Iranian Studies, 2020
Vol. 53, Nos. 1–2, 73–92, https://doi.org/10.1080/00210862.2019.1710476

Soleyman Heidari

Iran–US Public Health Cooperative Organization (PHCO): Education, Healthcare, and Health Services in the Southwest of Iran (Fars), 1950–60

Fars is among the largest provinces of Iran that received the most technical assistance from the American economic delegation in the 1950s. After settling in the province and during ten years of activity, the American delegation provided technical assistance in the fields of health engineering, health education, preventive medicine, nursing, medical services, and medical education. This paper explains how the technical assistance of US personnel contributed to the general health of the Fars province. The findings of this research show that after the formation of the Public Health Cooperative Organization (PHCO) in 1950, not only did most of the cities and villages of this province began to enjoy safe drinking water, but also public health improved. Additionally, the birth of children with disabilities and the spread of infectious diseases such as malaria and trachoma declined by means of preventive medicine centers and health education.

Keywords: World Health Organization; Iran–US Public Health Cooperative Organization; Fars Province; Preventive Medicine

Introduction

After the end of World War II and at the beginning of the Cold War, the United States provided economic, military, and technical assistance to a number of "Third World" countries (especially those of geopolitical and geostrategic value) in order to prevent their falling into the Soviet camp. US President Franklin D. Roosevelt advocated this policy, and his successor, Harry S. Truman, followed with the Point Four Program.

Iran tried to obtain US financial support under this principle. Mohammad Reza Shah traveled to the United States in November 1949 but failed to secure US assistance. At that time, US global strategy was focused on Western Europe and Japan. Iran was thought to be comparatively safe from a Soviet invasion in the aftermath of the Azerbaijan crisis and was not included among the aid-receiving countries such as Turkey and Greece. At the end of 1949, however, certain events led to a change in US strategy: the Soviet Union tested its first nuclear weapon and a communist

Soleyman Heidari is Assistant Professor of History at Shiraz University.

government gained control of China. Moreover, the Korean War broke out in 1950. US authorities responded by promising to defend countries around the Soviet Union. Iran was particularly important as it had a long border with the Soviet Union, was in recession, and also lacked political stability. A US State Department official described the situation as "dangerous and explosive" after visiting Iran in March 1950. The US Army Chief of Staff confirmed that Iran might be driven to communism.[1] These conditions led to a complete overhaul of US foreign policy toward Iran in 1950. An office was established at the US State Department called the "Bureau of Greece, Turkey, and Iran's Affairs." Hence, although the Truman Doctrine did not name Iran,[2] the country had acquired an importance equal to that of Turkey and Greece and became eligible for assistance. A new ambassador, Henry F. Grady, signed an agreement for technical assistance with Iran's prime minister, Hajali Razmara, on 19 October 1950.[3] The agreement originally concerned rural development but gradually encompassed the fields of health and culture throughout the country.

The purpose of this paper is to investigate US technical assistance to Iran in the fields of public health, medicine, and education in Fars province. Fars received more such US aid than other provinces. US officials were anxious to limit Soviet-affiliated parties, notably the Tudeh Party, which had begun to operate extensively in Fars, and the health status of the province was critical. By exploiting social discontent, the Tudeh Party could attract people from lower social strata who had less access to health and treatment services. Fars, moreover, extended to the warm waters of the Persian Gulf, and western countries, especially Britain, had been active in the province since the eighteenth century. Additionally, the powerful Qashqai tribe supported the central government in the south to offset the pressures of the Soviet Union during the Azerbaijan crisis in the north and over the issue of oil concession.[4] For the US, the public health of Fars had become a new front during the Cold War rivalry with the Soviet Union.

More systematic research is still needed on the work of Americans in the field of health and medical care in Fars. A study by Jahangir Amouzgar on the impacts of Truman's Point Four Program examines the activities of the American delegation in Iran. Despite its importance, Amouzgar's research does not address the health-related work of the American delegation in the south of Iran (Fars).[5] In two papers in English, Emil Palmquist and Frederick Aldridge investigated the structure of the Health Cooperative Organization and malaria control in northern Iran.[6] For some

[1]Gasirowski, *U.S. Foreign Policy and the Shah*, 55–6.

[2]Samaan, *The Policy of Containment and the Middle East*, 24.

[3]Harris, "The Beginnings of Point IV Work in Iran," 222–8.

[4]Pierre Oberling writes that the Southern Movement in which the Qashqai tribe played an important role was the plan of Ahmad Qavam, the prime minister of the time. Oberling believes that through this anti-communist rebellion, Qavam could convince western governments that Iran's territorial integrity was at stake and that they should defend it. To achieve this aim and to organize the rebellion, Qavam secretly met Khosrow Khan Qashqai and the other tribal leaders (Oberling, *The Qashqa'i Nomads of Fars*, 183–9).

[5]Amouzgar, *Technical Assistance in Theory and Practice*.

[6]Palmquist and Aldridge, "Iran's Public Health Cooperative Organization," and "Malaria Control in Iran."

https://doi.org/10.1080/00210862.2019.1710476 Published online by Cambridge University Press

time, they served at the Fars branch of the Public Health Cooperative Organization (PHCO). They do not, however, mention the activities of the organization in Fars. In Persian, only one research paper by Vida Hamraz has thus far been published on the work of the American delegation in Iran. Despite its importance, this study does not address the activities of the PHCO in Fars.

Therefore, due to the lack of an analytical work on the activities of Americans in the fields of education, public health, and medical care in Fars, the current research seeks to answer three questions. Firstly, what measures did American technical experts take in providing public health in Fars? Secondly, what effect did these efforts have on improving provincial public health? Thirdly, why did some political parties in Fars oppose the activities of the PHCO? To answer these questions, first, the poor health of the people of Fars before the presence of Americans is discussed. Then the most important activities of Americans in the fields of education, public health, and medical care are explored. The current research utilizes a range of Iranian sources and relies mostly on unpublished documents at the National Library and Archives of Iran (NLAI), the Institute for Iranian Contemporary Historical Studies (IICHS), and the local publications in Fars province.

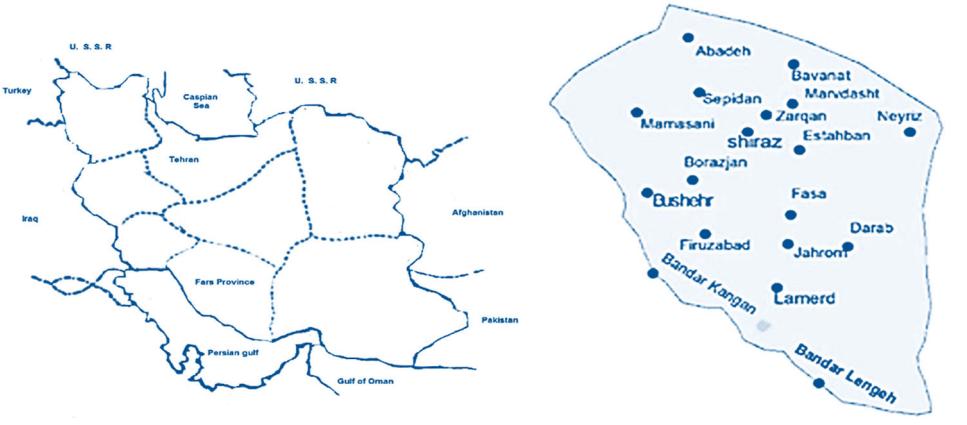
The Status of Health and Medical Care in Fars Province prior to the Presence of the Health Cooperative Organization Experts

Among the eight provinces of Iran until January 1951, Fars with an area of around 18,000km^2 and a population of 1.3 m inhabitants was one of the largest.[7] Due to its proximity to the Persian Gulf, climate variety, the existence of rich oil and gas resources, and being the connecting route from the south to the north, this province was especially important (Figure 1). Nevertheless, the health of the population of Fars was poor. The inhabitants did not have access to clean drinking water and sanitation systems and their water came from rivers, lakes, springs, or household wells, which had a high possibility of being contaminated with a variety of water-related diseases. For this reason, in the years before the arrival of US technical experts, contagious diseases such as typhus, typhoid, smallpox, diphtheria, malaria, and cholera were widespread.[8] In fact, some outbreaks, particularly cholera, occasionally caused large numbers of a city's inhabitants to perish.[9]

In addition to water pollution, the people, especially in the villages, did not pay much attention to environmental health.[10] Water in public baths was frequently contaminated. In addition, people did not use sanitary toilets, and human waste (especially in the cholera years) polluted water supplies. In such conditions, familiarizing people with the principles of public and individual health was vital and would, in the long run, help reduce diseases.

[7]Razmara, *Farhang-e Joqrafiyayi-ye Iran*, iii.
[8]Hafezi, "*Amar-e Mobtalayan*," 69–108.
[9]Fasai, *Farsnameh-ye Naseri*, 722.
[10]"*Gozaresh*," *Enteqad*, 27 Mehr 1329 (19 October 1950).

Figure 1. Map of Iran and the geographical location of Fars Province.



During the early Pahlavi period (1925–41), some efforts were made to improve public health and to provide medical services in Fars. The public health department began to work in 1936 under the supervision of the Ministry of Health.[11] In addition, prior to the early Pahlavi period, Mursalin (the Church Mission) Hospital, which had been established by British missionaries in Shiraz around 1916,[12] provided healthcare and medical services, especially to women. Alongside this hospital, with the cooperation of an American nurse named Lorraine Setzler, a nursing school trained a limited number of nurses.[13] However, despite the health and medical activities of the municipality and Sa'di Hospital in Shiraz, public health outside Shiraz (the administrative center of Fars province) remained inadequate. In thirty-two districts and 3,078 villages of Fars, no health and medical services were provided. Due to the shortage of personnel and medicine, health and medical centers in Shiraz could not meet the needs of the people. During World War II and the early reign of Mohammad Reza Shah, malaria, typhoid, typhus, and dysentery were widespread. The severity of such outbreaks was so high that in 1943 the farmers of Fars could not get out of their houses and harvest their crops due to illness and severe fever.[14] According to some available statistics on the first six months of 1945 from different cities of Fars, 4,265 people in Bushehr, 62 in Shiraz, 229 in Mamasani, 6,486 in |Firuzabad, 2,430 in Borazjan, 34 in Ardakan, 821 in Fasa, 514 in Bavanat, 294 in Estahbanat, 616 in Abadeh, 424 in Darab, and 3,323 in Jahrom were afflicted with infectious

[11]Ghorban, *Medical Education in Shiraz*, 5.

[12]See Wright, *The English amongst the Persians*, 113–28; Elgood, *A Medical History of Persia and the Eastern Caliphate*, chapter 17; and Armajani, "CHRISTIANITY viii. Christian Missions in Persia." See also Heidari, "Investigating the Role of the British in Health," 27–40.

[13]Setzler, "In Iran," 520–5.

[14]Hafezi, "Amar-e Mobtalayan,"16.

https://doi.org/10.1080/00210862.2019.1710476 Published online by Cambridge University Press

diseases.[15] Iran's Ministry of Health asked the US government for help. In 1945, the US army dispatched twenty-eight medical doctors and medical assistants to train the personnel of Iran's Ministry of Health. The American delegation trained Iranian personnel in Khorramabad (the center of Lurestan province) for two weeks, and three of the trained people were sent to Shiraz. In Shiraz, a school was set up to instruct the officers and soldiers of barracks, and various operations such as spraying stagnant waters with DDT and draining the swamps were carried out.[16]

The successful, short-term efforts of the US army in Iran in reducing infectious diseases, especially malaria, led to the request of Iran's Ministry of Health to the Near East Corporation for help. This company was an American nonprofit organization that provided health, agricultural, and cultural services in various countries including those in the Near East. The corporation accepted and began its activities in several villages around Tehran (such as Varamin and Mamazand) in 1946,[17] before expanding to the southwest of the country. By the order of the managing director of the corporation, Dr. Charles White, DDT insecticide was experimentally used for the first time with good results. Following this positive outcome, in 1949, the Ministry of Health, with the advice of US technical experts, set up the Malaria Control Unit.[18]

Despite the efforts of the Ministry of Health, the US army, the Near East Corporation, and the Malaria Control Unit, and the Anglo-Iranian Oil Company's anti-Malaria work, infectious diseases continued to spread in the southwest of Iran. The main reasons continued to be the lack of proper understanding among the people, particularly the villagers, of the principles of health and inadequate healthcare. The Ministry of Health had not been able to do any major work due to a lack of funds and experts. This pattern changed when the cooperation agreement between Iran and the United States was signed by Grady and Razmara, which provided for technical assistance in the field of health. US health experts including twenty-nine public health professionals, seven medical doctors, nine environmental health engineers, ten nurses, ten public health statisticians, one pharmacist, and one virus specialist entered Tehran on 19 October 1950.[19] After assessing conditions, the Iran–US Public Health Cooperative Organization was founded in Iran's Ministry of Health, with a central office in Tehran and seven cooperation branches in provincial centers. In Fars, the PHCO was jointly directed by an American and an Iranian.[20] The PHCO in Fars promoted sanitary engineering, health education, preventive medicine, health nursing, health services, and medical education.[21]

---

[15]Ibid., 136.

[16]Edrisiyan, "*Moruri bar Vaz'iyat-e Malari-ya dar Iran*," 50–60.

[17]"*Gozaresh*," *Akhbar-e Hafteh*, no. 45 (1336/1958), 2.

[18]Edrisiyan, "*Moruri bar Vaziyat-e Malari-ya dar Iran*, 51.

[19]*Moasseseh-ye Motaleat-e Tarikh-e moaser-e Iran* (IICHS), 1 Ordibehesht 1330 (22 April 1951), 122-7-108-126.

[20]Palmquist and Aldridge, "Iran's Public Health Cooperative Organization," 970–5.

[21]This division is based on documents which have not been published and are now available in both Persian and English at the National Library and Archives of Iran (NLAI).

Sanitary Engineering

One of the important actions of the PHCO in Fars was the fight against malaria. Due to its warm weather, proximity to the Persian Gulf (with 800km of coast), stagnant waters, and health problems, this province was a breeding place for Anopheles mosquito and many people became infected with malaria every year. The efforts of the US army, the Ministry of Health, and the Malaria Control Unit in the years prior to the signing of the cooperation agreement in 1950 decreased the intensity of the disease but did not eradicate it. In July 1951, 200 tons of DDT powder was imported from the United States into Iran. Dr. Emil Palmquist and Frederick Aldridge led the fight against malaria, arriving in Shiraz in October, 1951.[22] On 14 February 1952, two million Iranian rials were allocated to the PHCO to be used in the four-month campaign against malaria.[23] Moreover, the US embassy's Information and Cultural Relations Department in Iran provided the Ministry of Health with a mobile cinema and films to train the instructors of the public health department how to combat malaria. The instructors toured the towns and villages of the province under the supervision of American technical experts, teaching the villagers the importance of sanitation and public health for preventing malaria and other contagious diseases.[24] Engineer Aron T. Miller asked a meeting of the Agricultural Union of Fars to urge farmers to observe the principles of sanitation and hygiene and to cooperate with the health instructors.[25] The members of the union welcomed Miller's request and asked for more equipment and DDT powder to fight malaria. Palmquist accordingly asked the PHCO in Tehran to send the required DDT powder and a jeep for crossing difficult areas.[26]

In 1953, the anti-malaria program entered a new phase. The Institute of Malariology was founded in Tehran with the assistance of the United States, the Ministry of Health, and the Parasitology Department of the Medical School of Tehran University to train medical and technical personnel and collect information about malaria from all over the country.[27] The US government allocated a further $300,000 to buy 1,400 hand sprayers, 12 electric sprayers, 70 vehicles, and 1.3 million kilograms of DDT powder.[28] The environmental impact of using this volume of DDT was not known at that time. Nevertheless, US and Iranian technical experts were able to control malaria to the extent that the prevalence of the disease among the village inhabitants was reduced from about 100 percent in 1951 to about 12 percent in 1954.[29] The

[22]"*Gozaresh*," *Ofoq-e Shiraz*, 5 Aban 1330 (28 October 1951).
[23]"*Khabarha-ye shiraz*," *Pars*, 24 Bahman 1330 (14 February 1952).
[24]"*Gozaresh*," *Estakhr*, 28 Bahman 1330 (18 February 1952). In the reports made by the PHCO no mention was made about malaria control training by spraying bed nets with DDT. However, given the importance of bed nets for malaria mosquito control, their use is not unlikely.
[25]"*Khabarha-ye shiraz*," *Pars*, 15 Esfand 1330 (6 March 1952).
[26]Hamraz, *Barrasi-ye Ahdaf*, 153.
[27]Palmquist and Aldridge, "Malaria control in Iran," 976–81.
[28]Hamraz, *Barrasi-ye Ahdaf*, 153.
[29]NLAI, Monthly Activity Report, From Director of PHCO from 1951 to 1954, file 293/042011-86-96, Tehran.

following year, 2,225 villages in Fars with a population of roughly 575,000 people were sprayed with about 180 tons of DDT powder.[30] The PHCO divided Fars into winter and summer areas.[31] In the winter areas, eighteen groups were dispatched to the following cities (three groups to each city): Khormuj, Bushehr, Bandar Langeh, Lamerd, Bastak, and Kangan.[32] They sprayed 329 villages with an area of about 4,800,000km^2 with almost 14,000kg of DDT in February 1956.[33]

Besides the fight against malaria, PHCO engineers worked to provide safe drinking water, drilling deep and semi-deep wells, installing plumbing, and constructing sanitary water reservoirs. In this regard, engineer David Grayson acted under the supervision of Dr. M. W. Freymann (joint manager of the PHCO in Fars). Grayson worked with Drs. Bennett Frank Beauy and Travel, and engineers Miller, Richard, Velin, and D. Wood. After conducting surveys,[34] Grayson and company drilled deep and semi-deep wells in Sarvestan,[35] Bushehr,[36] Neyriz, Qeshlaq Dehbid, Bandar Langeh, Lar, Shiraz, Kazerun, Kharameh Zarqān, Abadeh, Firuzabad, and Marvdasht.[37] The depth of some wells, including those in Lar, reached 108 meters. Most of the wells were drilled in 1951 and 1952 in arid and low-rain areas of the province. American engineers then piped water to houses. In 1951, with the financial support of the United States (in the framework of Truman's Point Four Program), private contributions, and the municipality, water plumbing systems were installed in Zarqān, Estahbanat, Sivand, Meymand, Bushehr, Darab, Fasa, Firuzabad, Neyriz,[38] Kazerun, and Lar. Reservoirs made safe drinking water available to the residents of the cities. Access to safe drinking water dramatically reduced infectious diseases. From 1951 onwards, the number of patients afflicted with typhoid and cholera was reduced day by day. American health engineers also maintained and serviced this vital infrastructure. The report of the PHCO in Fars to Tehran noted that "in December 1954, American engineers visited the 44 wells drilled throughout the province 72 times."[39]

[30]"*Khabarha-ye shiraz*," *Pars*, 7 Ordibehesht 1334 (28 April 1955).

[31]NLAI, Monthly Activity Report, from Director of PHCO, December 1955, file 293/042011-9, Tehran.

[32]"*Khabarha-ye shiraz*," *Pars*, 30 Azar 1334 (22 December 1955).

[33]NLAI, Monthly Activity Report, from Director of PHCO, February 1956, file 293/042011-46, Tehran. Two years after the American experts left Iran (i.e. 1962), a book was written by the American biologist Rachel Louise Carson. In her book, she warned against the indiscriminate use of pesticides in nature, noting that the use of pesticides including DDT leads to nervous system disorders and other effects (Carson, *Silent Spring*, 188–98). The publication of Carson's theories prompted strong reactions and some companies associated with chemical industries adopted a stance against her. Nevertheless, the damaging effects of DDT on nature and on the food chain became apparent over time and from the 1970s onward DDT consumption gradually declined in most countries, including Iran.

[34]"*Gozaresh*," *Ofoq-e Shiraz*, 30 Mehr 1331 (28 September 1952).

[35]"*Khabarha-ye shiraz*," *Pars*, 25 Aban 1331 (16 November 1952).

[36]"*Gozaresh*," *Akhbar-e Hafteh*, no. 40 (1336/1958), 7.

[37]NLAI.Report, from Director of PHCO, 1952, file 293/19801-27-46-231-421, Tehran.

[38]Bashir Gonabadi, *Asnadi az Asl-e Chahar-e Teroman dar Iran*, 361.

[39]NLAI, Report, from Director of PHCO, 1954, file 293/041837, Tehran.

In addition to providing clean drinking water, Grayson and his US colleagues also built twenty modern shower baths throughout the province to replace traditional public baths.[40] Changing people's attitude toward the dangers of using pool baths was not easy. However, this problem was gradually solved, and the transformation of pool baths to shower baths in the long run reduced the risk of infectious and dermatological diseases. However, there was still another sanitation problem that endangered the health of the people: most of the villages in Fars lacked sanitary toilets and the people disposed of their waste wherever possible, which risked contaminating drinking supplies with diseases such as cholera. Under these conditions, designing and constructing sanitary toilets was placed on the agenda of the health engineers of the PHCO in Fars. From December 1954 to February 1956, Iranian engineers mapped 632 sanitary toilets under the supervision of American engineers. The public toilets were then built under the instruction of mobile healthcare teams.[41] There was still no sewage disposal system to transfer and treat sewage. Therefore, the sewage from every toilet was merely piped away from clean water supplies. This disposal system was not ideal but it was the best available.

Preventive Medicine

Dr. M. W. Freymann supervised the PHCO's work in preventative medicine. The organization's experts were active in six areas including trachoma research, epidemiological studies in villages, inoculations (against typhoid, tetanus, diphtheria, and smallpox), public health education, the establishment of health clinics, and laboratory research in the Health Center of Shiraz. In the field of trachoma disease, the central PHCO dispatched Dr. Alfred Lazarus to Shiraz in August 1951.[42] He conducted comprehensive studies on trachoma and its prevention. Trachoma had been prevalent in Iran long before the arrival of American technical experts.[43] Each year, due to poor sanitation, lack of clean water, and sanitary toilets, many people became afflicted with trachoma and lost their eyesight. Lazarus noted that about 60–70 percent of the population of Shiraz and 90–100 percent of the population of the Persian Gulf ports were afflicted with trachoma. He carried out studies on 600 school children from five primary schools in Qasroldasht and Saʿdi villages (in the suburbs of Shiraz) and found out that 80 percent of the students were suffering from trachoma.[44] Rural figures were likely even higher.

The outcome of Dr. Lazarus' research was very alarming. To improve public health, the training of the personnel of public health departments, managers of health homes,

[40]"*Khabarha-ye shiraz*," *Pars*, 5 Ordibehesht 1334 (26 April 1955).
[41]NLAI, Report, from Director of PHCO, December 1954 and February 1956, file 293/041837-12-14 and 293/042011-80-88-116, Tehran.
[42]"*Khabarha-ye shiraz*," *Pars*, 16 Mordad 1331 (7 August 1952).
[43]"*Gozaresh*," *Enteqad*, 24 Mordad 1329 (15 August 1950).
[44]"*Khabarha-ye shiraz*," *Pars*, 17 Ordibehesht 1332 (7 May 1953).

and urban, rural, and nomadic teachers was placed on the agenda of the PHCO. The first conference in this regard was held in 1952 in Shiraz in a period when the outbreak of infectious diseases was more intense. This conference lasted for a month. The trainers were American medical doctors and some Iranian professors who worked under the supervision of Freymann and Grayson.[45] A second conference was held in July 1953 in Shiraz and attended by 125 teachers. The required credit for the training had been provided by Truman's Point Four Program. This conference lasted one week, and the teachers became familiar with modern health education.[46] Several additional conferences followed. Some of the activities of the PHCO in 1955 and 1956 are shown in Table 1.[47]

Unfortunately, a full report on the activities of the PHCO from 1956 to 1960 is not available. Nevertheless, the part which is available about the organization's activities in the field of preventive medicine from 1955 to 1956 shows that during eleven months (Table 1), over 600 health education films, provided by the US embassy to the Ministry of Health, were watched by 100,000 people across the province. Additionally, over 900 health conferences were attended by 140,000 people. This demonstrates the extensive activities of the PHCO in public health education. In addition, over the same period, 19,900 copies of a health journal, prepared under the supervision of American experts, were distributed, which contributed significantly to raising public awareness of hygiene.

In addition to theoretical and general health education (showing films, distribution of journals, and holding conferences), practical training was carried out by mobile health teams affiliated with the Ministry of Health and the PHCO.[48] Each team consisted of a health worker, three medical assistants, one inoculation officer, and one assistant engineer.[49] The teams had different responsibilities of which the most important were as follows:

1. Inoculation operations;
2. Assistance in the construction of sanitary toilets;
3. Insect control measures through the use of sprays at homes, dusting, and DDT in villages infected with lice to prevent typhus fever;
4. General health training to villagers such as disposing of waste and home sanitation;
5. Maternity care and child health.[50]

The reports of the activities of the health teams were signed by Freymann or Grayson (American director) and Dr. Gargin Saroukhanian (Iranian director).

[45]"*Khabarha-ye shiraz*," *Pars*, 5 Mordad 1331 (27 July 1952).
[46]"*Khabarha-ye shiraz*," *Pars*, 17 Tir 1332 (8 July 1953).
[47]NLAI, Report, from Director of PHCO, January 1955 and February 1956, file 293/041837 and 293/042011, Tehran.
[48]"*Gozaresh*," *Akhbar-e Hafteh*, no. 40 (1336/1958), 7.
[49]"*Khabarha-ye shiraz*," *Pars*, 27 Mehr 1331 (19 October 1952).
[50]Bashir Gonabadi, *Asnadi az Asl-e Chahar-e Truman dar Iran*, 756.

https://doi.org/10.1080/00210862.2019.1710476 Published online by Cambridge University Press

Table 1. The activities of the PHCO in Fars from January 1955 to February 1956.

Public Health Education	January 1955	February 1955	March 1955	June 1955	August 1955	September 1955	October 1955	November 1955	December 1955	January 1956	February 1956
Number of films shown	75	75	70	36	30	30	30	57	55	54	96
Number of people watching the films	700	9,300	9,000	20,818	11,000	12,000	3,500	11,000	4,000	11,000	10,000
Health conferences	85	105	110	52	35	38	65	100	120	89	120
Number of people participating in the conference	9,000	7,500	13,500	32,430	12,000	14,000	5,000	14,000	8,000	14,000	12,000
Number of posters, pamphlets and magazines distributed	3,500	650	2,500	2,600	450	400	2,500	3,300	1,000	2,500	500

Source: NLAI, Reports from Director of PHCO, Shiraz, to Co-Directors of PHCO Headquarters Tehran, January 1955 and February 1956, file 293/041837 and file 293/042011.

Figure 2. A sample report in English from the PHCO in Shiraz to the PHCO in Tehran.

Adm. 431

TO : Co-Directors, P.H.C.O., Headquarters, Tehran.

FROM : Director of P.H.C.O., Shiraz.

SUBJECT: Monthly Activity Report, December 1955.

SUMMARY REPORT:

A. PREVENTIVE MEDIVINE:

1. A) Confirmation of Epidemic: -
   b) Epidemiological investigation: -

2. Inoculation and immunization completed:

Typhoid	1288
Tetanus	1040
Dephtheria	1040
Small-pox	996
Pertussis	10

3. Health Clinics:

Child clinic attendance:	528
Prenatal clinic attendance:	421
Postnatal " "	60
School Children examined:	1969

4. Trachoma Survey Project:

Villages surveyed:	2
Population "	365

5. Laboratory Afairs:

Total number of laboratory tests:	369
Number of stool examination:	62
" " " " (posetive):	19
" " blood test for syphilis:	236
" " " " " (posetive)	24
" " " " " widal	-
" " hair examination for fungus:	6
" " " " (posetive)	4
" " blood test for malaria:	6
Other tests:	58

B. Malaria Control:
Malaria control program: -

.....

Source: 293/042011, NLI, Tehran.

Then they were sent in English and Persian versions to the PHCO in Tehran (Figure 2). Table 2 shows the number of individuals inoculated by the PHCO in Fars from January 1955 to February 1956.[51]

In addition to the measures mentioned in the field of preventive medicine, one of the most important and costliest measures of Americans in the southwest of Iran was the establishment of the Health Center of Shiraz. Construction began in April 1953 with financial support from the US government ($2,741,000),[52] and operations

[51]"*Khabarha-ye shiraz*," *Pars*, 10 Ordibehesht 1334 (1 May 1955).

[52]*Moasseseh-ye Motaleat-e Tarikh-e moaser* (IICHS), 1 Ordibehesht 1330 (22 April 1951) 122-7-108-126.

Table 2. The activities of the PHCO in Fars Province from January 1955 to February 1956.

Inoculation	January 1955	February 1955	March 1955	June 1955	August 1955	September 1955	October 1955	November 1955	December 1955	January 1956	February 1956
Typhoid	866	1,937	2,094	38	–	16	15	275	1,288	1,248	3,703
Tetanus	844	866	1,164	68	50	24	26	286	1,040	1,633	1,932
Diphtheria	785	866	1,164	68	50	24	26	286	1,040	1,633	1,932
Smallpox	32	575	81	69	29	116,616	116	1,069	996	704	1,379
Pertussis	111	58	43	70	722	16	18	8	10	29	31

Source: NLAI, Reports from Director of PHCO, Shiraz, to Co-Directors of PHCO Headquarters Tehran, file 293/041837 and file 293/042011.

commenced in May 1955 in the presence of Mohammad Reza Shah Pahlavi and Dr. Cherry, the American director of the PHCO in Tehran.[53]

The Health Center of Shiraz operated under the authority of the PHCO of Fars, and several American medical doctors and nurses served there. The center paid special attention to pregnant women. Mothers and children were admitted to prenatal and postnatal clinics four days a week. The clinic for children was supervised by Dr. Markarian and nurse Dorothy Sutherland.[54] Training classes were also held for mothers, who became familiar with the principles of proper nutrition, personal hygiene, preparing milk, and washing their children. Due to the large number of attendees, three classes of thirty people each were held on some days. One of the most important measures taken at the center, which was unprecedented in Fars, was issuing health cards for children.[55] Mothers received a card and the health operations were recorded on the card on each visit to the center. Unfortunately, there are no statistics on the mortality rates of children and mothers. Nevertheless, a report prepared by the director of the PHCO in Fars in November 1955 shows that after the establishment of the health center, the number of healthy children admitted to it increased significantly. Out of 479 children who visited the health clinic in that month, 254 were healthy children. The author of the report emphasized that "as this is better than 50 percent, we feel that some of the teaching has been successful. The women seem very pleased with the information that they are getting at the health center."[56]

Apart from clinical activities, the health center laboratory was also active. Its advanced equipment was purchased with financial support from the US government and was supervised by technical specialists such as Dr. Versiluss. Unfortunately, the statistics of the experiments conducted during these years are not available. The only available report, which is from 1955, shows that from January to December of that year, 3,873 experiments were conducted, including 757 stool tests and 1,623 blood tests (Widal, syphilis, malaria).[57]

Nursing Education—Nursing Services

American nurses were active in Fars before the establishment of the PHCO. In 1937, Ali-Asqar Hekmat-e Shirazi, Reza Shah's health minister, ordered Dr. Zabih Ghorban (director general of health in Fars) to prepare the ground for establishing a nursing school in Shiraz.[58] Dr. Ghorban sought the help of an American nurse named Lorraine Setzler. Setzler had been sent to Iran in September 1937 by the American Presbyterian Missionary Society. After arriving in Tehran, Setzler prepared a two-year

[53]"*Khabarha-ye shiraz*," *Pars*, 6 Khordad 1334 (28 May 1955).
[54]"*Gozaresh*," *Akhbar-e Daneshgah-e Shiraz*, 3 Aban 1337 (24 October 1958), 92.
[55]NLAI, Monthly Activity Report from Director of PHCO, August 1955, file 293/042011-105.
[56]NLAI, Monthly Activity Report from Director of PHCO, December 1955, file 293/042011-7, Tehran.
[57]NLAI, Report from Director of PHCO, January–December 1955, file 293/041837-3-11-18 and file 293/042011-4-23-44-63-87-101-133, Tehran.
[58]Ghorban, *Medical Education in Shiraz*, 9.

program for nursing education with the cooperation of another nurse named Emma Degner and the support of the minister of education.[59] This program was the first nursing education program in Iran. At the request of the minister of health, Setzler was sent to Shiraz in November 1937. In collaboration with Molly Williams, a nurse in the British Hospital of Mursalin in Shiraz, Setzler founded the first nursing school in the city.[60] A number of Iranian nurses were trained who provided useful services during World War II at Saʿdi Hospital (the present Shahid Faghihi Hospital).[61] Setzler was assisted in nursing education by a translator named Soghra Namazi until September 1940. The work of American nurses in Fars, however, ceased after Setzler returned to the United States.

Ten American nurses came to Iran following the 1950 agreement and the formation of the PHCO.[62] One of these nurses, Mable Emge, entered Shiraz in 1951 and for three and a half years provided nursing services.[63] After Emge, seven other American nurses lived in Shiraz for nine years.[64] Three of these nurses played an important role in establishing nursing higher education in Shiraz. They taught at the Higher Education School of Nursing for many years. The Nursing School was built alongside Namazi Hospital by the American company Litchfield Whiting with the financial support of the Iran Foundation.[65] It became operational in 1952.[66] In February 1954, the school began its work with two American nurses, Mural Lewis and Dorothy Edgar. For the first time in the southwest of Iran, ten nursing students began their studies. Later, another nurse named Abrin Blanchard joined the teaching staff of the Higher Education School of Nursing.[67] These three nurses, one after the other, served as head of the school until 1960. After the chairmanship of these three nurses, the first Iranian nurse, Tali'eh Agah, who held an MA in nursing from the United States, assumed the chairmanship of the school. At the end of the chairmanship of Abrin Blanchard in 1960, fifty-nine nursing students were studying at the school and during the chairmanship of the three American nurses, sixty-one nurses graduated from the school.[68] Due to the importance of the school and its role in helping to improve health in Fars, the American ambassador, Selden Chapin, traveled to Shiraz, and the first graduates of the school received their certificate from his wife (Figure 3).

[59]Setzler, "In Iran," 520.
[60]Heidari, "Investigating the Role of the British in Health."
[61]Ghorban, *Medical Education in Shiraz*, 9–10.
[62]"*Gozaresh*," Estakhr, 6 Aban 1330 (29 October 1951).
[63]NLAI, Monthly Activity Report from Director of PHCO, July 1955, file 293/042011-92, Tehran.
[64]"*Gozaresh*," *Akhbar-e Hafteh*, no. 11, 20 Tir 1336 (11 July 1957), 6.
[65]The Iran Foundation was founded by a number of Iranians and prominent American figures including Dr. Leland Robinson (a medical doctor at the University of New York) to help advance health and culture in Iran. The headquarters of the Foundation was in the United States. Refer to *Akhbar-e Hafteh*, no. 11 (1336/1958), 5.
[66]"*Gozaresh*," *Ofoq-e Shiraz*, 28 Ordibehesht 1331 (18 May 1952).
[67]"*Gozaresh*," *Akhbar-e Daneshgah-e Shiraz*, Aban 1337 (November 1958), 6, 92.
[68]*Komiteh-ye Farhangi-ye Hamayesh*, 49.

https://doi.org/10.1080/00210862.2019.1710476 Published online by Cambridge University Press

Figure 3. One of the nursing student graduates receives her certificate from Mrs. Chapin.

Source: *Akhbār-e Hafteh*, no. 11, 20 Tir 1336 (11 July 1957).

Medical Education—Healthcare Services

Medical education at Shiraz Medical School and the provision of healthcare services and practical training in Namazi Hospital were among the other important activities of American medical doctors and engineers in Fars. Dr. Paul Stobhe taught public health in 1951 and played an important role in health education for the students and personnel of the Department of Health in Fars. Engineer John Davis taught the students practical ways to combat diseases, especially malaria. Dr. Lazarus set up a virology lab in the school and taught there for a short time.[69] Dr. Robert Burritt Hiatt (surgeon) and Dr. Horace T. Gardner (internist) (Figure 4) trained students at Namazi Hospital.[70] Professor J. E. Bowman served in the Namazi Hospital and founded the Pathology Department in the Medical School in 1955.[71] Dr. James A. Halsted provided health and education services for four years beginning in 1956.

[69]Ghorban, *Medical Education in Shiraz*, 25–7.

[70]From 1954 to 1956 Dr. Hiatt and from 1954 to 1959 Dr. Gardner worked at Shiraz University of Medical Sciences and Namazi Hospital of Shiraz.

[71]"*Gozaresh*," *Akhbar-e Daneshgah-e Shiraz*, 41.

https://doi.org/10.1080/00210862.2019.1710476 Published online by Cambridge University Press

Figure 4. Dr. Allen O. Whipple (third from right) and Mr. Mohammad Namazi (fourth from right). Dr. Horace T. Gardner is also seen (far right-hand side). The interns are sitting in the front row (1956).

Source: Azizi and Bahadori, "In Commemoration of Haj Mohammad Namazi (1895–1972)."

With the help of his colleague, Dr. Ananda Prasad, he conducted research on the short stature of the villagers. They concluded that zinc deficiency was positively correlated with the short stature of the villagers. They also investigated the absorption of vitamin B12 and the loss of protein from the colon.[72] Dr. Halsted's wife was Anna Roosevelt, the daughter of the former president of the United States. She provided important services in the library, public affairs, and administrative affairs at Shiraz Medical School.[73] Dr. Allen O. Whipple performed operations in the Namazi Hospital in 1956, including a herniorrhaphy for the first time.[74] Dr. Kenneth Livingston was a neurosurgeon who performed the first brain angiography in Shiraz.[75] He was also instrumental in treating brain injuries following an earthquake in Lar and reportedly adopted a child survivor.[76]

The educational and therapeutic services of American medical doctors and engineers affiliated with the PHCO continued until 1960. Their activities in the ten-year period 1950–60 transformed traditional medicine and healthcare and paved the way for the arrival of modern medicine and healthcare in Fars. Although there was a long way to go, the cornerstone was laid by American experts. This transformation was consciously or unconsciously in line with Mohammad Reza Shah's modernization policies. As James A. Bill has said, it had an important role in consolidating the Pahlavi regime after the fall of Mosaddeq's government.[77] After this date, a new

[72]Halsted and Ronaghy, "Zinc Deficiency in Man," 227–84.
[73]Ghorban, *Medical Education in Shiraz*, 36.
[74]Azizi and Bahadori, "In Commemoration of Haj Mohammad Namazi," 321–4.
[75]Roberts, Farzane, and Halsted, Report, 34.
[76]*Komiteh-ye Farhangi-ye Hamayesh-e Haftadomin Sal*, 200.
[77] Bill, *The Eagle and the Lion*, 98–131.

https://doi.org/10.1080/00210862.2019.1710476 Published online by Cambridge University Press

chapter in scientific cooperation between the US and Iran was opened by the University of Pennsylvania in Shiraz, which is not the subject of the current study.

The Obstacles to the Activity of Americans in Fars

The most important obstacle to the activity of the American members of the PHCO in Fars was the Tudeh Party (a Soviet affiliate). The office of this party opened in Shiraz in 1944.[78] Despite legal prohibition of its activities after the failed assassination of Mohammad Reza Shah, Tudeh spread extensive propaganda among various social classes. In 1950, the party published a newspaper in Shiraz called *Herfeh*, which opposed American activities in Fars, with the slogan, "Yankee Go Home."[79] After the closure of *Herfeh* in March 1952, the party published *Harbeh-ye Enteqam* until the coup d'état of 19 August 1953. Like *Herfeh*, this publication condemned American personnel working in Fars as agents of imperialism and demanded their expulsion.[80] Besides spreading propaganda against Americans in such publications as *Herfeh* and *Harbeh-ye Enteqam*, the Fars branch of the Tudeh Party sometimes attacked Americans in the city[81] and addressed them in the most offensive terms.[82] Despite the Tudeh Party's publicly professed commitment to fundamental public health reforms,[83] they opposed the PHCO because they believed that technical assistance by the Americans would push Iranian society toward the West (the US) and the capitalist bloc.

In addition to the Tudeh Party, the Baradaran Party was also important in Fars. This party, which was founded clandestinely in Shiraz in early 1930s with an Islamist orientation, was more openly active after September 1941. The leader of the party, Sayyed Nur al-Din Hosseini, was politically opposed to Mohammad Mosaddeq's government and supported the shah.[84] In the riot of 15 April 1953,[85] members of this party attacked and looted the office of the PHCO in Shiraz. It was also suggested at the time that some members of the Tudeh Party who opposed the presence of

[78]In Shiraz the Tudeh Party opened its first branch in April 1944, when the editorial board of the city's main intellectual paper, *Oqiyanus*, voted to join the party. The branch was soon joined by a number of young intellectuals: Fereydoun Tavalloli, one of the country's leading poets; Iraj Zandpour, the headmaster of the main secondary school; and Abdullah Afifi, the editor of Surush, which soon served as the party's provincial organ.(Abrahamian, *Iran between Two Revolutions*, 301–2).

[79]"*Gozaresh*," *Herfeh*, 18 Bahman 1330 (8 February 1952).

[80]"*Gozaresh*," *Harbe-ye Enteqam*, 12 Dey 1331(2 January 1953).

[81]NLAI, *Gozaresh-e Farmandari-ye Abadeh*, 4 Esfand 1331(23 February 1953), file 290-3367-2.

[82]NLAI, *Gozaresh-e Edare-ye Shahrbani-ye Fars*, 28 Esfand 1331(9 March 1953), file 290-3679-2.

[83]"*Gozaresh*," *Herfeh*, 13 Dey 1330 (4 January 1952).

[84]"*Gozaresh*," *Seda-ye Shiraz*, 30 Shahrivar 1330 (22 September 1951).

[85]On this day, the supporters of the National Front of Iran, after obtaining permission from Mohammad Nakhjavan, the governor of Fars, gathered in Shahrdari Square in Shiraz in support of the government of Mosaddeq and listened to Karimpur Shirazi's speech. They were attacked by a number of individuals affiliated with the Iran and Baradaran Parties who disrupted the meeting with such slogans as "Long Live the Shah" and "Down with Mosaddeq" and who joined with some thugs to destroy the office of the PHCO in Shiraz and loot its property.

Americans in Fars also participated in this riot. An analysis of the reports shows that the army and the police did not prevent the destruction of American property and even cooperated with the rioters in some cases. Abdulhussein Adibi, the director of *Seda-ye Shiraz* magazine, submitted a photo to the Investigation Commission of the 15 April riot that showed two individuals entering PHCO Building 1 unopposed by nearby military forces . In addition, the army's tanks were parked next to the wall of PHCO Building 2 so that the attackers could use them as ladders to enter the building.[86] The head of the American delegation in Fars protested against the military's refusal to support the office of Point Four and its affiliated organizations.[87] Despite their brief anti-American cooperation in Shiraz, Tudeh and Baradaran ultimately had different objectives. Tudeh opposed the PHCO as part of its broader pro-Soviet policy, while Baradaran attacked the US doctors in order to damage Mosaddeq's image and to support the shah. As was noted above, its members also had the backing of the army. The employees of the PHCO were forced to take refuge at the house of Naser Khan Qashqa'i (a chief of the Qashqai tribe), on the advice of a person named Mohammad Bahman-Beygi.[88] Naser Khan, who had gone to the city of Firuzabad, became aware of the incident,[89] sent some of his armed men to protect the Americans in Shiraz, and summoned a number of Qashqai to gather in the Aq Cheshmeh area in the south of Shiraz.[90] These actions frightened the governor of Fars, who declared martial law in the city. William Warne, the head of the PHCO in Tehran, protested the actions taken against the Americans living in Shiraz. Along with Abolqasem Raji, Warne travelled to Shiraz to investigate the incident.[91] After meeting with the employees of the PHCO in Eram Garden, Warne acknowledged the support of the Qashqais and asked the US State Department to thank the Qashqais formally.[92]

Though the employees of the PHCO were saved on 15 and 16 April, 1953, the Tudeh Party increased its anti-American activities in educational centers including the Medical School of Shiraz University. As a result, the head of Truman's Point Four Program in Shiraz met with Brigadier General Mir Jahangir, commander of the Fars Division, and expressed his concern over the threats by students with Tudeh sympathies against the Americans.[93] After the coup d'état of 19 August 1953, opposition to the PHCO in Fars ceased, and the wives and children of its employees returned to Shiraz.[94] The PHCO continued its work in Fars until the end of 1960.

In the archival documents and the local newspapers, there is no mention of the reason for the termination of the activities of the PHCO in Fars. What is certain

[86]NLAI, *Gozaresh-e Dadghostari-ye Ostan-e Fars*, file 290/8455, 7.
[87]Ibid., file 290/8455, 8.
[88]NLAI, *Gozaresh-e Shahrbani-ye Koll-e Keshvar*, 27 Farvardin 1331 (16 April 1952), file 290-8315, 25.
[89]*Markaz-e Asnad-e Riyasat Jomhouri-ye Iran*, File 14028.
[90]Tayyebi, *Eil-e Qashqai*, 152.
[91]Warne, *Mission for Peace*, 127.
[92]Qashqai, *Sal-ha-ye Bohrani*, 367.
[93]NLAI, *Gozaresh-e Farmandeh-e Lashkar-e Fars*, 16 Khordad 1332 (6 June 1953), file 2394-290-14.
[94]Embry, "Point Four," 104.

is that from 1956 onwards, Iranian personnel gradually replaced the Americans as they left Fars. The PHCO left Fars in 1960. The University of Pennsylvania soon began to offer American medical assistance in the province, but its work is not the subject of this paper.

Conclusion

The Iran–US PHCO was established at the Ministry of Health following the signing of a cooperation agreement between the two countries in 1950. This organization had a headquarters in Tehran and seven provincial offices. The PHCO of Fars began its activities in 1951. The organization was active in health engineering, health education, preventive medicine, nursing healthcare, medical services, and medical education. Providing safe drinking water and basic sanitation were also top priorities. Within one year, most cities and villages of Fars, especially in tropical regions, were provided with clean water, which resulted in the reduction of water-related infectious diseases. American personnel were also active in the field of preventive medicine, supervising the health center in Shiraz, issuing health cards to children, and providing healthcare and education to mothers. The American personnel, particularly Dr. Palmquist, played an important role in controlling malaria. The spread of this disease, which had a long record in Iran, was almost entirely eradicated in Fars with the financial support of the United States and the technical assistance of American experts. This disease has rarely been reported since 1960. The outbreak of trachoma, which had a close relationship with poor health conditions, was gradually reduced after the deployment of mobile health personnel to various regions of the province and public health education. Professor Lazarus had a significant role in reducing the outbreak of this disease. The American members of the PHCO also established the Higher Education School of Nursing and offered medical education and treatment at Shiraz Medical School and Namazi Hospital.

To conclude, it can be argued that the activities of the PHCO played an important role in improving the health of the residents of Fars which in the long run helped to consolidate the government's position in Fars in the aftermath of the coup of 1953. In addition, the activities of the PHCO reduced one of the barriers to development (i.e. mortality). Moreover, they began to gradually change (especially in the Fars province) traditional therapeutic practices to modern methods. It can also be said that the useful results of the PHCO in the rural areas of Iran, including those in Fars, provided the basis for the continuation of this movement in the form of one of the principles of the White Revolution, i.e. the "Health Corps" in 1964.

Bibliography

Abrahamian, Ervand. *Iran between Two Revolutions*. Princeton, NJ: Princeton University Press, 1983.
Amouzgar, Jahangir. *Technical Assistance in Theory and Practice*: *The Case of Iran*. New York: Frederic A. Praeger, 1966.

Armajani, Yahya. "CHRISTIANITY viii. Christian Missions in Persia," in *Encyclopædia Iranica*, vol. V, fasc. 5, Costa Mesa, CA, 1991, 344–47, http://www.iranicaonline.org/articles/christianity-viii
Azizi, Mohammad H., and Bahadori, Moslem. "In Commemoration of Haj Mohammad Namazi (1895–1972): The Founder of Namazi Hospital in Shiraz." *Archives of Iranian Medicine* 12 (2009): 321–4.
Bashir Gonabadi, Teymur. *Asnadi az Asl-e Chahar-e Truman dar Iran*. Tehran: Vezarat-e Farhang va Ershad-e Eslami, 2003.
Bill, James A. *The Eagle and the Lion: The Tragedy of American–Iranian Relations*. New Haven, CT: Yale University Press, 1988.
Carson, Rachel L. *Silent Spring*. New York: Mariner Books, n.d.
Edrisiyan, Gholam H. "*Moruri bar Vaziyat-e Malari-ya dar Iran*." *Journal of the School of Public Health and the Institute for Public Health Research* 1 (2002): 50–60.
Elgood, Cyrill. *A Medical History of Persia and the Eastern Caliphate: From the Earliest Times Until the Year A.D. 1932*. Cambridge: Cambridge University Press (Cambridge Library Collection—History of Medicine, 1951), reissued edition, 2010.
Embry, Jessie. "Point Four Utah State University Technicians and Rural Development in Iran, 1950–1964." *Rural History* 14, no. 1 (2003): 99–113.
Fasai, Hasan. *Farsnameh-ye Naseri*. Tehran: Amir Kabir, 2003.
Gasirowski, Mark J. *U.S. Foreign Policy and the Shah: Building a Client State in Iran*. London: Cornell University Press, 1991.
Ghorban, Zabih. *Medical Education in Shiraz*: *A Personal Memoir*. N.p., n.d.
Hafezi, Mohammad H. "Amar-e Mobtalayan va Motavaffiyat az bimari-ha-ye Vagir-e Keshvar-e Iran." *Majalle-ye Behdasht* 1 (1946): 69–108.
Halsted, James A., and Hossein A. Ronaghy. "Zinc Deficiency in Man: The Shiraz Experiment." *American Journal of Medicine* 53 (1972): 227–84.
Hamraz, Vida. *Barrasi-ye Ahdaf va Amalkard-e Asl-e Chahar-e Truman dar Iran*. Tehran: Vezarat-e Omur- e Kharejeh, 2002.
Harris, Franklin S. "The Beginnings of Point IV Work in Iran." *The Middle East Journal* 2 (1953): 222–8.
Heidari, Soleyman. "Investigating the Role of the British in Health, Treatment, and Establishment of Mursalin (Muslemin) Educational-Therapeutic Hospital in Shiraz (1900-1979)." *Journal of Research on History of Medicine* 7 (2018): 27–40.
Komiteh-ye Farhangi-ye Hamayesh-e Haftadomin Sal-e Amuzesh-e Pezeshki-ye Novin dar Shiraz, *Negahi be Amuzesh-e Novin-e Pezeshki dar Fars*. Shiraz: Komiteh-ye Farhangi-ye Hamayesh, 2017.
Oberling, Pierre. *The Qashqa'i Nomads of Fars*. Paris: Mouton, 1974.
Palmquist, Emil E., and Frederick F. Aldridge. "Malaria Control in Iran." *Public Health Reports* 69 (1954): 976–81.
Palmquist, Emil E., and Frederick F. Aldridge. "Iran's Public Health Cooperative Organization." *Public Health Reports* 69 (1954): 970–5.
Qashqai, Solat al-Dowleh. *Sal-ha-ye Bohrani*. Tehran: Rasa, 1987.
Razmara, Husseinali. *Farhang-e Joqrafiyai-ye Iran*. Tehran: Dayere-ye Joqrafiyai-ye Setad-e Artesh-e Iran, 1952.
Roberts, F., T. Farzane, and J. Halsted. *Report on the Present Aspect and Future Developments of the Shiraz University Medical Center*. Shiraz: University Medical Center, n.d.
Samaan, Ahed G. "The policy of containment and the Middle East, 1946–1958." PhD diss., Portland State University, 1972.
Setzler, Lorrain. "In Iran: The Development of Nursing in Shiraz." *American Journal of Nursing* 41 (1941): 520–5.
Tayyebi, Mansur N. *Eil-e Qashqai dar Tarikh-e Moaser-e Iran*. Tehran: Pardis-e Danesh, 2013.
Warne, William E. *Mission for Peace: Point 4 in Iran*. New York: Bobbs-Merrill, 1956.
Wright, Denis. *The English amongst the Persians*. London: Heinemann, 1977.