

HEALTH SERVICES AND THE POLITICAL CULTURE OF SAUDI ARABIA

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Abstract—Health services occupy a high priority in the development agenda of Saudi Arabia. Saudi culture—devotion to Islam, extended-family values, the segregated status of females and the Al Saud monarchic hegemony—is being formulated in an increasingly deliberate fashion, constituting a new 'political culture' which acts as a screen to insure that technological and human progress remain within acceptable bounds. There is a general disposition on the part of the Saudi populace to use modern health services as these become available, largely under governmental auspice. The role of the government in providing health care for pilgrims during the *hajj* to Mecca is of particular cultural importance. Cultural sensitivities concerning male physicians and female patients will be minimized by the training of a substantial number of Saudi female physicians, whose efforts will be directed toward female patients. At present, most health care in the Kingdom is delivered by male expatriate physicians, as part of the general massive reliance upon expatriate workers: although the expatriates will eventually be replaced by Saudi physicians, this dependency, which is felt to threaten Saudi culture, will continue for a decade or more. Private medicine is rapidly increasing though not on the same scale as government medicine. The provision of government health services is a source of legitimation for the Al Saud regime. In general, health services appear to constitute a form of modernization which meets the test of cultural compatibility.

The development of modern health care is a crucial dimension in the Saudi Arabian scheme of human and material progress, which, in turn, is tied to the nation's political evolution. While the recent downturn in revenue from the export of petroleum—virtually the sole source of wealth for the Kingdom—has dampened the rate of spending, Saudi Arabia remains a very wealthy nation. Its wealth gives it an enviable advantage over most other Third World societies which, whatever their aspirations toward health care, simply lack the economic wherewithal for rapid accomplishment. The pace of Saudi health development is of a piece with many other changes in the Kingdom, such as school construction along with the establishment of primary, secondary, and higher education; the growth of a consumerist economy; the introduction of mass communications; and the burgeoning of cities with concomitant expansion of housing, transportation, sanitation and other urban services.

One might suppose that in health development, as in other spheres, Saudi affluence obliterates economic constraint—that the Saudis spend their money freely for anything and everything they desire. Journalistic evocations of Saudi wealth promulgated in the Western press tend to generate this supposition [1-3]. While it has some validity for describing the consumerist economy, which vends all manner of imported foodstuffs, clothing, toys, household furnishings, electronic devices and motor vehicles, it does not account for the development of health services. Economic factors play a major role in shaping Saudi health services, particularly by giving them a strongly technological thrust; to the influence of economic factors must be added the influence of cultural and political factors. These are of paramount interest to us here.

The health systems of total societies have been analyzed from the standpoint of the general principle that cultural, social and historical factors prefigure their shape and direction [4]. In the United States, for example, a deep political tradition of minimal public involvement in health services had led to physician-centered health services which have a market-oriented 'non-system' structure and an emphasis upon curative medicine [5]. Applied to the Saudi situation, this general principle must take into account the circumstance that Saudi Arabia is, by intent and in fact, a conservative society in which technological progress and social change are guided by adherence to Islamic cultural values.

This paper will elaborate the foregoing idea. We will characterize Saudi society in terms of its traditional institutions. These form a sociocultural matrix against which the Saudi leadership can evaluate plans and developments in health, as in other spheres, for their compatibility and nondisruptive impact. Amid social change of great rapidity and massive scope, the leadership, with broad popular support, is striving for a path of progress which embraces technology but filters out many nonmaterial elements which are seen as unwanted 'Western values'. In analyzing developments in health care, attention must focus not only on any potential conflicts between modern health care and tradition but also upon the ways in which modern health care can give a positive impetus to traditional values.

Advancement toward a national framework of health services which embodies equitable access and technological progressiveness is occurring rapidly across a recent background of illiteracy, folk belief, minimal scientific medicine and widespread infectious disease. The introduction of scientific medicine and the creation of a health care framework is, according

to our analysis, generally consistent with traditional Saudi institutions. Further, our analysis suggests that health care within Saudi society contributes to the formation of a Saudi political culture in which governmental contribution to the human welfare of citizen-subjects becomes a legitimating canon for authority, overlaying and extending the traditional diffuse commitment to Islamic and familial-tribal values.

We argue that health services are a relatively trouble-free instrumentality for the forging of a new largely implicit political compact between the Saudi leadership and the populace. Individual Saudis generally welcome health care as provided in the modern hospitals and clinics. Folk-based midwives, bone-setters, herbalists and circumcisers still function, but modern health care finds broad acceptance and is coming to be more abundant than traditional care in the larger urban areas. From the standpoint of the leadership, health services have a cultural neutrality which makes them rather less problematic than other widespread innovations embarked upon, especially the national system of mass communications and education. The leadership intends to guide the content of mass communication and education into channels which amplify cultural values, but this effort is uneven and sometimes divisive, as the leaders vary in their conservative rigor. Health services do not arouse comparable cultural tensions, since they are for the most part provided episodically to sick persons who are, as patients, isolated from the social structure. What appears in television, in contrast, penetrates into the daily life and frame of consciousness of its audience.

This is not to assert that new health services are completely innocent of implications for modernization, or to suppose that they can be introduced apart from related processes of social change, such as the creation of health professional schools and careers, and the introduction of the bureaucratic organizational modes which typically govern clinics and hospitals. Although the modernizing effects of health services may accumulate over time, they seem in the short run to sustain the social fabric rather than to suggest divergent possibilities.

TRADITIONAL SAUDI INSTITUTIONS

There are four relatively distinct, mutually reinforcing institutions which embody the central traditions of Saudi society. They constitute a template for assessing the cultural legitimacy and contribution of health services, as well as other new features of the society.

They are:

- (1) Islam
- (2) The Al Saud monarchy
- (3) The extended family
- (4) The segregation of females

We will discuss each briefly.

Islam

Although Islam must in terms of historical roots be regarded as a Western religion along with Judaism and Christianity, it fuses religious, political, commu-

nal and moral principles at a pan-societal level in a manner uncharacteristic of Western societies. Islamic societies with a longer record of substantial Western influence, such as Turkey and Egypt, have built into their social and legal functioning a recognition of the distinctions between these categories, as, for example, in the distinction between religious and civil affairs. Also under Western influence, Iran moved in the same direction but has in its recent post-revolutionary phase reversed itself, restoring the sway of integrated religious-political authority in the name of Islamic orthodoxy. Whatever the impact of Islamic resurgence within Iran and whatever its future for Egypt and other Middle Eastern nations, Saudi Arabia already subscribes, and has long done so, to a highly fundamental standard of Islam. It hopes thereby to preempt external and internal stimuli toward still greater orthodoxy.

Saudi Arabia adheres to a particularly conservative version of Islam promulgated by Shaikh Ibn Abdel Wahhab during the eighteenth century [6]. The Wahhab family, providing religious leadership, and the Al Saud family, providing military-political leadership, formed an alliance which eventually consolidated the contemporary Saudi state. To say that Islam is the established religion, analogous to Lutheranism in Sweden or the Protestant Episcopal church in England, is to make an understatement reflecting Western concepts of church, state and society. It would be more nearly correct to say that Islam is the encompassing ethos of Saudi Arabia. The Quran, together with canonically-accepted sayings of Mohammed (hadith), are the basic written sources of politico-religious authority. Islam is the only religion recognized and publicly practised in the Kingdom. Basic Islamic rites such as the Ramadan month of daytime fasting and the five periods of daily prayer are voluntarily observed by many Saudis, although their observance is also facilitated by official and institutional recognition. Prayer times are observed in schools, and commercial establishments must cease operations during these periods. The location of the Islamic holy cities of Mecca and Medina within Saudi boundaries gives a special national meaning to Islam; for Saudis, it is a 'house religion'. Compared with Muslims from other nations, Saudis can with relative ease participate in the annual pilgrimage (*hajj*) to Mecca. Many have 'made hajj' a number of times; some go every year.

The Al Saud monarchy

The governing of Saudi Arabia is the exclusive prerogative of the Al Saud family. From its male members are drawn the monarch, the emirs of every province except Eastern Province, on the Arabian (Persian) Gulf, many cabinet ministers, high-ranking military officers and officials in national and local administration. Its female members are the mothers, wives, and sisters of the males. The Al Saud family is a tribal entity with some 4000-5000 recognized members and with connections through marriage to many other tribes in the Kingdom. Its marriages are arranged, as is the general practice in the Kingdom and elsewhere in the Middle East, with regard to the welfare of the marital pair but also with an eye toward political and social advantages which the

union may afford to the linked families. Although the Al Saud family are regarded as royalty and their head is the king (*malik*), its members sometimes marry 'commoners' from other tribal groups.

The political system of Saudi Arabia is in theory an absolute monarchy with no formal mechanisms of popular representation and, as noted above, with the Quran as the only written charter. There are, however, many established informal channels of consultation with the populace, and there is a sizeable administrative apparatus in which many high posts are held by civil servants who are not members of the Al Saud family. Braibanti and Al-Farsy write: "The polity defies conventional classification. In Weberian terms, it is well along the spectrum from a patrimonial to a rationalized bureaucratic system—with elements of both" [7].

The extended family

The basic supra-individual group which provides emotional, material and social support for individual Saudis is the extended family. In the widest sense, the extended family is the tribal entity with which one identifies himself or herself. In the pre-modern, nomadic period, there were several hundred tribes, each with its recognized domain. In addition to the Al Sauds, other leading tribes were the Quraish (the tribe of Mohammed, founder of Islam), the Qahtani, the Oteiba, the Al Murra and the Shammar.

In a more contemporary sense, the extended family consists of a father, his wife, and their adult sons together with the latter's wives, sons and daughters. This group has served as an economic producing and owning unit (the 'family business') and also as a solitary residential unit. With current extensive rural-to-urban migration and with much inter-city occupational migration, even this smaller-scale extended-family group frequently dissolves into Western-style nuclear families consisting of husband, wife and young children.

Although Islamic law permits polygyny, this practice has not been widespread in Saudi Arabia and is probably of waning importance. In a study of three settled small communities in the Turaba oasis of western Saudi Arabia, Sebai found that in 247 households there were a total of 282 wives [8]. One of the authors (E.B.G.) found in a sociomedical study of the community of Al-Rubai'iyah on Tarut Island in the Arabian Gulf that there were a total of 331 wives in 308 households.

There is a preferential pattern in the arrangement of marriages, namely, for the marriage of the offspring of two brothers; a second-order preference is for the marriage of a sister's son to her brother's daughter. Thus, marriages between first cousins (also between second cousins) are common. Consanguineous marriages have the economic advantage of keeping marriage payment (*mahr*), from the groom's family to the bride's family, within the extended family and also probably serve to reduce the amount. Socially, they have the advantage that the bride does not go as a stranger to her husband's household.

The segregation of females

In varying degrees, females are segregated throughout the Middle East, in non-Muslim as well as

Muslim communities. It is more strictly practised in Saudi Arabia than in most other Middle Eastern societies. Particularly significant is the fact that Saudi observance is stricter than that of other Arab states of comparable wealth and technological advancement such as Kuwait and Bahrain. We will not discuss here the pre-Islamic values of masculine honor and feminine virtue which motivate the segregation of females. Let it suffice to say that, wherever observed, the norm of segregation leads females to define and carry out their lives largely within domestic bounds. Private space is theirs, and public space belongs to males [9].

In Saudi Arabia, almost all women veil when they enter the public domain, as for shopping or en route to visit relatives, or, for girls, en route to school. With the great expansion of female education, the growth of the consumerist economy, and urbanization, such occasions occur more frequently. A woman living in Jeddah—a very large metropolitan area—may wish to visit a clinic in the central city or to visit her relatives who live across the city. If her husband has an automobile—as many Saudi families do—he may drive her (women are not permitted to drive), or she may ride in the female section of a SAPTCO (Saudi Arabian Public Transportation Company) bus. While segregation can be maintained in many of the new cultural situations (as, for example, by having separate male and female schools), some are refractory to it. In air travel, which is the predominant mode of intercity travel, no attempt is made to provide sex-segregated space. In the modern supermarkets, customers mix indiscriminately in the aisles. Saudi women who feel uncomfortable in such scenes, or whose male guardians do not want them to mix, can continue to shop in the smaller establishments of the traditional 'ladies' quarter'.

The relatively few Saudi women who are gainfully employed work in all-female milieux such as girls' schools, hairdressing shops and ladies' banks. Regulation set forth by the Ministry of Labor and enforced by the 'labor police' prohibit the employment of females where males are present.

Reliable figures are available on education, but we estimate that primary education is currently reaching 60–70% of young girls, and that secondary education is reaching 20–30% of the applicable female age group. The curriculum for females emphasized basic literacy, Islamic values and domestic arts. The spread of education will no doubt contribute to gradual alteration of the aspirations of Saudi women but, for the present, it appears that most find their goals and satisfactions within the traditional bundle of marital, maternal, domestic and extended-family roles. Segregation and other behavioral norms which invite challenge from the Western viewpoint are seen in Saudi culture as more protective than restrictive of women. Material affluence may tend to calm the latent aspirations of Saudi women toward a fuller measure of independence. There are relatively few poor Saudi families. The households of the growing middle class are replete with foreign servants, tasteful furnishings and the latest conveniences. In a review of Saudi women's progress, Bahry notes that they "have already become an important social force in the country" and are seeking a greater decision-making

role within their families; but there is little disposition to challenge basic customs such as veiling and segregation [10].

CULTURAL EROSION AND VIGILANCE

The foregoing traditions are maintained by a blend of half-conscious social inertia and a more active promulgation of social values. Some changes underway in the Kingdom favor the continued sway of the traditional institutions, while others seem to weaken them. A single channel of change may create disparate effects. Urbanization—especially the fast growth of Riyadh, Jeddah, Mecca and Medina—generates complex pressures in regard to male-female proprieties. One sees many black-cloaked Saudi women on city streets. Few things express tradition so vividly, but the very fact of the more frequent appearance of women in public is a new and 'untraditional' phenomenon. In regard to Islam, it is also likely that urban growth is giving new importance to the neighborhood mosque as a community center for men, serving as the focal point for a more vigorous orthodoxy.

One trend which has been recognized by many Saudis as troublesome is the great and growing reliance upon expatriate workers throughout the Kingdom. This trend is particularly strong within the health services, to be discussed below. Whereas the major Saudi concern about urbanization is only that of how to provide enough urban services more rapidly, in regard to expatriate workers there is much discussion of how to curb the national reliance upon them, and anxiety about the social ills which their presence may engender.

In the face of de-traditionalizing forces, there is a rising intention among governmental and educational leaders to take an active stance on behalf of traditional values and institutions. Consider for example, this statement by Bakr Abdullah Bakr, rector of the University of Petroleum and Minerals: "Some countries have sacrificed the soul of their culture in order to acquire the tools of Western technology. We want the tools but not at the price of annihilating our religion and cultural values" [11].

Bakr and his contemporaries have set themselves the task of maintaining the traditional institutions within modes of life which have been considerably altered by wealth and technology. A deep Saudi reverence for tradition is being supplemented by the search for a more articulate delineation of human possibilities within the purview of cultural guidance.

The emergent system of health care, to which we now turn, will express many traditional values and at the same time participate in the quest for new definitions.

HEALTH STATUS AND HEALTH NEEDS OF THE POPULATION

There is little systematic information concerning any aspect of Saudi Arabia. Braibanti and Al-Farsy explain this lack in the following terms: "... an ethos favorable to data accessibility, objective scholarship, and distribution of publications is not quickly established in any developing country. While Saudi atti-

tudes are conducive to such change, its advent should be measured in terms of one or two decades" [7, p. 7].

One could obtain a more accurate picture of petroleum exports and hotel construction than of the health and demographic status of the Saudi population. A national population census was undertaken in 1975 but results were not made available. Recent estimates of the total population place it at 7-9 million, and the indigenous Saudi population (excluding the expatriates) is thought to number about 5 million [8, p. 18; 12-14]. There is not yet any comprehensive information concerning health status. The new Saudi medical periodicals—*Saudi Medical Journal* and *King Abdulaziz Medical Journal*—and the published proceedings of the annual Saudi medical conferences contain research on selected diseases, but they lack epidemiological scope, being based upon clinical populations in hospitals and clinics. There have, however, been a few community-wide studies in oasis villages [15-17].

In sketching the Saudi health and demographic situation, it is appropriate also to discuss the literacy of the population. The adult literacy rate in the early 1970s was thought to be 5-15%. With the spread of educational facilities and the high birth rate, education is reaching the youthful population and illiteracy is declining. Official Saudi estimates in 1981 placed adult male literacy at 48% and adult female literacy at 36%. In earlier time, when few could read and write, the objective of all learning was the attainment of Quranic literacy. Religious learning remains a fundamental component in school curricula at all levels. However, it is overshadowed, in terms of curriculum hours if not cultural centrality, by secular knowledge. Grades 1-9 contain health instruction [18]. The rising literacy of the population can promote health by increasing the capacity to receive information relevant to daily hygiene, nutrition, sanitation and appropriate responses to illness. Further, health educational materials presented over television and radio are an important modality independent of literacy.

As in other developing societies, the age structure of the population is weighted heavily in the first and second decades of life. In Saudi Arabia, children under 16 and females of reproductive ages are estimated to constitute 75% of the population. The median age of the population is thought to be about 17 years. Life expectancy in 1976 was estimated at 54 years. It is increasing steadily with reductions in the overall mortality rate, especially in the infant, child and maternal sectors. In 1980, the birth rate was estimated at 49 births per 1000 persons per year and the death rate at 18, yielding an annual rate of increase of 3.1% [12].

The pattern of disease in the Kingdom resembles that found in other tropical developing societies. Infectious and parasitic disease are widespread [19]. Among the most common is tuberculosis, amoebic and bacterial enteric diseases, schistosomiasis, roundworm and bejel [20, 21]. Leprosy is found in the south-western part of the Kingdom [22]. Of the milder, though still very damaging, chronic infections, trachoma is especially widespread. In certain areas, prevalence rates as high as 96% have been reported [23, 24]. Though reduced in its incidence

since the beginning of control programs in 1948, malaria remains a serious problem [25]. The means of transmission of many of these diseases argues for vigorous efforts to improve sanitation and water supply, as well as a geographically dispersed system of health centers which can bring basic medical care to all sections of the Kingdom.

Medical observers have noted that genetic defects and diseases, such as the sickle-cell trait and thalassemia, are fairly common in selected geographic areas [26–28]. Auditory and visual impairments have also been noted as wide-spread [29, 30]. Genetic components in their aetiology suggest the role of consanguineous marriage; for this reason some physicians strongly question its continuation.

Some authorities believe that there is a substantial amount of occupational health hazard, particularly injuries connected with the construction industry [31]. Notwithstanding the need for reduction of environmental causes of disease and for basic health services, there is a growing need for specialists and hospital-based services to address the health problems of the chronically ill, disabled and elderly populations. The increase in life expectancy implies a rising toll of degenerative and chronic diseases such as cancer, arthritis and cardiac disorders. The general spread of wealth probably tends to increase the burden of those maladies which in the West are associated with affluence—obesity, hypertension, diabetes, lung cancer and road accident injuries.

POPULAR AND DOCTRINAL ATTITUDES TOWARD HEALTH CARE

Health care is an aspect of modern life which much of the Saudi populace seeks and accepts [20]. Even among nomadic bedouins—a declining fraction of the Saudi population—there is appreciation of doctors and medicine. A Saudi public health physician, Zohair Sebai, learned in conducting a health survey of bedouin in Western Arabia that they wanted outside help for their numerous health problems. He states: "Their health demands are simple. They want a health center or dispensary, injections and a doctor or nurse to take care of their sick" [8, p. 40].

In Saudi Arabia as elsewhere in the Middle East, there are indigenous practitioners and beliefs bearing upon the causes and treatment of disease which function as an alternative resource to modern medicine. Belief in the evil eye (*ain sharr*) is a familiar example [32]. Adherents to such beliefs often act upon them along with a pragmatic resort to scientific medicine. Although the mishaps that sometimes occur through reliance upon non-scientific methods are deplored, Saudi medical practitioners and the Ministry of Health are generally tolerant of non-scientific practice.

The formulation of a public religio-political stance in regard to health care is an important desideratum on the agenda for the emergent Saudi political culture. This stance must preserve continuity with the Saudi past and at the same time embrace the prospects of scientific medicine.

No categorical objections have been raised to modern health care on the part of conservative religious leaders, who have not hesitated to voice

their opposition to other new developments, such as television. In analyzing the stance of the Saudi religious elders (the *ulema*) who authoritatively interpret Islamic doctrine, Nyrop writes: "Adoption of modern technology appeared to many to contravene (Shaikh) Wahhab's injunction against *bida* (innovations). Wahhabi theologians, however, distinguished between worldly and religious innovations: the former, such as telephones, coffee and automobiles were said to have no bearing on religion and were therefore permissible" [20, p. 40]. Health care appears to be in the category of permissible innovation.

The effort to find not merely permission but a positive motivation within Islam toward scientific medicine can be seen as a line of development within Saudi political culture. An example is seen in the thinking of A. H. Basalamah, an influential Saudi obstetrician at King Abdulaziz University in Jeddah. At the Seventh Saudi Medical Meeting in 1982, Professor Basalamah noted the inspiration which medical researchers and practising clinicians may derive from Mohammed's saying: "To all illness or disease that God has sent He has also sent a cure for it" [33]. He was referring to the Islamic doctrine known as *tibbi nabawi* (the medicine of the prophet).

The linking of modern medicine, as it is emerging in Saudi Arabia, to Islamic doctrine is also an element in the Saudi attempt to exert religio-intellectual leadership in the Muslim world. The Saudis' wealth gives them great power, but that power evokes as much envy as it does respect in the eyes of other Middle-Eastern nations. Saudi Arabia has historical credentials as the birthplace of Mohammed and the heartland of the holy cities. However, following the birth of Islam in the seventh century, the Arabian peninsula became a cultural vacuum; the great centers of Arab learning and culture lay far away, in Damascus, Baghdad, Cairo and Cordoba. Saudi medical intellectuals sometimes identify their work with the medical thought of earlier Muslim physicians such as Al-Razi and Ibn Sina, in the hope that the lamp of Islamic learning will return to its heartland [34].

The Wahhabi interpretation of Islam sponsored in Saudi Arabia is probably more supportive of scientific discovery and application than other schools of Islamic doctrine.

The concepts of divine transcendence and a lawful universe are strong in Islam and especially strong in Wahhabi doctrine. Under this concept, there can be no association (*sherk*) between God and man; the theology of immanence and incarnation is viewed as heretical. Derivative from the concept of divine transcendence is that of human spiritual and social equality, and a revulsion against 'special' human beings such as saints and miraculous healers. The Wahhabi emphasis is extreme in its pious austerity and its disdain of religious emotionalism and symbolism. Shaikh Wahhab's followers closed down popular shrines such as the legendary 'tomb of Eve' in Jeddah where believers sought the intercession of the biblical Eve for fertility and for the cure of illness. Representing this viewpoint, Attar writes [6, pp. 148–149].

"We see and hear people asking for intercession from angels, apostles, saints and martyrs. This kind of suppli-

cation is what Wahhabis denounce just as every true Moslem does....

"Tomb visitation is a very difficult matter in the eyes of the common folk, half-educated people, and misleading heads of mystic orders. To their opinion, graves must be revered.... Out of respect the grave must be made distinct by having a dome built over it, and by being lit by lamps and continuously frequented by visitors, both male and female, who ask for things that should be asked of Allah alone. 'They ask for curing the sick...lengthening the span of life, causing a barren woman to have children. All such supplications and invocations are forbidden by general agreement because they are at variance with the proper faith and represent reversion to polytheism and innovations'".

The sense of mankind ruled by a transcendent deity can give rise to a collective fatalism, as has been noted by observers of Islamic societies [35, 36]. It is, however, congruent with the 'disenchantment of the world' theme of Protestant theology as analyzed by Max Weber [37]. Weber's thesis was that Protestantism summoned and released for societal welfare human energies which had previously been bound within magic and idolatry. Saudi political culture can argue that humankind shall actively avail itself of the natural universe as created by Allah for human welfare, through scientific medicine as through engineering and agriculture.

THE ROLE OF GOVERNMENT IN THE PROVISION OF HEALTH SERVICES

There is no principled ideological commitment to a government monopoly of health facilities and personnel, but the direct role of the Saudi government is very large. Most of the new hospitals are government hospitals, as are all health centers, the four medical schools and other programs of health professional training. The government's major role can be seen as an outgrowth of the fact that oil income goes to the government, which it subsequently expends directly upon public undertakings and upon many subsidies in the private Saudi economy. While the Al Saud monarchy was itself not well prepared to develop an administrative apparatus for converting governmental wealth into public benefit, it found itself in the state of being 'all there is'.

Health services, like other phases of modern growth, have grown quickly within a near-vacuum of administrative and professional expertise. Although it cannot be said that the Saudi government has, within the health sector of its Third Five-Year Plan (1980-1985), enunciated a clear policy concerning priorities within health development, the 'policy drift' is toward a highly technological system of medical care. Given the financial resources of the Kingdom, and the prevailing sense of urgency toward health progress, it is not surprising that the Saudi government has moved in this direction. Approximately 80% of government funds spent by the Ministry of Health goes to hospital services, which make heavy use of technology for diagnosis, treatment, record keeping and patient care. Spectacular embodiments of this emphasis can be seen in the equipping of King Faisal Specialist Hospital and Research Center and the teaching hospital of King Saud medical school, both in Riyadh. Provincial hospitals recently com-

pleted, under construction or in planning are also remarkable for their technological sophistication [38].

Extensive reliance upon medical technology requires a supply of skilled technicians to provide, and an administrative apparatus to coordinate, the medical care which accrues around particular components of technology. Technology also fosters the growth of specialization in the medical profession. Many officials in the Ministry of Health and many medical educators feel that Saudi affluence can support the technological penchant and that technology, properly chosen and deployed, can lessen rather than increase the need for trained Saudi manpower—which, by common acknowledgement, will be scarce for the foreseeable future. This trend is not, however, without its critics, such as Sebai and Bhatti, who question the acquisition of technology unless it clearly advances primary medical care and community health [39, 40].

HEALTH CARE AND HAJJ

The supervision of pilgrims' health is an important part of the Saudi government's responsibility for the annual *hajj*. As one of the five 'pillars of Islam' (pilgrimage, prayer, alms, fasting and profession of faith) *hajj* has great significance for Muslims throughout the world. It is the duty of every Muslim to make *hajj* at least once during his lifetime—if it is at all possible for him to do so in view of his health, his responsibilities, and his ability to bear the cost [41]. Until a person does this, he or she is not considered to be a full Muslim.

As the only Islamic pillar which is connected with a particular geographical location, namely, Mecca, *hajj* gives Saudi Arabia a unique importance in the world Muslim order. The Saudi government attaches great significance to the maintenance of pilgrim sites in and around Mecca. Its ability to provide open, safe access to pilgrims is a major criterion of performance by which the government legitimates its sovereignty. The welcoming of pilgrims is a massive exercise in Saudi Arab hospitality and an affirmation of the historic roots of Islam in the Arabian peninsula. The levying of a *hajj* fee upon pilgrims was, in the pre-petroleum decades of the early twentieth century, a principal source of revenue for the Saudi government. This is no longer the case. A national Ministry of Pilgrimage Affairs was established in 1962; far from collecting revenue for the government, it spends a large yearly budget in overseeing *hajj*. By providing abundant *hajj* services, the Saudi government perhaps redeems itself in the eyes of those foreign pilgrims who dismiss Saudi Arabia as an uncultured *arriviste* society which would be nothing without its oil.

Much of the *hajj* health effort falls within the rubric of public health measures requisite to the orderly management of a dense, continuous assemblage of over two million persons for five days. There is great concern about the spread of infectious diseases by pilgrims both entering and leaving the kingdom. Cholera has caused many deaths in the past. Most foreign pilgrims nowadays fly to Jeddah and then proceed fifty miles on land to Mecca. The Jeddah airport and seaport have elaborate centers for the

quarantine and treatment of persons who could transmit serious infectious [42].

In addition to infectious disease coming from the outside, there are several other internally-generated health risks.

Road accidents are reported as common, with a very high volume of motor vehicles plying the approaches to Mecca. Taxi drivers in haste to convey a maximum of passengers within a short period of time have been identified as a particular source of hazard.

Fire is another major hazard particularly because of the close proximity of thousands of tents, and the letting-out of inadequately protected wooden hostels by private landlords.

Enteric disease is a prevalent health problem because of overtaxed facilities for food handling and human waste disposal.

Heat stroke and exhaustion are a special problem when *hajj* occurs during the very hot summer months (since it is based on a lunar calendar of 354 days in a year, *hajj* occurs eleven days earlier each year by the Western Gregorian calendar). Concerning this, Khogali and Khawashki write [43]:

"The route . . . and the rituals of the pilgrimage itself, and the vast number of pilgrims involved, result in extreme continuous congestion, with overcrowding and other factors that predispose to heat stroke. The large numbers of older individuals, many with concomitant chronic diseases, are particularly at risk The long time spent by pilgrims in cars, especially during the frequent traffic jams, is responsible for a great deal of heat illness".

Another health hazard is posed by the sacrifice of animals on the third day of *hajj*. Half of the sacrifice is devoted to the pilgrim's own use, and half is donated to the poor. This *hajj* tradition requires the sanitary keeping of the sheep and goats, slaughtering which is ritually correct and sanitary, and careful handling of the meat.

Saudi authorities have responded to these various contingencies with measures of rational control to insure that the mass of pilgrims move through the traditional series of rites without loss of religious validity or undue risk.

The following measures are under discussion or have now been put into effect.

Private vehicles have already been banned from some parts of the pilgrimage area, and free bus or taxi service substituted. Free fireproof tents must be used, if the pilgrims' own tents lack this feature. Public dormitories built of concrete are being substituted for wooden structures. Toilet facilities are being greatly expanded. Vended foodstuffs are being more vigorously inspected. Many first-aid and short-term treatment centers have been constructed for handling minor medical emergencies.

One proposal is to house many pilgrims in large dormitories rather than small tents. This proposal goes against tradition. The spectacle of a vast array of tents is a nostalgic feature of *hajj*. Tent-dwelling also preserves privacy amid the profusion of nationalities and tongues. Traditionalists who oppose the shift away from tents feel that *hajj* has greater religious significance if the pilgrims live in the tents. Those who favor dormitories argue the health advantages and maintain that the traditional tenting is a

mere characteristic of the geographic area and has no intrinsic religious significance.

Another proposal would transform the ancient practice of animal sacrifice. The Ministry of Pilgrimage Affairs has proposed that pilgrims make cash contributions to provide equivalent value in meat for the poor, instead of attempting directly to sacrifice animals under the rather difficult conditions of *hajj*. The Ministry of Pilgrimage Affairs has been criticized by traditionalists on several occasions in the past for confiscating suspect meat and covering it with lime.

Attempts to exert public health control while still maintaining respect for tradition are illustrative of the fine balance which must be achieved in the new political culture. In regard to *hajj*, one might say that tradition must be rationalized in order to be maintained under the press of modern mass participation. It is the very scope of the event, the gathering of millions as made possible by air travel, that threatens scrupulous adherence to the ancient forms.

Despite changes, the basic concept of *hajj* as a universal redemptive religious duty is recognized by Saudi actions. This can be seen from the tolerant attitude which the health authorities take toward those pilgrims who seem to place their lives in particular jeopardy by making *hajj*. Most pilgrims are males over 40, coming from developing nations where life expectancy is only currently moving into the 50-60 age range. Many arrive with chronic illnesses and disabilities. Some elderly pilgrims do not expect to survive; they believe that death during *hajj* enhances one's spiritual merit. No effort is made by the authorities to screen out at-risk pilgrims unless there is the danger of communicable disease.

The health protective measures and other forms of management introduced by the Saudi government have altered to some extent the character of *hajj*. Yet it also appears that the new measures are taken in concurrence with an essentially conservative trusteeship of this Islamic pillar.

THE HEALTH CARE OF FEMALES

Policy concerning the health care of females is a difficult problem in Saudi Arabia and many other modernizing societies. Under the tradition of sex segregation, men and women had separate lives and separate social realities. For everyone, health care was limited. What there was, was fused with other elements of the culture rather than compartmentalized as 'medical'. Women's health care was provided mainly by female practitioners whose expertise derived more from experience than training, and whose function consisted almost as much of providing diffuse support for the patient in her family context as it did of carrying out specific healing or caring tasks. The midwife is, of course, the prime example of such a practitioner [44].

In contrast, much health care in Saudi Arabia is now given in formal organizations—hospitals and clinics—by functionally specialized professionals who stand at considerable social distance from the patient. This fosters a sense of impersonality which contrasts with the traditional strong sense of common culture uniting practitioner and patient.

How to express tradition—both its spirit and its

form—in greatly altered circumstances? Not surprisingly, the outward forms are more easily maintained than the spirit.

The proprieties of female segregation can be observed, at extra expense but without great difficulty, by providing architecturally separate female and male facilities or by separate time-scheduling for shared facilities. A more formidable layer of difficulty comes in the attempt to treat female patients with a cadre of practitioners who are themselves female. This strategy does work, though not as easily and only up to a point. Almost half the medical classes in Saudi medical schools are composed of female students who will move into clinical practice with women and children within the next 5–10 years. Saudi medical schools have no difficulty in attracting highly qualified and highly motivated female applicants, in part perhaps because medicine is one of the few professions open to women. The 'lady doctors' will be able to provide a good standard of primary care to female and child patients.

There will, however, be a lack of female specialists to treat female patients with more complex medical problems. It will be difficult for Saudi female physicians to obtain specialty training because such training will be very limited within the Kingdom for the foreseeable future and because Saudi females are not permitted to go abroad independently for study. In consequence, only male physicians will be able to obtain specialist certificates, which means that female patients requiring specialist attention will perforce be referred to male physicians.

Even now, until the 'lady doctors' have been produced in appreciable quantity, most of the medical care of females is being carried out by expatriate male physicians.

It is difficult to say whether this is viewed as a serious breach of propriety. Traditionally, for example, fractures in females were set by male bonesetters. But in the face of the effort to define a new political culture, certain inconsistencies in the traditional social fabric may now be viewed more formulaically. In regard to female patients' being treated by male specialists, one expedient would be simply to deny female patients such access—in effect, to limit the expertise they could obtain. This would reduce the cultural dilemma but it flies in the face of public policy, which is committed to abundant medical care of good quality for women. This goal is consonant with the strong familistic strain in Islam. Further, as an underpopulated with massive reliance upon foreign workers, Saudi Arabia has its own *raison d'être* to increase its citizen population by promoting fertility, by reducing infant, child and maternal mortality and, more generally, by protecting the health of women and children. One of the paradoxes of development is that the achievement, through the application of medical care, of this goal, itself related to the traditional emphasis upon the family, places a strain upon a second tradition, which pertains to female segregation.

EXPATRIATE HEALTH WORKERS AND NATIONAL AUTONOMY

The gender of patient in relation to that of health

professional poses an issue for the maintenance of tradition and its transformed expression within the wholly new institutional contexts of health care. The presence of a very large number of expatriate workers in the health services also poses a social issue from a different standpoint. Before we define the issue generated by this phenomenon, let us gauge its size.

Sebai and Baker in 1974 found that there were 2074 physicians in Saudi Arabia, of whom 1826, or 88%, were foreign [39, p. 360]. A 1977 study by Sebai found that there were 4161 physicians in Saudi Arabia, of 3843, or 92%, were foreign [45]. During the 3 years which elapsed between these studies the number of foreign physicians had doubled and their proportion within the physician total had also increased.

In 1979, physician employees of the Ministry of Health, working in government hospitals, clinics and health centers throughout the nation, numbered 132 Saudi physicians and 1768 non-Saudi physicians. For hospitals only, excluding the clinics and health centers, the corresponding figures were 93 Saudi and 1712 non-Saudi [46].

In nursing also, expatriates predominate. Sebai's 1977 study showed that there were 6449 nurses in the Kingdom, of whom 1827 were male and 4622 female. Seventy percent of the male nurses and 93% of the female nurses were foreign. Attracting young Saudi women into nursing has been difficult ever since the first Saudi nursing schools were opened in the early 1960s [47]. Many Saudi families regard nursing as a demeaning activity which they will not permit their daughters to pursue.

What are the sociocultural implications of the presence of such a high proportion of expatriate health professionals?

As in regard to the many expatriate workers in all levels of education, oil technology, engineering, computer applications, and other fields of technical-professional endeavor, it can be said that expatriate services in the health fields are necessary in the present stage of Saudi Arabia's development. For the next two or three decades, until Saudi medical graduates have been produced in sufficient numbers to match the growing Saudi population, expatriate physicians will continue to constitute a majority, albeit a declining majority, of practising physicians in the Kingdom.

'Saudi-ization'—replacement of expatriate workers with indigenously trained Saudi nationals—is a prominent theme in discussions of national aspirations. The foreign workers are more needed than wanted. They are often seen as a threat to the basic Saudi traditions set forth earlier. The expatriate presence—composed mainly of males—constitutes an omnipresent cognitive stimulus which sharply contrasts 'those foreigners' with 'we Saudis'. It contributes to the formation of the very sense of national political identity which Saudis fear will be undermined. Many other nations are similarly uneasy about their 'guest workers' and immigrant populations; various social ills are attributed to them. Saudi uneasiness is perhaps greater because it occurs in an epoch of history when the Saudi national identity is not yet consolidated.

Health care requires intimate personal exposure, which may exacerbate Saudi reluctance to rely upon

expatriate physicians even more than in the case of other professionals. Cultural differences in self-presentation and role-expectation as between the Saudi patient and expatriate doctor may hamper the development of a satisfactory doctor-patient relationship. Linguistic differences intrude between the Saudi patient, whose tongue is universally Arabic, and the many physicians who do not speak Arabic. Many adult Saudi patients, especially females, are poorly educated; between them and the physician there is a large status gap which will be reduced to some extent if the physician is Saudi.

In the previously mentioned study of a rural health center, Sebai saw another dimension of disadvantage in the use of expatriate physicians and other health workers. Sebai believes that, as compared to the Saudi worker, the expatriate worker is more likely to regard himself as a hired functionary and less likely to take active, creative responsibility for his work [8, p. 128]. He is prone merely to follow rules and thus avoid criticism. Sebai sees this as a social issue which is inherent in the reliance upon expatriate health professionals and which transcends the individual practitioner-patient relationship. Health services contribute directly to the fitness and life-quality of individuals; in a larger sense they also contribute to the development of collective Saudi welfare. From Sebai's standpoint, expatriate physicians are at a disadvantage in making this larger contribution.

POLITICAL LEGITIMATION THROUGH THE PROVISION OF HEALTH SERVICES

We noted above that governmental involvement in health services is substantial and that the developing health services have a high-technology thrust. We wish now to offer the thesis that health services serve as a source of political legitimation. We will explore this thesis in the light of several social-structural characteristics of Saudi society.

The issue of political legitimation is somewhat muted by the fact that there is no system of taxation, despite the enormous private wealth in the Kingdom and the rapidly expanding moneyed class. With its oil-derived revenues, the government is able to undertake works of public benefit in a spirit of largesse.

Citizens are entitled to receive modern health services within the public sector without such services becoming the object of political contention, such as occurs increasingly in Western nations. Public provision for health care has strong popular appeal. Anyone can become ill, need health care and benefit from its application. When, as in Saudi Arabia, it is provided in a monarchic system of government, health care can be endowed with a sense of patrimonial solicitude for the ill and ailing. This imagery has strong meaning within the symbolic context of extended-family concern for kinsmen, which is very powerful in Saudi Arabia.

Governmental commitment to health services received particularly clear enunciation in King Faisal's decree "that the State should provide free medical treatment for all its citizens and for the pilgrims" [48]. A subsequent royal decree singled out cancer for categorical emphasis in government health programs. Since contemporary cancer treatment requires soph-

isticated and highly coordinated resources in many specialties, the government's designation of cancer may be taken as signalling a desire to make available technologically advanced modalities of medical care to the public. Implementation of the Saudi 'war on cancer' is proceeding with the build-up of medical specialists, equipment and geographic linkage capabilities [49]. The resources of the King Faisal Specialist Hospital have been, within the past 3 years, increasingly concentrated on cancer.

These two decrees in effect promise that there will be health services for all and that the health services will be the best that contemporary biomedicine can offer.

In a political system which lacks virtually all formal mechanisms of representative government, the dynamics of legitimation are unusually obscure. It appears, however, that health services constitute an important benefit which the Al Saud regime can distribute widely in return for popular favor.

In transforming itself into an Islamic welfare state, the Kingdom is not likely to follow the political directions of the secular welfare states of the West. Its health services will be formulated and delivered in modes which have ideological resonance with traditional values and newer national goals. They will reflect the emergent political culture and reciprocally contribute to its framing.

Braibanti and Al-Farsy note that the Saudi government seeks to promote social and economic progress and, at the same time, to guide it within a framework that does not 'generate demands'—i.e. excessive demands, or demands which are qualitatively incompatible with traditional values [7, p. 39]. Within this framework, mass political participation would be unsettling, as would innovations that rapidly altered the social role of women (though gradual changes, already considerable, will continue). Health care, in contrast, stands outside ideological controversy and does not generate economic or political demands. It is directed to the *clinical needs* of persons as determined by medical-professional authority and does not foster the expression of *civic rights*.

In discussing the role of health services in gaining political credit for the government, it is important to recognize the complexity of this legitimation process. There are many links in the chain of cause and effect. The mere appropriation of money does not bring health to anyone. Hospitals may be built and underused. Even when health resources are used effectively, much of whatever good feeling and gratitude is available for bestowal by the recipient of the services will of course go to the immediate providers—physicians and other health professionals. But there is, we believe, a residual credit which, when conjoined with popular awareness of other Saudi governmental benefices, contributes to the legitimacy and stability of the regime.

Mark Field has suggested that the growing importance of health services in contemporary societies derives from a general sense that society as a whole benefits from the reduction of morbidity and the increase in life expectancy for individuals. He raises the question as to who or what entity appropriates the 'social credit' which accrues over and above the value of health and longevity to the individuals who

receive it [5, p. 402]. While it might be difficult to answer this question in regard to so individualistic a society as the United States, one feels more confident in asserting that in the collectivist ethos of Saudi Arabia, the government appropriates this credit.

The bearing of health services upon political legitimation suggests several additional considerations.

First, analysts of health care systems have expressed the opinion that some governments, particularly oppressive regimes in economically strained societies, provide health services as a placating substitute for a higher standard of living, and that, by issuing certificates of illness or disability, the health system—especially, the physicians—provides individuals, thereby detached from the social structure by the 'sick role', with an escape from tensions which might otherwise swell into opposition. While this interpretation of the political effect of health services may have some superficial applicability to the Saudi case in view of its authoritarian political system, other necessary parameters are lacking—most notably, economic deprivation. The Saudi government provides health services 'in addition to' other benefits rather than 'instead of' them. This is not to deny that particular individuals in Saudi society, as elsewhere, may use illness as a release from the stresses of life.

Second, since the principal beneficiary of medical care is of necessity an individual patient, the reciprocal endorsement for receiving this care flows from an individual patient to the provider or sponsor. By providing health care, the government not only legitimizes its authority but also shifts the very basis of legitimation from solidary groups to individuals. For comparison, consider that in the earlier decades of the twentieth century, the founder of Saudi Arabia, Abdulaziz Ibn Saud, made payments to tribal shaihs in return for their allegiance—to bind disparate, often clashing tribes into a single nation. This practice continues: it gains support for the monarchy, at the same time affirming the influence of the traditional tribal entity which receives the largesse. In contrast, health care is more in the nature of a direct benefit to individuals; it does not filter down through a larger group.

Third, it is an important fact of social structure that Islamic societies did not develop a cadre of priests and nuns engaged in healing activities, or more broadly, "a class of religious dedicated to humane service" [50]. This is consistent with Islamic insistence that works of charity lie equally upon all believers, rather than upon a specialized group; further, the formation of monastic service orders in incompatible with the Islamic emphasis upon family participation as the source of personal value in life.

This general concept is illustrated by the fact that early hospitals in Cairo, Damascus and Baghdad were administered by laymen [51]. Although such hospitals have traditionally been administered in a broadly Islamic spirit, they have not served the function of religious legitimation, as has occurred in Roman Catholic and Protestant hospitals in the West. In Saudi Arabia, where almost all hospitals are new, administration and clinical treatment are carried out by lay administrators and qualified physicians, respectively. The new health programs serve to legitimize the Saudi-Islamic 'religious state' rather than

religion as separate category (i.e. in the Western sense of separation of church and state). Thus, no credit redounds to religious authority at the expense of secular authority.

Finally, although we have emphasized the role that governmental provision of medical care plays in consolidating popular support, we wish to note that medical care is not confined to the public sector. Private medical practice, private hospitals, and private clinics are a minor but still important component in the health resources of the Kingdom. Some 15% of physicians are in private practice and there are a number of small proprietary hospitals and clinics in the large cities.

The Ministry of Health is establishing a nationwide system of free basic care as 'government medicine'. This is the scope of the health component of the Third Five-Year Plan. But the Ministry has no mandate or disposition to encompass the totality of medical practice within the national plan. Staunch Saudi opposition to socialist versions of Islam, such as prevailed in Gamal Abdel Nasser's Egypt of the 1960s, and currently in the Ba'athist ideology of Iraq and Syria, has given rise to a Saudi economy which receives massive public subsidy but is mainly in private ownership. Similar concepts apply to medical practice. Though it is greatly overshadowed by the expansive building and staffing of government hospitals, private medicine is also increasing.

As in other developing nations, there is one sphere of government medicine and a second sphere of private medicine [52]. Saudi affluence will, however, make possible two important contrasts with most other developing nations. First, the resources of government medicine—personnel, supplies and physical facilities—will be of a good standard and well-deployed throughout the urban and vast desert areas of the Kingdom. Second, with the spread of wealth through the populace, more families will be able to become medical consumers in the private sector, leaving fewer dependent upon public dispensation. This is not to say that private medicine and government medicine will provide the same standard of care but rather that the gap between 'first-class' private medicine and the 'second-class' government medicine found in many developing nations will probably be substantially narrower in Saudi Arabia.

EPILOGUE

From her close study of Saudi village life, Motoko Katakura suggests that "traditional forces could be mobilized in the process of modernization" in Saudi Arabia [53]. As an example of this, she notes that the village women, despite their extremely modest dress and many family obligations, are 'unexpectedly active' members of the society, going frequently into a nearby city on errands and playing a muted yet powerful role in village political affairs.

Our analytic depiction of health care development in the Kingdom suggests similarly that the forces of tradition will express themselves through, and be served by, modern health services. An interesting example of this is afforded in an account by F. I. Gowharji, an obstetrician working at the Ministry of Defense Hospital in Jeddah, of one year's (528)

deliveries there. He notes "...the determination of Saudi women to have natural births. The average stature... and the adoption of the squatting position to help to achieve this goal. Interference (obstetrical) is considered by most of them as reproductive and womanly failure" [54]. In the series studied, 86% of the women, by their own choice, was unassisted deliveries; the remaining 14% were assisted, by a variety of obstetrical techniques. The notable fact for our analysis here is that such a high proportion of Saudi women who chose to have a hospital delivery nevertheless managed it, by preference, without medical intervention. Many other expectant Saudi women in the current period do not use hospital or clinic services at all; but those who do are utilizing the full capacities of the available resources even though facilities are expanding rapidly.

We have shown, more generally, that the Saudi populace is in need of, and well-disposed to receive, modern health services of many kinds—hospital-based curative medicine, rehabilitation medicine, child health services and community health education. Folk practices are of declining importance but, where adhered to, are not generally felt to be in conflict with modern services. Elements of tension between the delivery of modern health services and traditional values arise with regard to the context of delivery, more than in the actual content of medical care. Such tensions are being cushioned by cultural accommodations. In the sensitive area of women's health care, a substantial cohort of Saudi female physicians will eventually provide most of the medical care for female patients. Expatriate physicians will be gradually phased out and replaced by indigenously-trained Saudi physicians. Governmental free provision of services will pre-empt political debate concerning health and welfare issues and anchor support for the Al Saud regime.

We anticipate that a full and integrated development of health services in Saudi Arabia will require several decades. This extended process, as it evolves, will continue to reflect the distinctive markings of Saudi tradition and at the same time figure significantly in a new Saudi political culture in which the welfare and health of citizens receives an Islamic articulation. Meanwhile, Saudi affluence can without delay acquire the technological accoutrement of modern health care.

REFERENCES

1. Azzi R. Saudi Arabia: the kingdom and the power. *Nat. Geogr.* **158**, 286–332, 1980.
2. Collins M. Islam and limousines—in Riyadh. *Christian Sci. Monit.* 25 January, 1983.
3. Gupte P. B. Saudi oil revenues seem to outstrip nation's capacity to put them to use. *New York Times* 24 March, 1981.
4. Lee R. P. Comparative studies of health care systems. *Soc. Sci. Med.* **16**, 629–642, 1982.
5. Field M. G. The health system and the polity: a contemporary American dialectic. *Soc. Sci. Med.* **14A**, 397–413, 1980.
6. Attar A. A. G. *Muhammed Ibn Abdel Wahhab*, Second edition. Mecca Printing and Information Establishment, Mecca, Saudi Arabia, 1979.
7. Braibanti R. and Al-Farsy F. A.-S. Saudi Arabia: a developmental perspective. *Jl S. Asian Middle East. Stud.* **1**, 3–43, 1977.
8. Sebai Zohair A. *The Health of the Family in a Changing Arabia*. Tihama, Jeddah, Saudi Arabia, 1981.
9. Deaver S. The contemporary Saudi Woman. In *A World of Women* (Edited by Bourguignon E. et al.), Chap. 2, pp. 19–42. Praeger, New York, 1980.
10. Bahry L. The new Saudi woman: modernizing in an Islamic framework. *Middle East J.* **36**, 502–515, 1982.
11. Reynolds B. Their fathers' sons. *ARAMCO Wld Mag.* **31**, 2–11, 1980.
12. U.S. Department of State. *Country Reports on Human Rights Practices for 1982*, p. 1266. U.S. Government Printing Office, Washington, DC, 1983.
13. Al-Shami I. A., Education in Saudi Arabia: an overview. *Learn. Today* **15**, 46–54, 1982 (population estimate is on p. 46.).
14. U.S. Bureau of the Census. *Statistical Abstracts of the United States, 1982–83*, p. 859. U.S. Government Printing Office, Washington, DC, 1982.
15. Hammam H. M., Kamel L. M. and Hidayat N. M. A health profile of a rural community in the Western zone of Saudi Arabia. *Proceedings of the Fourth Saudi Medical Conference (1979)*, pp. 26–62. King Faisal University, Dammam, Saudi Arabia: 1980.
16. Sebai Z. A. (Ed) *Community Health in Saudi Arabia: A Profile of Two Villages in Qasim Region* (Saudi Medical Journal Monograph No. 1). Macmillan, London, 1982.
17. Bhatti M. A., Al-Sibai H. and Marwah S. M. A survey of mother and child care in the Saudi community in Rabaiyah, Tarut Island. *Saudi med. J.* **4**, 37–43, 1983.
18. Al-Zaid A. M. *Education in Saudi Arabia*, Second edition. Tihama, Jeddah, Saudi Arabia, 1982.
19. Al Saud A. S. A. A survey of the pattern of parasitic infestation in Saudi Arabia. *Saudi med. J.* **4**, 117–122, 1983.
20. Nyrop R., Benderly B. L., Carter L. N., Eglin D. R. and Kirchner R. A. *Area Handbook for Saudi Arabia*, Third edition, p. 78. United States Government Printing Office, Washington, DC, 1977.
21. Pace J. Treponematoses in Arabia. *Saudi med. J.* **4**, 211–220, 1983.
22. Sebai Z. A. An epidemiological study of leprosy and leprosy care in Saudi Arabia. *Saudi med. J.* **1**, 133–140, 1980.
23. Badr I. A. and Qureshi I. H. Trachoma and Saudi Arabia. *Saudi med. J.* **3**, 53–56, 1982.
24. Nichols R. L., McComb D. E. and Snyder J. C. Chlamydia trachomatis infections of the eye in the Eastern Province of Saudi Arabia: a review of 21 years of research. *Proceedings of the Fourth Saudi Medical Conference (1979)*, pp. 77–103. King Faisal University, Dammam, Saudi Arabia, 1980.
25. Islam S. S. Malaria control programme in Saudi Arabia. *Proceedings of the Fourth Saudi Medical Conference (1979)*, pp. 104–106. King Faisal University, Dammam, Saudi Arabia, 1980.
26. Al-Ismael S. A. D., Jacobs A. and El-Hazmi M. A. F. Thalassaemia in Saudi Arabia. *Saudi med. J.* **2**, 181–190, 1981.
27. Hill A. V. S. Alpha thalassaemia in Saudi Arabia. *Saudi med. J.* **4**, 221–227, 1983.
28. Kassimi M. A. and Al-Fares A. Sickling patterns in ECG's of Saudi nationals. *King Abdulaziz med. J.* **1**, 37–50, 1981.
29. Fletcher R. J. and Voke J. The need for eye correction training in Saudi Arabia. *Saudi med. J.* **3**, 119–123, 1982.
30. Zakzouk S. M. Deaf children in Saudi Arabia. *Saudi med. J.* **3**, 185–190, 1982.
31. Personal communication (Gallagher) with Saif El-Din

- Ballal, Department of Community Medicine, King Faisal University, Dammam, Saudi Arabia, 1981.
32. Pillsbury B. L. K. *Traditional Health Care in the Middle East*, pp. 20–21. Contract Report No. AID/NE-C-1395. U.S. Agency for International Development, Washington, DC, 1978.
33. Basalamah A. H., Aspects of Tibbi Nabawi. *Abstracts of the Seventh Saudi Medical Meeting*, King Faisal University, Dammam, Saudi Arabia, 1982.
34. Khairallah A. A. *Outline of Arabic Contributions to Medicine*. American Press, Beirut, Lebanon, 1946.
35. Brown K. L. *People of Sale*, Harvard University Press, Cambridge, MA, 1976.
36. Patai R. *The Arab Mind*. Charles Scribner, New York, 1976.
37. Weber M. *The Protestant Ethic and the Spirit of Capitalism*. George Allen & Unwin, London, 1930.
38. Ministry of Health, Kingdom of Saudi Arabia. *Five New General Hospitals in Al-Khobar, Hofuf, Jizzan, Jeddah, and Medina*. Information Bulletin, Riyadh, Saudi Arabia, 1979.
39. Sebai Z. A. and Baker T. D. Projected needs of health manpower in Saudi Arabia, 1974–90. *Med. Educ.* **10**, 359–361, 1976.
40. Personal communication (Gallagher) with M. Akram Bhatti, Department of Community Medicine, King Faisal University, Dammam, Saudi Arabia, 1980.
41. Tritton A. S. *Islam—Belief and Practices*. Hutchinson's Library, London, 1954.
42. Ronaghy H. A. The road to Mecca. *Middle East Hlth* July/August, 22–23, 1980.
43. Khogali M. and Khawashki M. I. Heat stroke during the Makkah pilgrimage (hajj). *Saudi med. J.* **2**, 85–93, 1981.
44. Newman L. F. Midwives and modernization. *Med. Anthropol.* **5**, 27–34, 1981.
45. Mejia A., Pizurki H. and Royston E. *Physician and Nurse Migration—Analysis and Policy Implications*, p. 384. World Health Organization, Geneva, Switzerland, 1979.
46. *Statistical Yearbook*. Kingdom of Saudi Arabia, Ministry of Information, Riyadh, Saudi Arabia, 1979.
47. Meleis A. I. and Hassan S. H. Oil rich, nurse poor: the nursing crisis in the Persian Gulf. *Nurs. Outlook* **28**, 238–243, 1980.
48. *The Kingdom of Saudi Arabia*, Fourth edition. Stacey International, London, 1979.
49. El-Akkad S. Plans for cancer care in Saudi Arabia. *Saudi med. J.* **3**, 71–74, 1982.
50. Glaser W. A. *Social Settings and Medical Organization—A Cross-National Study of the Hospital*, p. 24. Atherton Press, New York, 1970.
51. Atiyeh M. Arab hospitals in history. *King Faisal Special. Hosp. J.* **2**, 121–126, 1982.
52. Benyoussef A. Health care in developing countries. *Soc. Sci. Med.* **11**, 399–408, 1977.
53. Katakura M. *Bedouin Village*, p. 172. University of Tokyo Press, Tokyo, Japan, 1977.
54. Gowharji F. I. Assisted deliveries out of a total of 528 patients delivered at M.O.D.A. Hospital, Jeddah. *Proceedings of the Fourth Saudi Medical Conference*, pp. 433–441. King Faisal University, Dammam, Saudi Arabia, 1980.