops depends on climate, quantity and quality of soil and water, and, to some extent, cultural values. The main crops grown for subsistence in the deserts are rice, wheat, barley, sorghum, dates. Each of these requires a different amount of labor per unit of land and per unit of produce. Rice requires the most, dates the least. Dates are also an exception in that they are a tree crop. Few tree crops in the world are important for subsistence. Another example is the breadfruit in the Pacific. In the Mediterranean the olive comes to mind, but the olive has always been too closely associated with long range trade to be categorized simply as a subsistence crop. Such crops require a considerable degree of investment of a different type. They must be planted. The difference between a wild tree and a cultivated variety is that the cultivated variety must be propagated from a sucker. The date stone or the olive pit reverts to the wild species. They must then be nurtured for a minimum of five years before they begin to produce, and more before they come into full production. However, once they come into full production they require only a minimal amount of labor and produce comparatively very large amounts of fruit. In the desert environment, even though the labor is minimal, the time involved renders a date plantation a considerable investment, and investments are only made when there is sufficient security to allow reasonable hope of return. When the plantation reaches maturity, the

female palms must be artificially pollinated in the spring and the fruit must be picked in the autumn. Even in combination with other minor tasks this cannot constitute a full time occupation, and, except in the vast commercial plantations outside the deserts, dates are for this reason always combined with other occupations, generally other crops, which may take more time and labor, though the dates may constitute the most important produce of the community. Each of these crops are found in combination with some or all of the others. In any given situation one or more of them will be either culturally or economically the most significant for the cultivators, and their relationship with their environment and their ideology will derive primarily from the implications of the cultivation of these. In marginal environments generally no one resource produces enough or is reliable enough to allow a community to specialize in its exploitation. Absolute specialization, whether it be in wheat production or sheep herding, is found on the relatively lush peripheries, not within the deserts.

The distinction between nomad and peasant in the deserts, therefore, is less often a distinction in occupation, between agriculture and pastoralism, than a distinction in emphasis within a wide range of resources, agricultural and pastoral, which are all exploited to a greater or lesser extent. When exploitation of their range of resources requires one group to adapt *nomadically* to their environment, and another to maintain and invest in fixed residence, this does not (as we shall see below in the case of Nayband) necessarily mean that the more pastoral are also the more nomadic. Limited and fixed supplies of water may require pastoralists to stay in one place in order to remain close to them and maintain a defensible position.

/ Nevertheless, although it is not always possible to maintain a clear-cut analytical distinction between pastoralists and agriculturalists, there is always a sharp ideological distinction between nomads and peasants. This ideological distinction is generated by the group feeling of identity in response to the relationship between the group and its habitat. It is associated with the identity of people in groups, and not individuals. All individuals are capable of the whole range of technological expertise of pastoralism and agriculture in the area. In response to opportunity and the changing balance between population and resources, individuals change their group allegiance, and therefore also their identity and their ideology. All practise or are capable of the same range of subsistence techniques. Nomads become peasants;

peasants become nomads. The identities remain in stable opposition, irrespective of the movements of individuals.

This section closes with a paragraph about mining activity within the deserts. Little is known about the history of mining. The earliest known extraction of minerals in the area dates back to the fifth millennium (Caldwell 1967). There must have been significant increase in the mining of lead between the XVIth and XVIIIth centuries in response to the introduction of firearms. Undatable, deserted, small scale lead and copper workings are to be found here and there throughout the deserts. Copper, lead and coal are worked now in a number of places, but always as a capitalist enterprise, financed from a city. The laborers are taken from the oasis populations. Men who find it difficult to subsist on the resources available to them move to the relatively secure day wage labor of a nearby mine. It is a relatively miserable existence in an artificial community. If one seam shuts down, they can usually move to another. As a class the miners may be called a desert proletariat, uprooted from the essential subsistence relationship between a group and a natural habitat, however poor, they are exclusively dependent on a daily shift. If they should be forced out of this niche, they usually drift into the cities as day wage labor or beggars.

Desert society and culture, therefore, display a range of adaptations, technologies, identities and ideologies which are predictable, while a constant movement of people among them maintains the balance between population and resources both within the deserts and between the deserts and their more fertile peripheries.

Nayband

The two villages that I describe now are by no means typical of Iranian villages, even in eastern Persia, but they are better treated as extreme forms of adaptation to extreme conditions than as exceptions to a normative type. Nayband is a village of some eighty families huddled on a rock among the southeastern foothills of the mountain of the same name in a central position in the deserts of eastern Persia. The villagers speak a dialect mutually intelligible with standard Persian though with considerable idiosyncrasies of vocabulary, and no tradition of literacy. As far back as the tenth century it is referred to by ibn Hauqal as one of the three oases in the Iranian deserts. It pos-

sessed "an inn or guard-house with a score of houses round it, water being plentiful, enough indeed to work a small mill. Palms grew here, and many springs irrigated the fields; and two leagues distant from the place was an outlying spring, surrounded by palms, where there was a domed tank, of evil fame as a noted hiding-place for robbers" (Le Strange 1905:325). It seems likely that the writer was optimistic about the plentifulness of the water supply, but otherwise the general scene probably changed little until well into the present century.

Hot springs and isolation have played a major role in the history of Nayband. In recent history its main formal relationship with the outside world has been through Tabas, now a small town some one hundred kilometres to the north, which has been the only center of any political centralization within the deserts and the residence of a *khan* or small provincial governor. However, while the *khan* in Tabas claimed Nayband as an outpost of his political demesne he was never able to ensure its security. Instead, he graciously remitted the community's taxes in return for allowing them to fend for themselves. Nevertheless, the relationship was not entirely without value to the people of Nayband, since it allowed them a special status in his court when they visited Tabas, which the more ambitious of them apparently often did, and it saved them from losing the title to blocks of their resources to a politically powerful absentee landowner. Attendance at the court also made them familiar with the cultural tradition, particularly poetry, which was for them a form of literacy.

The relationship between population and resources in Nayband appears never to have been well balanced. Their water supply is reliable and a haven for travellers, but not sufficient for the irrigation needs of forty families, and such cultivable soil as they have is reclaimed by terracing or *bands* from the beds of the *wadis* which encircle the rock on which the settlement is perched. It is poor soil, and the wheat it does produce is poor quality. Much of the land is given over to the production of alfalfa, and agriculture as a whole is seen more as method of increasing the available feed for their animals than as a reliable harvest for human consumption, since they are always reduced to seeking the major part of their grain needs from outside markets, and their relationship with the *khan* of Tabas was particularly important to them in this regard. This situation was reinforced by the fact that while they could usually defend themselves on the rock they could not defend the crops around the base of it, and too much attention to improving them was therefore not worthwhile since

they never knew whether they would see the fruits of their labor, or lose them to some marauding band of Baluch raiders. Much of the land is given over to date palms, and the situation with regard to these is even more instructive in this context. The dates are of very poor quality, and for the most part are only useful for human consumption when boiled down into syrup. The palms appear never to have been cultivated because the investment was not worthwhile. Instead, they were left to grow wild, and such fruit as they produced was valuable as an added item of fodder. Even the stones of dates are valuable fodder.

The major part of all their subsistence efforts were directed in the final analysis towards their sheep and goats. These were more defensible assets, and could be grazed for much of the year in and around the mountain behind the village, where there were also a number of small colonies of from one to ten families, which were considered a part of the Nayband community.

From a simple view of their subsistence activities, therefore, the Naybandis might be characterized as sedentary pastoralists. The pastoral emphasis in their subsistence activities does not lead them to adapt nomadically to their habitat because of the limited and geographically circumscribed nature of the available water resources. Their pastoralism, however, supported by their agriculture, was still insufficient, or at least not reliable enough, to afford them adequate subsistence, and the central factor in the siting of the community was its geographical location as a haven on a major desert caravan route. At the approach of a caravan the villagers, acting as individuals, would go out to meet it, and contract with parties in the caravan to cater for them during their stopover by the springs of Nayband, in the shelter of the palm groves, and provide them at exorbitant prices with such supplies as they still needed for their onward journey. Little is known about the historical pattern and scheduling of caravan traffic, but it may be surmised that it was not nicely spaced out around the year, but concentrated in the cool season, and that the caravans were made as large as possible for reasons of security. This would mean that although the caravan traffic may have been essential to the population of Nayband for their subsistence, activity connected with it may have been confined within a relatively short season. The villagers do not breed camels themselves, since the environs of the mountain are not suitable. Neither do they organize caravan traffic. During the rest of the year some of the men would have needed to make journeys to Tabas

or other towns on the periphery of the desert in order to bring in supplies. Although every member of the community had title to some portion of land, and water was allotted on the basis of landownership, few had shares large enough to make it worthwhile working them, with the result that most of the land was cultivated by a minority of the men, who rented from those who found it more worthwhile to do other things than cultivate their meagre shares. The main other occupation of those resident in the village was pastoralism. But many who had title to shares of land and were acknowledged members of the community were not resident. They had either migrated out of the deserts or moved into the mines.

Membership of the community derived from title to land in the main village, and all the colonists around the mountain still retained title to land there. The name "Nayband" applies to the whole. The quantity and quality of the resources are such that there is little room for economic differentiation in the community on their basis. Such differentiation in the past probably depended on success in milking the caravans and dealing with the *khan* in Tabas, which would depend largely on qualities of personality. The community now appears to be without any formal structure. The houses have a small ground area and are built up to three and four stories, since space is at a premium on the rock. The people talk of a division into quarters which for the most part correspond with patronymic groupings. Stories are told of constant conflict between these groupings before the establishment of the gendarmerie post, and violent disputes are still common. Previously, the senior members of the groupings maintained as close a relationship as possible with the *khan* in T'abas who was used as a final locus of appeal in disputes. With the disintegration of this traditional structure the community presents an acephalous image.

Deh Salm

Deh Salm lies some one hundred and fifty kilometres southeast of Nayband on one side of an extensive semidesert plain. The population of some forty families work a larger area of cultivation than that of Nayband and have a larger palm grove. The range of crops is also broader and includes turnips and cotton. As in Nayband these are all as likely to be used for fodder as food, particularly in bad years. The name appears to be of the same vintage as Nayband, but unlike Nayband it has for the last two hundred years at least been relatively

firmly attached politically to the southern part of Khorasan (known variously as Quhistan or the Qa'inat). This attachment had apparently been confirmed by the residence of a minor *khan* until within the last hundred years.

Nevertheless, Deh Salm always constituted a southwestern outpost both of the Qa'inat and of settled agriculture. To the south of the village lies territory traditionally controlled by Baluch tribes. Raiding was endemic, and Deh Salm was too isolated and too far from the centers of political power to be effectively protected. The villagers never knew whether they would enjoy their harvests. Malaria was rife and greatly reduced efficiency and increased mortality rates. Opium, which was a panacea for both adults and children, and caused addiction among many, had a similar though perhaps less drastic effect. All these factors, of course, belong very definitely to the past, but were nevertheless important in the lives of the present adult generation. It was largely due to a combination of these factors that ownership of such a large proportion of the total resources of the village passed out of the hands of the community, for the people were forced to sell capital in order to subsist.

The water table in the Deh Salm plain appears to be such as to allow *qanat* irrigation of any section of the plain which is cultivable, and there are large areas of cultivable soil. The plain is said to have contained twelve *qanats* historically, and the ruins of several of them are still to be seen. Deh Salm relies entirely on one *qanat*. In the previous generation (historical events proved almost impossible to fix chronologically) a flood severely damaged the *qanat*, and the community enlisted aid from the Khan of the Qa'emat to enable them to repair it. In return for this aid four and a half days of the twelve and half day *qanat* cycle became the property of the Khan. Some twenty years ago this property was sold by the Khan to a family in Neh, a small town one hundred kilometres away to the east, which further invested in the *qanat*, and opened up a new area of cultivation with the increased flow. Most of this property still remains in the hands of this one family and some members of the family have now taken up residence, or at least maintain households, in the village. However, they are not accepted as members of the community. While some of their holdings are large compared to those of the rest of the community, they are in no case sufficient to provide a significant income beyond subsistence.

In Deh Salm today approximately half of the cultivable land and

half the water is owned by people who do not belong to the community. Of the estimated 25,000 date palms only one tenth is owned in the community. Finally, an estimated 3,000 camels browse unherded in the plains around the village. With very few exceptions none of these belong to the community. Only one small complex of families in the community owns sufficient to provide their own subsistence without acting as tenants for absentee landowners. The average family owns a little land and water and a few palms, acts as tenant for more, and owns a few sheep or goats and perhaps a cow or a camel. Some of the poorer adults migrate to find work elsewhere during slack seasons.

Date palms and camels are extraordinary resources in that their productivity bears no relation to the negligible amount of labor and attention they require. In this particular case the camels require no labor at all, but provide no return for the community. They are rounded up at intervals by their owners and sold for meat. They constitute a great nuisance to the community by fouling the vicinity of the *qanat* in the center of the village where they come to water. Many attempts have been made to rid the village of this nuisance but so far no solution has been found. The villagers are unable to refuse access to the animals because of other aspects of their relationships with the owners. And many of the poorer families do milk them and use the dung for fuel for cooking purposes.

Since most of the men of the village are occupied primarily as tenants of resources owned by piecemeal absentee landlords, there is little control on their use of these resources. The village headman (*kad-khoda*), who is chosen by the more prominent owners in consultation with the sub-governor of the area, is ultimately responsible for security, and currently appoints four men from among the poorer families to police all the crops. Almost all the disputes that arise in the village derive from problems of policing. All members of the community have the run of the total cultivated area and graze their animals in and around it. A goat gets into another's cotton field and does ten to fifty dollars damage before it is noticed. 25,000 date palms constitute a jungle that is particularly hard to police, and few people are seriously interested in policing resources which belong to strangers anyway.

The two main events of the year are spring (given sufficient rain), when all those, who can, leave the village with their sheep and goats to take full advantage of good pasture and the resultant dairy products, and the date harvest (*khormatar*) in the late summer, when the

absentee palm owners visit the village, bringing with them a selection of products and materials not normally available in the village and providing a market for any whole animals the villagers are able to sell.

Deh Salm is one of the most isolated communities left in modern Iran. The dialect, as in Nayband, is mutually comprehensible with standard Persian. But no one in the community is literate, and—what is more surprising—there are no transistor radios, except among the gendarmes, who have little intercourse with the villagers. Thus, it provides an object case for the lesson—perhaps not yet sufficiently well learned in anthropology—that a spatial isolate, even in the form of a very isolated community, is seldom a social isolate. Apart from the fact that half the resources were owned outside the village, one group of families who belonged to the community also owned other resources in the mountain range (*Shahkuh*) two days journey to the north, many people enjoyed reciprocal relationships with other settlements, and groups of nomads to the southeast played a significant part in the social intercourse occasioned annually by the date harvest.

The context of change

During the last two decades the literature on change has grown apace in several disciplines including anthropology. It has been largely concerned with the results of various degrees of contact between western and non-western cultures. It has tended not to be historically oriented, and for this reason and the fact that the context of this paper is outside those disciplines which have been concerned with it, I feel free not to articulate my discussion with it explicitly.

There is both a synchronic and diachronic dimension to any social situation, and insofar as the situation is affected by outside influences any sociological analysis which does not take account of open-ended processes of social and cultural change is in some sense incomplete. For the purposes of the present discussion I make a distinction between pre-modern and modern change (which, for this analytical purpose only, I consider to be a quantitative distinction), and since it is the effects of the spread of new ideas and administrative programs from the capital into isolated villages which commands greatest interest I shall concentrate on processes of change which derive from exogenous factors in both contexts. For convenience I conduct the discussion within three categories: 1) administrative—concerning the control of resources and produce; 2) commercial, e.g. exigencies and opportunities of new markets; 3) technological.

Pre-modern change

1. Before the introduction of the modern technology of mechanization, and the closer relationship between village and central government which it allowed, the most important factor in the relationship between villages like Nayband and Deh Salm and their greater social, political and economic context was security. The introduction of firearms from the sixteenth century onwards may have affected this situation somewhat adversely for the villagers but otherwise pre-modern processes of change must have been reversible with very little change in quality since the earliest political centralization on the plateau. We have already seen that the neglect of the date crop in Nayband derives from a traditional lack of security. In Deh Salm political considerations led to the movement of the Khan out of the village which both made the village less secure and lowered the morale of the people. General impoverishment followed. The people gradually lost title to their land, partly through the investment of the Khan of the Qa'inat, though they continued to work it and subsist from it.

Investment is always a critical factor in change and there is a major difference in the quality and structure of investment from the pre-modern to the modern situation. The most important investment in a village like Deh Salm is the *qanat*. The residence of a *khan* in the village provided a center for the accumulation of capital and the direction of investment. It therefore also provided a minor focus for population. Close relationship with a *khan* would also have involved a tax structure, but this aspect of the relationship was not recoverable. Evidence for the history of villages like Deh Salm derives from oral history, historical texts, ruins and archaeological deposit, and archaisms in the structure of the community, such as tribal idiom in the native model of social organization of a peasant community (cf. e.g. Spooner 1965:104). In the case of Deh Salm most reliance must be put on oral history, the existence of ruins of buildings some of which are on a grander scale than those presently existing, and uninvestigated archaeological deposit under part of the cultivated area, and a partially tribal idiom of social organization. There is a close relationship with camel herding nomads to the east and southeast because of the situation referred to above, but I could find no evidence of interchange of population between the villagers and the nomads. Interchange of population has, however, taken place between the village and mountain (Shahkuh) to the north which is settled by small groups of families subsisting from a wide variety of resources. These

groups are particularly vulnerable to drought, but safer in times of insecurity. Some families from the mountain had secured title to odd pieces of land or shares of water in Deh Salm, which served as an insurance against bad years. Two impoverished men from the mountain had managed to marry into the village, and at least one family had acquired a considerable amount of property and now spent the greater part of the year in the village.

2. Two new items were introduced into these villages between the middle of the last century and the beginning of this: tea and opium. An old man in Deh Salm, said to be more than 100 years old, described the introduction of each graphically. The speed with which the practice and indeed the ritual of tea drinking spread through Iran is unexplained. It soon became—with the sugar with which it is invariably drunk—a staple and significant item in the diet of the ordinary villager. Its introduction, therefore, had the effect of making him for the first time dependent on an outside market. Opium of course made some even more dependent, for though it was not an addition for many below the age of about 40, it was soon a panacea for all. Although opium was proscribed by the Iranian government only twenty years ago, its use had long been subject to government control, and therefore generated smuggling activities, which were always more intensive in the more desert areas and involved such isolated communities as Deh Salm and Nayband.

3. The only significant technological change since the *qanat* in pre-modern times was the renewed interest in mining for lead for ammunition (if my assumption is correct). However, it is difficult to reconstruct now just how far this affected life in the deserts before the greatly intensified interest in mining under Reza Shah in the 1930's. Apart from changes in the technology of mining, the technological situation in the deserts appears to have been stable for as long as perhaps 2,000 years or more, unless there were changes in crops and the technology of cropping which are at present irretrievable.

Modern change

Many of the factors of modern change produce similar results. However, they differ in that, since they are more directed, or result from efforts at direction and modern technological introductions which are controlled from outside the villages, they are more abrupt and less reversible.

1. The first direct modern link with the administration in both villages was the establishment of a gendarmerie post. This may be regarded as a modern substitute for the residence of the *khan* in the traditional situation, but there is one major difference between them: the gendarmerie post is impersonal and there is very little informal personal relationship between the gendarmes and the people, whereas the Khan's function was personal and paternalistic. In Nayband the first post was driven out and later re-established. However, in recent times the presence of a gendarmerie post has meant security as the presence of the Khan did previously. One of the results of the new security in Nayband (which never enjoyed benefits of a *khan's* residence) has been an interest in cultivating date palms.

Other government officials who now visit these villages from time to time include officials of the departments of Education, Public Health and the Census. (Both villages have been bypassed by Land Reform because of the small size of the holdings.) The greatest social impact that these have had so far has been simply in the contact with outsiders. However, malaria has been entirely eradicated in Deh Salm some four years ago, and pesticides have recently been introduced. But Deh Salm still has no school teacher. There is no doctor within reach of the people of either village, nor any supply of drugs, but it is interesting that kerosene is now used as a disinfectant and local anaesthetic.

Perhaps the most significant result of the difference between the two types of change is an exaggeration of the traditional dichotomy between the city (*shahr*) and the country (*deh*), which is even more exaggerated in this context because of the extreme isolation of Nayband and Deh Salm (cf. above p. 2 on *abadi* and *beyaban*).

2. The effect of the introduction of motor transport has been ambiguous. In the first place it diverted traffic which would traditionally have crossed the desert on camels, using villages such as these as staging posts, and took it round the edge, leaving the villages suddenly and artificially isolated. However, later, as the availability of motor vehicles increased they gave Deh Salm access to national markets for its cotton crop, and have brought Nayband back into the national road network. Cultivation of cotton has as a result been extended in Deh Salm and new varieties are being grown which are better suited for export. The net result in both villages has been a closer integration into the national economic network. In most villages throughout Iran this process has been backed up by the radio. In less isolated

villages nearly every family has a transistor radio and listens avidly to broadcasts from the capital and abroad.

3. Technological innovations (other than motor transport) have consisted mainly of the various uses of the diesel motor: for pumping water and milling grain. In neither Nayband nor Deh Salm have any motors been imported into the villages themselves, but their introduction and use in neighboring settlements (i.e. at least 50 kilometres away) has greatly affected life in the villages. Almost all Deh Salm wheat is now milled in this way in a complex of agricultural settlements entirely created very recently by the introduction of diesel pumps for irrigation. The grain is taken there by camel—a two day journey—instead of being ground by the traditional hand querns in the village.

Finally, a byproduct of the introduction of motor transport is the new role of the camel. Individuals who can afford it in these villages still maintain one or two camels for riding and transport purposes, but scarcely any use is now made of them for largescale transport, and the camel breeding business has been completely reoriented and directed towards the meat market in the large cities.

There are obviously changes in the movement of population both geographically and between occupations and social identities. Unfortunately, the Iranian censuses do not provide the required information, but observation corroborates the logical deduction that the booming cities outside the deserts now absorb a greater flow of immigrants from the oases than previously, and fewer return.

Conclusion

More than once during the process of field inquiries the question arose: "What can be the future of such communities, such areas?" Can they eventually be assimilated and integrated into the modern economy and society? This is a problem which continually occupies Iranian planners, and it is particularly difficult because of the traditional ideological dichotomy and prejudice against the *beyaban*. The opinion of a doctor serving in Deh was typical: that these areas should eventually be evacuated. An ecologically oriented anthropologist cannot subscribe to the opinion that anywhere that is patently habitable should be simply evacuated, and since the doctor's opinion is widely held, some form of ripost would seem in place at the end of this essay. Traditionally the deserts of the central Iranian plateau have lain

between the eastern and western halves of the Iranian world. Modern political borders have been drawn in a way that leaves a marked imbalance between the parts of eastern and western Iran that lie within the modern state's political borders. The modern nation-state of Iran has nothing to lose and everything to gain from the integration of all these desert and semi-desert areas into its communications system, its economy, society, and culture. The key to such integration is investment.

The settlements which are known to have existed in the deserts since pre-Islamic times, e.g. the special cases in this paper, were situated on arterial routes, which, by the way, were not planned. The planned resurrection of these routes (which has begun, e.g. Kerman-Ravar-Nayband-Dihuk-Ferdaus-Gonabad-Meshed) will restore the place of these villages in a national communications network and stimulate further exploitation of the desert areas. Agricultural investment in the plain around Deh Salm is feasible, and would become more feasible, given a road network. The economy of Nayband is more difficult to expand or diversify. It was traditionally a staging point on a major route and will probably remain so, but it would probably profit by concentrating on the production of exportable tree crops. This would make the community entirely dependent on an outside market. As they become more adapted to their newly-found security and the ease of communications increases, this may also become feasible. Such improvements in economy and communications, if backed by determined long range programs of government sponsored broad spectrum investment (which owing to the nature of the Iranian regime may be more feasible in Iran than it has been in similar situations in the West), could reduce the cultural prejudice against these marginal areas.

With this perspective it might not be too extravagant to foresee parts, at least, of the desert areas returning to the role they would seem to have played in the context of the earlier Persian empires—climatically, perhaps, no different from the present day, but with much more wildlife and more closely integrated in the life of the surrounding regions. The major obstacles to change in this direction are the pre-modern vested interests. For instance, in the case of Deh Salm such interests belong to people outside the community. The people in the communities in question are highly receptive to change, because they are used to including in their system the exploitation

of any potential resource that might become available. They have learnt to adapt and maximize their resources and their range of resources. The present is a crucial time, for it is now that the movement of population out of such areas into the cities is gaining momentum, and if allowed to go much further this will mean the loss of the existing investment in the deserts which is ancient and considerable.

FOOTNOTES

1. In Nayband, June-August 1969, and Deh Salm, June-August 1970. These studies were financed variously by the Office of Health, Education and Welfare, the Social Science Research Council, and the University Museum of the University of Pennsylvania. I take this opportunity of recording my sincere gratitude to them. In the second season I was assisted by Mary Farvar, Washington University, St. Louis.
2. For more extended discussion *vide* Spooner 1971. The implications of the Helmand river and its delta in Sistan are excluded from this essay.

BIBLIOGRAPHY

- CALDWELL, J. R., 1967, Investigations at Tal-i-Iblis, Illinois State Museum Preliminary Reports #9.
- ENGLISH, Paul Ward, 1968, The origin and spread of qanats in the old world, Proceedings of the American Philosophical Society CXII/3:170-181.
- LE STRANGE, Guy, 1905, Lands of the Eastern Caliphate, Cambridge.
- RAIKES, R. L., 1965, The ancient gabarbands of Baluchistan, East and West, I.S.M.E.O. XV/1-2:26-35.
- SPOONER, Brian, 1965, Arghiyān. The area of Jajarm in western Khurasan, Iran, III:97-108.
- 1972, Population, resources and technology in the Iranian deserts, in Population growth: anthropological implications, M.I.T. Press. (in press)