The interest in the study of the origin and development of urban settlement in Arabia is fairly recent: Doe, 1971; Pesce, 1971; Costa-Vicario, 1977. Research was undoubtedly delayed by various difficulties, partly depending on the unclear and often troubled political situation of the region. It is a fact also that until the late sixties travels and field work were limited by lack of roads, old fashioned administration and, in general, by a widespread suspicion of foreign visitors.

The modern exploration of Arabia, which started in the late 18th. cent. with the Danish expedition to the Yemen, reported by the sole survivor, Carsten Niebuhr, remained for over two centuries more or less confined to the coasts, where travelling was also difficult and risky unless helped by a supporting ship (fig.1) The exploitation of oil resources, started in the '30s and the new political order which gradually followed and reached its conclusion with the Federation of the Arab Emirates in 1971, joined by Ra's al-Khaymah in 1972, created much better conditions to carry out scientific research in the field. Even so, Arabia continued to receive little attention, and only from a few specialists. The methodological approach of many historians of Islamic art, chief among them Creswell, had contributed to direct the research to other regions of the Middle East and the Maghreb, and led scholars to ignore the architectural heritage of ancient Arabia and even deny its existence. In the image of the autoconceited civilization of Arabia, impoverished in the comparison with other regions of the Islamic world meant that only (or mainly) the nomadic component was recognised. Thus the picturesque figure of the bedouin, veined of romanticism, but also marked by backwardness, came to represent all the inhabitants of the Arabian peninsula. It is a fact that until a few years ago the maps of early Islamic Arabia do not show a single urban centre, with the exception of the holy cities of Mecca and Medina, illustrated by the studies of H. Saladin (1907) and J. Sauvaget (1947).

The idea of Arabia as being inhabited exclusively by nomads unfortunately remained enshrined not only in the popular but also in the scientific literature until the beginning of the seventies. Only then was the study of the traditional urban settlement begun, supported by archaeological research; it produced substantial proof of the mainly sedentary nature of the Arabian civilization. We will briefly examine here the material at our disposal and the lines along which research may be directed in the absence of a cadastral documentation comparable to what is available for other regions. We will necessarily limit ourselves to consider only a few examples of the Yemen and Oman.

First of all San'a. Undoubtedly the most spectacular and most known city of the Yemen, San'a has received scholarly attention through many articles, chapters of books and a monograph published in 1983 by the World of Islam Festival Trust.

In 1976 UNESCO and the Middle East Centre of the Faculty of Oriental Studies of the University of Cambridge (U.K.) sponsored a colloquium on the Islamic City. The contributions to the colloquium included a study by the present writer on the city of San'a with an account of the historical development of the town and an analysis of its physical fabric and its redevelopment problems after 1962. The article contains also a discussion of the main features of the city and recommendations on how to reconcile the modern development of the city with the preservation of its historic monuments. I am pleased to recall here that Paolo Cuneo was invited to take part in the colloquium and contributed to the discussions and the recommendations on the safeguarding and rehabilitation of Islamic cities which concluded the colloquium works and were published in the proceedings (Islamic City 1980).

The book by the present writer and photographer Ennio Vicario "Yemen a land of builders" (London 1978) contains special chapters on four cities: Sa'dah, Manakah, Zabid and San’a', as examples of four different building types, urban lay-out and fabrics. The chapter on San'a' includes a discussion of the urban development of the town (op. cit. p. 158-165). The book "San'a', an Arabian Islamic city" edited by R.B. Serjeant and R.B. Lewcock (London 1983) was the result of an ambitious scheme of multidisciplinary research conducted by a number of scholars, including the two editors, who covered a great variety of subjects from art and architecture to laws and regulations, markets and social organization, cooking, coinage, trade, geography, history, water supply and epigraphy. In a word the 27 chapters of this large volume constitute an exhaustive study of the city in all its aspects and provide a fundamental collection of data for choosing the most appropriate methods of conservation.

Along with the chapters devoted to various aspects of architecture and physical organization of the urban quarters there is an important chapter on the statutes governing the city, one on the organization of the markets and one on the descriptions of European travelers, rightly considered an invaluable source of information which includes not only the description of the various phases of growth of the town, but also the related maps. I mention here the sketch by Niebuhr (1763); the sketches by Cruttenden (mid-1800), the map (fig.2), drawings and photos by Manzoni (1879), the map by Rathjens and von Wissmann (1929), and photos by Salvatore Aponte and Hugh Scott (1930).

It is obviously impossible to discuss here at any depth the urban development of San’a': only a few points will be considered.

The name itself of the city refers to the fact that it was built and defended by man-made works and not by natural features, as instead it is the case of many other settlements of the Yemen. A fact that in itself seems to
2 - RENZO MANZONI'S MAP OF SAN'AYA

3 - SCHEMATIC MAP OF MUSCAT

4 - SCHEMATIC MAP OF MATRAH
exclude that the first nucleus of the settlement might have been on the heights of the Gebel Nuqum, the mountain which overlooks the city. From the point of view of the lay-out of the built up area and the building technique, it must be noted that the only remains of pre-Islamic stone works still extant and in situ are visible in the walls of Qasr al-Silah, the massive fortified bastion standing in a slightly raised position at the eastern end of the city, the only high area within the walled perimeter. Qasr al-Silah is most probably the area of the citadel of the oldest part of the settlement. The famous 8-shaped lay-out of Šan‘a‘ is in fact relatively recent, as the western part of the walled town belongs to the first half of the 19th cen. This explains why in the sketch map by Niebuhr Šan‘a‘ is vaguely circular in plan with two fortifications, Qasr al-Silah and al-Mutawakkil respectively on the east and west of the town. Bir al-Adab, the western quarter of the town, appears for the first time in Manzioni’s map. It is near a small suburban settlement (al-Bawniyab) which existed in this part of the plain, that the Jewish community, expelled from the old town of Šan‘a‘, was authorized to re-settle around 1680. The Jewish quarter was later included within a less massive town wall built west of the sayla (the seasonal water course which cuts the old town running from south to north) for the protection of the suburban quarters risen on this side, and of vast agricultural areas. The Jewish quarter was thus located again within the walled town, repeating the same pattern of some centuries earlier, when the Jewish houses were apparently in the NE quadrant of the town (Rathjens, 1957). In the old town lay-out, the large area of the retail suq is clearly distinguished, divided according to the various goods and enclosed in a circle of large semsara (warehouses corresponding to the khanaq qasariyab of other Islamic countries), numerous mosques and the open markets of fodder and pottery which are also clearly visible. A large part of the suq (buildings and open areas) are religious endowments, waqf, and therefore inalienable properties, and in a certain sense of unchangeable nature and status. All this, with buildings for public use, religious buildings, public baths, water systems, streets, cemeteries, the large empty areas along the walls, gates and fortifications, represent immutable elements within the dynamic texture of the city. Their identification and correct spatial definition have thus a great importance for the study of the urban development. I would like to end these observations on the study of old Šan‘a‘, pointing out that the citadel within the townwall is not unusual in the ancient Yemen. The same pattern is to be found in Sa‘da, but also in towns which belong exclusively to the pre-Islamic period, like Ma‘īn, one of the main Minaean centres of the Jof (Costa, 1984). In Oman, on the other side of the Arabian peninsula, the urban settlement offers two main types: the oasis-cities and rural settlements in the interior, and the coastal centres, which include port-towns and villages inhabited by fishermen/farmers. The first type, based on a substantially agricultural economy, is largely influenced and guided in its lines of development by water-supply and defence factors. The water system, from source to distribution, is made of channels mainly originating underground (fallaj). At the end of their course (which may occasionally be 40-50 km long) the surface of the fields must be levelled and quite often be lowered in order to reach the water level, and allow its easy distribution by gravity (J.C. Wilkinson, 1977; Costa, 1983). Defence is achieved either by chosing a dominant position or building defensive walls around the residential quarters or simply building the houses close together on the perimeter of the town. Along the coasts, settlements are usually unvalled, with their houses spread out in an irregular linear pattern, along the shore. Generally, the economy is based on fishing, trade and agriculture. Irrigation relies on multiple wells, sometimes complemented by channels tapping surface or underground water from the piedmont zone. The port-towns of the NE coast are made of densely inhabited quarters protected by fortified walls. The urban centres have usually a more or less wide agricultural hinterland, necessary to the economy of the population which combines farming, animal husbandry, trade, fishing and various crafts. A special case is Muscat whose rugged and arid territory allows only very small scale cultivation. The town, an ideal harbour thanks to the morphology of its coast (fig. 3), but not for its hinterland, has slowly become the country’s political capital, leaving the role of commercial centre to be played by nearby Matrah, which on a large bay has an extensive suq and some residential quarters. Among them Sūr al-Luwaitiyyah, the quarter of the wealthy, ethnic and religious minority of the Luwaitiya (fig. 4). In the country’s interior, the towns have wide, intensively cultivated areas with crops on three levels: fodder, cereals and fruit-trees, under the protective shade of the date-palms. Each settlements originates usually from one tribe, or tribal groups united in confederation. The towns are thus based on a strongly knit social organisation, which explains the not rare presence of a defensive system which encompasses the whole oasis, including houses and fields. The town-oasis of Bahla illustrates this type of settlement. The town wall covers a total length of 12 km and encloses some 20 fortified quarters and the citadel, surrounded by houses and the Friday Mosque (fig. 5). The settlement of Birkat al-Mawz originates on the contrary from a small group of houses built on an
alluvial fan of the Jebel al-Akhdir massif. From this early nucleus a larger village developed in late medieval times followed (fig. 6), in the 17th cen., by a wide expansion on the plain of more houses and cultivations at the mouth of a narrow valley of the Jebel al-Akhdir. The plan of this last part of the settlement is very interesting; it includes a large residential compound walled-in and clearly generated by the rectilinear course of the main water channel (fig. 7).

The oasis of Manah, which, at the beginning of the 16th cen. the Portuguese considered the most important centre of the Interior, is one of the largest of the pre-desertic region.

The cultivated area, which includes also large sugar cane fields, extends around four inhabited centres: two of these are walled and two have a defensive perimeter of rather regular plan created by the very mass of the densely packed houses.

First from north is the quarter of al-Fiqayn built around a massive fortified residence at the N end of the oasis. The quarter shows two almost concentric development phases. The first nucleus, which surrounds the fort, includes the Friday mosque and a gate giving access to the built up area. The buildings of the second phase are spread out around the first nucleus, leaving free only the W side, where are the Friday mosque and the gate. One and a half km SW of al-Fiqayn is the largest of the settlements of the Manah oasis, called al-Balad, ("the town") (fig. 8).

It is formed by 2000 houses which create a dense residential area arranged in a plan vaguely rectangular, with the sides oriented towards the cardinal points. The eastern side is the most irregular: the walls surrounding it enclose towards the south a brackish spring almost in the middle. One gate is open through the walls on each side. On the N and S side, the gates are flanked by two high towers (square in plan the northern one and round the southern). The gates give access to a large street which develops through the whole length of the town. Other routes can be seen through the quarter with a EW and NS direction, but they lack the linearity of the main street.

The importance of this street is underlined by the presence of a large hall for tribal meettings (sabel) built on two floors on the W side of the street not far from the N gate. Three mosques, rather regularly spaced, stand also on the E side of the street.

Outside the walls, on the W side, has grown a small, satellite quarter; on the S side there are a market, a mosque, a fortified building and, further Ssouth, the Friday Mosque, one of the largest ancient mosques of Oman.

Manah al-Balad is no longer inhabited, but is not deserted; the owners still take care of their houses using them as stores and carrying out the ordinary maintenance of the buildings.

The quarter mosques and the Friday Mosque have
7 - BIRKAT AL-MAWZ, AREA OF AL-RUDEIDAH PALACE, BELONGING TO THE THIRD PHASE OF THE TOWN DEVELOPMENT

8 - SCHEMATIC MAP OF MAWAH AL-BALAD SHOWING TOWN WALL, GATES AND QUARTER MOSQUES
richly decorated mihrab with stucco works and inscriptions, bearing the date and the name of the craftsman who made them. These stucco works, realized between 1504 and 1535 give a *terminus ante quem* for the settlement, indirectly confirming the impression of the contemporary Portuguese chroniclers that in the 16th cen. the town was going through a period of particular wealth, growing into an interesting settlement comprising the political, religious and commercial centre of the community. 

(The Great Mosque has recently undergone a conservative restoration: project made and supervised by the Italian architect Giuseppe Biancifiori (Biancifiori, 1994). The restoration was commissioned by H.M. the Sultan, who personally contributed the necessary funding).

Settlements of similar lay-out are found in other areas of inner Oman.

In the large oasis of Izki, for example, the main built-up area includes a residential quarter (al-Yemen) surrounded by walls, near which stands a fortified building and a Great Mosque (now rebuilt). The plan seems almost like Manah, but in Izki there is a second walled quarter (Nizār) inhabited by a different tribal community in endless political strife with the population of al-Yemen. Oral tradition and official sources explain
thus the fortified building with the necessity of the Imam’s government in the 17th cen. to keep control over the two tribal factions (Costa, 1988). From this example it is clear that the study of the urban development of settlements should not be carried out merely on the basis of map comparisons.

In the Arabian peninsula the absence of cadastral surveys, at least until some ten years ago, leaves two ways for the study of the development of city plans: the archaeological/architectural research and an ethno-archaeological investigation.

It would be obviously extremely useful to carry out some trial excavations, because they allow to gather information that chronologically go beyond the data available from early maps, cadastral plans or property records, but excavations can be carried out only in small areas in settlements developed over a long period of time and on a very limited ground, resulting thus in superimposed phases. The problem is not of easy solution and requires an interdisciplinary approach, based also on ethno archaeological observations supported, if necessary, by palaeo-botanical studies. The ethno-archaeological research should envisage:

- study of aerial photos and available maps
- field study and reconnaissance of the traditional water supply
- survey of the inhabited areas
- analysis of the urban setting and of individual buildings in their original position in relation to the built environment
- archaeological excavations in the form of trial trenches or excavations of complete buildings
- research of the social organization of the quarters and tribal areas; of the written laws and traditional customs; study of the crafts activities in their physical setting; the administrative organization of the town; the occurrence of religious endowments; the rules, oral and written, that regulate the suq and the crafts, identifying the physical organisation of each (carpenters, potters, smiths etc.); identify the nature and function of the public buildings.

I would like to conclude this brief presentation of some aspects of the urban settlement in Arabia, pointing out that the regular plan of settlements like Manah al-Balad is not isolated and has in fact older precedents.

Zafr, important commercial centre from the 12th cen. on the Indian Ocean (today al-Balid, within the modern town of Salalah), shows in fact a great regularity in the distribution of houses, mosques, public buildings and also in the street network, lay-out of fortifications and gates (fig. 9) (Costa, 1982). But there are also older examples of a planned urban settlement: one is Samhar (perhaps to be identified with Moscha) a port-town of the 1st-3rd cen. A.D. one of the main centres on the incense route between the East and the Mediterranean.

A great regularity of lay-out, due partly to the terrain morphology, shows also a small town of the 1st mill. B.C., discovered on a terrace of Wadi Fizh in northern Oman (fig. 10): it probably one of the many settlements connected with copper exploitation, which started in northern Oman as early as the second half of the 3rd millennium B.C. (Costa, T.J.Wilkinson, 1987).

Paolo M. Costa

Notes

1) Another important project of the World of Islam Festival Trust was the exhibition “Nomad and City”, which included a reconstruction of the centre of San’a’, with suq, mansara, public baths and mosques, in an urban setting which still preserves high quality buildings of all Islamic epochs. The exhibition showed previously ignored aspects of the Arab culture and had such a success of attendance that was kept open for two years beyond the 6 months originally planned.

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