

Indigenous practices among Palestinians for healing eye diseases and inflammations

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SUMMARY

1.—Background: development of medical facilities in Palestine in general. 2.—Development of specialist eye care facilities in Palestine. 3.—Environmental and cultural factors in the spread of eye diseases and loss of sight in Palestine. 4.—Traditional medicine and treatment practices. 5.—Conclusions

ABSTRACT

This paper briefly describes the state health services in general, and eye care in particular for Palestinian Arabs under the British Mandate (1917-1948). The paper will

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also discuss the environmental and cultural origins of the prevalence of eye diseases among Palestinian Arabs. The second part of the research describes in detail indigenous practices of traditional medicine for healing trachoma and other eye diseases, inflammations that were prevalent in Mandatory Palestine.

Palabras clave: Arabes, Mandato Palestino, enfermedades de ojos, prácticas indígenas.

Keywords: Arab, Mandated Palestine, eyes diseases, indigenous practices.

«Go with this shirt of mine and lay it on my father's face, he will become again a seer. Then, when the bearer of glad tidings came, he laid it on his face and he became a seer once more»
(Quran, Joseph 12:93-96).

1. *BACKGROUND: DEVELOPMENT OF MEDICAL FACILITIES IN PALESTINE IN GENERAL*

During four centuries of Ottoman rule (1516-1917) in Palestine (1), Palestinian Arabs relied primarily on traditional medicine administered by traditional healers: midwives, Dervishes and herbalists, etc. Palestinian society was not monolithic. Palestinians were subdivided into three major ethnic groups, according to their patterns of life: the urbanized (*hadar*), the peasants (*fallahin*), and the Bedouin tribes (*badu*). The degree of reliance on traditional medicine has always varied. In the period under study, dependence on traditional medicine was greatest among nomadic Bedouin, followed by inhabitants of small rural villages on the periphery, due to both strongly-rooted traditional values and lack of access to any alternative treatment methods.

Following the conquest of Palestine by General Allenby in 1918, British authorities established some elementary health services —se-

(1) MA'OZ, Moshe (ed.). *Studies on Palestine during the Ottoman period*, Jerusalem, The Magnes Press, 1975, pp. xv-xvi.

veral epidemic clinics and hospitals, including mobile hospitals on camels (2).

State hospitals that mainly treated the Arab population in urban areas were scarce at first, but in response to pressure from the native Arab population, Mandatory authorities expanded the system (3). Where access to state hospitals was problematic, the Arab population resorted to Christian missionary health services. Such Christian missions were a key social service agent that played a core role in the introduction of western health practices into the Arab community (4). Malaria, tuberculosis and trachoma were widespread in Palestine before and during the British Mandate (5). British authorities dedicated enormous resources to combating these diseases (6).

Prior to the outbreak of World War II, there were 11 British missionary hospitals, 11 French, four German and three Italian hospitals serving the Palestinian Arab community of Palestine (7). In 1944, the Mandate healthcare system included ten general and contagious disease hospitals, three psychiatric hospitals, 21 clinics, 38 infant care

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- (2) ASSAF, Michael. *Relations between Arabs and Jews in the land of Israel 1860-1948*, Tel Aviv, Mif'ali Tarbut ve-Hinukh, 1970, p. 290. [Hebrew]
- (3) KHALIDI, Aziza. *Indicators of social transformation and infant survival: A conceptual framework and an application to the populations of Palestine from 1927-1944*, Johns Hopkins University (Ph.D. Thesis), 1997, pp. 312, 428.
- (4) KARAKRAH, Muhammad. *Development of public health services to the Palestinians under the British Mandate 1918-1948*, University of Haifa (Master Thesis, Department of Middle Eastern Studies), 1992, p. 32. [Hebrew]
- (5) SUFIAN, Sandy. *Healing the land and the nation: Malaria and the Zionist project in Mandatory Palestine*, New York University (Ph.D. Dissertation), 1999, pp. 1-12.
- (6) KARAKRAH, note 4, pp. 61-62.
- (7) The Jewish sector developed its own health services (hospitals and clinics) independently with the financial and professional support of world Jewry. Mandatory government support for Jewish inhabitants was meager and limited to public health issues, such as eradication of trachoma, malaria and so forth. British policy-makers argued that most Mandatory resources —beyond universal public health matters, should therefore be channeled into providing similar services to the Arab sector. For more on this, see SHVARTS, Shifra. *Kupat-Holim Haclalit, The General Sick Fund*, Beersheva, The Ben-Gurion University of the Negev Press, 1987. [Hebrew].

clinics and birthing centers, 41 eye clinics and six clinical laboratories serving the Arab sector (8).

With the establishment of British civil administration in 1920, the total population was some 700,000 inhabitants (one-tenth Jewish); in 1948 when the British Mandate terminated, the official estimate of the Arab population was just over 1,300,000 and of the Jewish population just over 600,000. Relations between Arabs and Jews in the healthcare domain during the Mandate were informal, with collaboration based on private initiatives. Jewish physicians treated Arabs in towns and villages, especially in places where state-run hospitals and clinics were scarce. In addition, the two main Jewish healthcare organizations, *Hadassah* and *Kupat Holim* treated Arabs (9).

2. DEVELOPMENT OF SPECIALIST EYE CARE FACILITIES IN PALESTINE

Arabs of the Middle East suffered from poor health in general due to diseases and environmental health conditions, inadequate hygiene, malnutrition, malarial mosquitoes and other parasites (10).

Eye diseases usually broke out with the coming of the spring, and lasted throughout the summer (11). Thus, it seems that key factors in the prevalence of eye diseases were a combination of unsanitary

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- (8) KHALIDI, note 3, p. 278. Government of Palestine, Survey of Palestine 1946, pp. 616- 617.
- (9) KARAKRAH, note 4, p. 27; REISS, Nira. *The health care of the Arabs in Israel*, Oxford, Westview Press, 1991, p. 12; SHVARTS, note 7, p. 158.
- (10) ABU-KHUSA, Ahmad. *Beer al-Saba' wal-Hayah al-Badawiya*, Amman: Matabi' al-Mu'assasa al-Sahafiya al-Urdunniya (Arabic), 1976, 70-71, 106-113; LEVY, Nissim. *The history of medicine in the Holy Land: 1799-1948*, Haifa, Hakibbutz Hameuchad and the Bruce Rappaport Faculty of Medicine, 1998, pp. 478-512. [Hebrew]; KARAKRAH, note 4, pp. 10-35; REISS, note 9, pp. 1-19; SINGER, Amy. Ottoman Palestine (1516-1800): Health, disease, and historical sources. In: Manfred Waserman and Samuel Kottok (eds.), *Health and disease in the Holy Land*, Lewiston, The Edwin Mellen Press, 1996, pp. 189-206.
- (11) GUTMANN, Y. Conjunctiva' hay fever as allergic disease. *Harefuah*, 1945, 28 (4), 83-84. [Hebrew].

conditions, primarily the lack of bathing water under crowded living conditions, and in a hot and dry climate —a fact that is discussed separately in this paper.

While modern pharmacies, clinics, general and professional hospitals spread rapidly in Jerusalem beginning in the 1830(12), it was not until 1882 that the first hospital specializing in eye diseases was founded in Palestine, in Jerusalem. The founders were members of the Order of St. John. Until the official building was completed, the mission was housed in temporary quarters(13).

In December of 1914, at the outset of World War I, the St. John Hospital was commandeered by Turkish soldiers who turned the building into a barracks(14). When the British army entered Jerusalem in 1917, the structure became the headquarters of Major General Shea, a British officer. On February 26, 1919(15), the hospital was renovated, and reopened in a rededication ceremony in the presence of General Allenby himself. Colonel John Strathearn was appointed to run the hospital, serving in this capacity until 1941(16).

Among the additional institutions that came to operate under the auspices of the Mandate's newly-established health department was a mobile hospital for treating eye diseases, launched in August 1919. The mobile hospital, supervised by Dr. Thompson(17) traveled from region to region, setting up camp in Arab villages where staff provided first-aid to people in the vicinity suffering from eye diseases, and in some cases conducted on-site operations. In 1923, the staff of the mobile hospital requested that the service be suspended due to budgeting problems; at the request of the most senior British official

(12) BEN-ARIEH, Yehoshua. *Jerusalem in the 19th century*, Jerusalem and New York, St. Martin's Press, 1986, pp. 247-258.

(13) KING, Edwin. *The Knights of St. John in British Empire*, London, St. John Ambulance Association, 1934, pp. 160-170.

(14) KING, note 13, p. 167.

(15) Levy gives the date of September 16th 1919.

(16) IZHAKI, Rika. The Ophthalmic Hospital of the Order of St. John (1882-1948). *Cathedra*, 1993, 67, 114-135. [Hebrew]

(17) IZHAKI, note 16, pp. 114-135.

in Palestine, the High Commissioner Sir Herbert Samuel (18), the St. John Hospital stepped in to ensure the continued operation of the mobile hospital under its own auspices (19).

In the course of the 1948 war, the St. John Hospital closed down. At the end of the war the original hospital building remained in the Israeli-held sector of West Jerusalem while most of its patients resided in the Jordanian-held Arab sector (East Jerusalem). Consequently, the management decided to re-establish the hospital in East Jerusalem (20).

It should be noted that in 1919, Dr. Avraham Albert Ticho —a Viennese-trained Jewish ophthalmologist who had been sent to Palestine by *Le'ma'an Zion* in 1912 but found himself mobilized and stationed in Damascus for the duration of the war— returned to Jerusalem. In addition to running a small ophthalmic department in Rothschild-Hadassah Hospital, Ticho re-established his private practice that subsequently evolved to become the Dr. Ticho Ophthalmic Hospital (21).

It is worth noting that trachoma was rampant among Palestinian Arab schoolchildren. 1921-vintage statistics show an average of 74 percent of all Arab children country-wide was infected, while 15 percent suffered from defective vision as a result. The 1921 survey conducted by British authorities also found that a smaller percentage of children in northern Palestine had the disease compared to the scope of trachoma in the schools of southern Palestine where in some schools as many as 97 percent of the schoolchildren had trachoma —suggesting the role of water scarcity in the spread of the disease. The ramifications of such a high incidence of trachoma especially in southern Palestine was registered in serious secondary damage from deformity of the eyelids and subsequent damage to the cornea (22).

(18) When Britain was granted a mandate to administer Palestine, Sir Herbert Samuel (1870-1963), became the first High Commissioner of Palestine (1920-1925).

(19) GOVERNMENT of Palestine, John Strathearn's Report 1932, 10-11. Jerusalem.

(20) LEVY, note 10, pp. 139-144.

(21) LEVY, note 10, pp. 142-146.

(22) Trachoma can cause partial or complete blindness when blisters that form on

By comparison, the situation in Jewish schools for the year 1923/24 was markedly better: The number of cases of active trachoma in the Arab schools was three times greater than in the Jewish schools (23). The longer the children attend school where systematic treatment was an integral part of the school regime the percentage of the class with active trachoma diminished.

Treatment for adults with trachoma varied, from treatment at government-run mobile clinics that operated in villages and encampments in the outback, to treatment at St. John Hospital in Jerusalem and the Hadassah Eye Clinic in Jerusalem. Eye clinics were established by the Mandatory government in Gaza, Ramleh, Beersheva, Nablus, Tul Karem and Acre.

3. *ENVIRONMENTAL AND CULTURAL FACTORS IN THE SPREAD OF EYE DISEASES AND LOSS OF SIGHT IN PALESTINE*

Since ancient times, Palestine's unique geographic position has impacted on its development in a host of domains. Throughout history, its inhabitants have had cultural, economics and political contacts as well as military ties with neighbouring civilizations to the North and the South. At the same time, it has served as a land bridge between the East and the West in the movement of trade goods. As a result of such contacts, from a health standpoint, Palestine has been unduly exposed to communicable diseases originating beyond its borders.

Furthermore, a host of local climatic factors have favoured the spread of trachoma in Palestine. They include strong sun rays, high temperatures and low levels of precipitation including six months of annual drought that create a dusty semi-arid to arid environment

the eye membrane (the conjunctiva) cause scarring as they heal, while damage to the cornea stems from the eyelashes turning inward and scratching the cornea, a condition that in extreme cases could be rectified by minor corrective surgery of the eyelids. GOVERNMENT of Palestine, Annual Report of the Department of Health for the years 1922, pp. 37-41.

(23) GOVERNMENT of Palestine 1921, pp. 22-27; 1923/24, pp. 31-38.

with limited fresh water supply. The coastal plain is covered by sand dunes and light soils; the northern Negev consists of light loess soils and south of Beersheva of sands similar to the Sinai desert, neither of which holds moisture and in their natural state supported only sparse vegetation. These conditions are exacerbated in spring and fall by seasonal searing hot south-easterly winds (*khamsin*) that bring dust from surrounding deserts as far away as the Sahara, while the 6-month summer dry season leaves a thin coating of limestone dust on roads and foliage. In rural areas, the slightest wind or traffic on unpaved tracks raise clouds of dust which covers the eyelashes and penetrates the eyes. At the time under study, due to shortage of water—mainly in the south, or limited use of water because of the distance of houses or tents from water sources, hygiene among Palestinian Arabs was poor. It should be noted that during the Mandate, the British Government made efforts to secure water supplies by drilling wells, but in every case it was found that where there was ample water it was of high salinity and where fresh water was found the flow was too slight to be of use(24).

In the early years of the 20th century, most Palestine residents contracted *Ophthalmia* due to poor sanitary and hygienic conditions including crowded domiciles and sharing of clothes, bedding, and towels by entire families. Moreover, in the summer heat, wiping sweat from the face and eyes was believed to be a contributing factor to the spread trachoma and conjunctivitis from person to person, particularly during the dry summer months(25).

In addition to such environmental factors driving the spread of eye diseases among Palestinian Arabs, there was also another cultural dimension to impairment or loss of sight that should not be overlooked

(24) ABU-KHUSA, note 10, pp. 1-36; AL-'AREF, 'Aref. *Tarikh Beer al-Saba' wa-Qabai'liha*. Jerusalem, n.p. [Arabic], 1934, pp. 269-283; AL-'AREF. *Bedouin love, love and legend*. Jerusalem, Cosmos Publishing, 1944, pp. 184-186; SHIMKIN, Nahum. Trachoma in Palestine; its epidemiology and a review of measures for dealing with it. *British Journal of Ophthalmology*, 1926, 10, 247-279. SHIMKIN, Nahum. Eye diseases and its causes in Canaan. *Havfuah*, 1936, 9 (5), 315-341. [Hebrew]

(25) SHIMKIN, note 24, pp. 247-279.

—eye injuries resulting from work accidents, employment of slingshots and rock-throwing in disputes within traditional herding and village cultures, eye injuries in battle, and even deliberate grievous injury to one's enemies as an accepted «rule of war» (26). There were injuries that resulted in loss of sight when using dynamite to quarry rock for building houses and paving roads, and in the course of dressing the stones (27).

Lastly, migration was a contributing factor to the prevalence of eye diseases: The influx of transmittable diseases from neighboring countries by Arab immigrants entering Palestine in the 1920s and 1930s, attracted by Palestine's economic prosperity. Among the diseases introduced by such newcomers were Egyptian Ophthalmia, Trachoma, Purulent Gonorrhea and Conjunctivitis (28).

4. *TRADITIONAL MEDICINE AND TREATMENT PRACTICES* (29)

Local traditional healers had their own methods of healing the various and sundry eyes afflictions from which Palestinian Arabs su-

(26) According to one source, «in wartime or brawls among rivals, one should not take lightly the head injuries and particularly to the eye from rocks and the use of slingshots. In wartime there are a full line of corneal injuries from rock fragments that occasionally cause blindness. In cruel wars (in the East), it was customary to gouge out the eyes of prisoners when they were captured, the victor often wilfully allowed the prisoner to live while removing their right eye or both eyes». SHIMKIN, note 24, pp. 333-334.

(27) SHIMKIN, note 24, pp. 315-341. [Hebrew]

(28) GORIN, George. The history of ophthalmology in Israel. *The Eye* (haain), 1992, 8, 4-19.

(29) The following data are derived from a broader study of ethno-medicine in Palestine during the last twenty years. The paper is based on primary and secondary sources, interviews with healers and patients, and key informants who were active in participating in these treatments. All the material was recorded in field logs, and some was tape recorded. Unstructured interviews were carried out in the informants' homes, as well as in the homes of traditional healers. Most of the healers were in the age of forty to eighty five. The paper is also based on archival and documentary material, the review of published and unpublished materials, books and scientific journals.

ffered —ranging from treatment of trachoma and cataracts, to eye tics and night blindness.

Trachoma (*ramad*):

Herbal treatments included extracting the juices of *Solanum dulcamara* (*hulwa murra*) and using the fluid as eye drops twice a day for a week; boiling water with crushed leaves of the *Lycium shawii* (*'awsaj*) and using the solution as an eyewash; boiling the leaves of the *Achillea fragrantissima* (*qisum*) in a cup of water and using the solution as an eyewash twice a day for one week; bathing the eyes with water boiled with the leaves of one of the following plants, twice a day for one week: Rose water (*mayit ward*), *Cyclamen persicum* (*sabunit al-ra'ay*), *Glaucium corniculatum* (*qatrit al-'ayn, na'man*), *Haplophyllum tuberculatum* (*shajarat al-rih, mjenin*), *Majorana syriaca* (*za'atar*), *Marrubium vulgare* (*roubia, qriha*), *Ruta chalepensis* (*fayjan, sadhab*), *Varthemia iphionoides* (*slimania, ktilih*) or *Petroselinum sativum* (*baqdunas*). Another regime called for placing cloth compresses of a concentrate of boiled black tea on the eye for ten minutes, twice a day for one week.

Non-herbal remedies included applying the white of an egg mixed with verdigris (30) (*jinzara, junzara*); putting a mixture of crushed alum and finely ground coffee in the eyes, three times a day for one week; placing *kohl* (31) in the eyes, twice a day for two weeks; placing

(30) Verdigris is a green or greenish blue substance obtained artificially by the action of dilute acetic acid on thin plates of copper, and much used as a pigment, in dyeing, the arts, and medicine; basic acetic copper (*The Oxford English Dictionary*, 1989, p. 533); A green or greenish blue poisonous pigment resulting from the action of acetic acid on copper and consisting of one or more basic copper acetates; normal copper acetate $\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{H}_2\text{O}$; a green or bluish deposit especially of copper carbonates formed on copper, brass, or bronze surfaces (*One Look Dictionary Search*). Verdigris used by General Belliard, in Upper Egypt, who had been suffering from ophthalmia. The verdigris was suggested by the oculist Janin of Lyon in 1772. MEYERHOF, Max. Communications: A short history of ophthalmia during the Egyptian campaigns of 1798-1801. *The British Journal of Ophthalmology*, 1932, 16, 129-152.

(31) According to humoral theory of Galen, *kohl* was a cold substance, hence good for treating «hotness of the eyes». MEYERHOF, Max. *The book of the ten treatises*

a powder made from the shed skin of a snake (*thawb ham*) on the eyelids; preparing a solution from asphalt-bitumen (*hummarah*) and using it as an eyewash or making a *kohl* of it and applying it to the eyes; crushing the brownish fluid from the cattle-fish (*zabad al-bahr*) to a powder and applying it to the eye; putting a *tutyya* (32) as a *kohl* in the eyes; and sprinkling cold water (33) in the eyes, several times a day for two weeks.

Another method was to sprinkle the breast milk (34) of nursing mother in the eye early in the morning, twice a day for one week. It was purported that the milk of a black woman was particularly effec-

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- on the eye ascribed to Hunain Ibn Ishaq*, Cairo, Government Press, 1928. The Prophet Muhammad is said to have mentioned the efficacy of kohl in treating eye diseases. AL-JAWZIYYA, Ibn Qayyim. *Al-Tibb al-Nabawi*, Cairo, Dar Ihya al-Kutub al-'Arabiya (Arabic), 1957, pp. 84-86. Bedouin women prepare kohl (*kohl*) by pouring olive oil into a small bottle and inserting a wick of clean white cloth secured against the neck of the bottle with a piece of dough. The wick is lit and held under a pan or sheet of clean metal. The soot that sticks to the bottom of the pan is collected with pigeon feathers. Out of that, usually made of antimony.
- (32) *Tutyya hamra*-red *tutyya*, is hematite or iron oxide. Hematite is a very common mineral, iron oxide, Fe_2O_3 , occurring in steel-gray to black crystals and in red earthy masses: the principal ore of iron. *Tutyya zarqa*-blue *tutyya* is called «blue vitriol» is chalcantite which is copper sulfate. Hydrated cupric sulfate, a compound of copper occurring as large, bright blue crystals. Cupric sulfate, $CuSO_4$, commonly known as blue vitriol, is the most important salt of copper. It usually crystallizes as $CuSO_4 \cdot 5H_2O$ and has a bright blue color (One Look Dictionary Search).
- (33) Since the inflammation of the eye affected by trachoma resembles a blazing torch (*shu'lat nar*); indeed medication works through its opposite (*dawa' al-shay' bi-didhi*) (*al-Jawziyya* 1957, 134); see Galen 's philosophy of therapeutics oppositional (hot-cold). EASTWOOD, Bruce. *The elements of vision: The micro-cosmology of Galenic visual theory according to Hunayn Ibn Ishaq*, Philadelphia, American Philosophy Society, 1982.
- (34) See ABU-RABIA, Aref. *Bedouin's traditional medicine*. Tel-Aviv, Mod publishing, 1999, p. 46. [Hebrew]; MUSIL, Alois. *The manners and customs of the Rwala Bedouins*, New York, American Geographical Society, 1928, p. 667. On the impact of human milk on ophthalmia, see IBHANESEBHOR, S. E.; OTOBO, E. S. *In vitro* activity of human milk against the causative organisms of Ophthalmia neonatorum in Benin City, Nigeria, *Journal of Tropical Pediatrics*, 1996, 42 (6), 327-329.

tive for Allah had blessed her (*baraka*) with medicinal powers. This logic behind this strategy was not «racial» in origin, but based on a belief in the therapeutic powers of opposites —the black woman and the white milk.

Since patients suffering from trachoma were extremely sensitive to strong light, a person with trachoma was advised to avoid sunlight; to use dark sunglasses, wear an eye-screen, or cover his or her eyes with a headdress.

Conjunctivitis (*am dhil, nawwamih*):

In Palestine, conjunctivitis —a contagious inflammation of the mucous membrane that lines the inner surface of the eyelid extending over the forepart of the eyeball— spread by epidemic proportions during the summer months (35). The head of the St. John Hospital, Colonel John Strathearn reported that conjunctivitis was the greatest source of blindness in Palestine (36).

Traditional medicine recommended a number of herb and plant-based treatment regimes. They include washing the eye with olive oil containing a little salt; burning the galls of the *Quercus ithaburensis* (*sindyān, mallul*), or the galls of the *Quercus calliprinos* (*ballut*) crush into a powder and put into the eyes as a kohl once a day; washing the eyes with vinegar water (*khall*) produced from *Pyrus malus* tree (*tuffah*); boiling the bark and leaves of the *tamarix aphylla* (*ithl*) in water and using the solution as an eyewash once a day for one week; boiling leaves and flowers of the *Matricaria aurea* (*babunaj*) in water and using the solution as an eyewash twice a day and drinking three cups a day for one week.

Another strategy called for applying a paste made from plant sugar-crystalline (*sukkar faddi*) and alum (37) powder (*shabbih*) (38),

(35) SHIMKIN, note 24, 253.

(36) STRATHEARN, John, C. The problem of blindness in Palestine, *Folia Ophthalmologica Orientalia*, 1933, 1, 121-142.

(37) Alum: potassium/aluminium sulphate/hydroxide. A potassium aluminum sulfate $KAl(SO_4)_2 \cdot 12H_2O$ or an ammonium aluminum sulfate $NH_4Al(SO_4)_2 \cdot 12H_2O$ used especially as an emetic and as an astringent and styptic; any of various double salts isomorphous with potassium aluminum sulfate; aluminum sulfate: a white

prepared by the healer, or putting kohl in the eyes twice daily for one to two weeks. Another recommendation was to wear a headscarf to which a special eye-bead (*tarfa*) (39) is tied together on a string with other beads, above the eyes.

One of the most complex procedures in traditional healers' medical bag was cauterization (*kai*): The healer scorching three places on the veins of the eye using a needle that had been heated over a flame. Then he made a small scorch mark on the eyebrow over the affected eye, another on the scalp, and a third on the nape of the neck. The treatment was done only once and the eye healed within a week.

Styes (*jlyjil*, *sha'irah*):

The traditional remedies for a stye—an inflammation of the sebaceous gland at the margin of an eyelid— included making eye drops from cold sugarless tea and applying the drops three times a day for a week; applying eye drops from onion juice, once a day; and placing *kohl* in the eye once a day for a week. Another recommendation was to open the swelling on the lip of the eyelid with a heated needle and squeeze to drain the fluid. There were special treatments for different ages, as well: For a baby, one strategy was to bring a piece of bread from a family who had not yet to taste their food, burn it in the fire, then apply the burnt bread as a *kohl* to the eye. For men

salt $Al_2(SO_4)_3$ usually made by treating bauxite with sulfuric acid and used in making paper, in water purification, and in tanning (MERIAM-Webster Online Dictionary) Website.

- (38) *Shabbih*: alum, during the British Mandate in Palestine, there was a sulphuric quarries in al-Mashabbih south-east of Gaza (in the territory of al-Hanajra clan), which produced *shabbih* for all Palestine, and some of it exported abroad. ABU-RABIA, Haj Hammad, Personal communication, 21 August 1998, 14 May 2000; ABU-TAHA, Haj Hamd, Personal communication, 9 February 1984.
- (39) *Tarf*- means eyesight; *tarfa*- means blood spot in a wounded eye. Healing the eye by beads based on the principle of «like to cure like», or «like on like» of sympathetic magic. FRAZER, James. *The Golden Bough, a study in magic and religion*, London, Macmillan and Co., 1950, pp. 1-48; VAN GENNEP, Arnold. *The rites of passage*, Chicago, The University of Chicago Press, 1972, pp. 1-13; TYLOR, Edward Burnet. *Primitive culture: researches into the development of mythology, philosophy, religion art and customs*, London, J. Murray, 1871, pp. 79-88.

and women, there was a one-time remedy based on crushing plant sugar-crystalline to a fine powder and placing the powder in the eye at the evening before retiring and closing the eyelids over the powder; another was to squeeze the fruit of the *Ecballium elaterium* (*faqqus al-hamir*) and put the sap extracted from the plant in the eyes, once or twice a week.

Swollen or Puffy Eyes: (*waram*)

Traditional medicine recommended a number of herbal treatments for swollen or puffy eyes: Mixing leaves/parts of the *Matricaria aurea* (*babunaj, rabil*) with lukewarm water and apply the solution to the eyes, twice a day for one week; boiling the leaves and flowers of one of the following plants in water and using the solution as an eyewash: *Chamomilla officinalis* (*babunaj*), *Geranium molle* (*'ittir*), *Hyoscyamus aureus* (*sakaran*), *Mentha longifolia* (*na'na'*), *Varthemia iphionoides* (*slimania, ktilih*), *Ziziphus spina-christi* (*sidrih*). Another herbal remedy called for boiling the seeds of the *Lepidium sativum* (*hab al-rashad*) in water and using the solution as an eye-wash.

A non-herbal remedy consisted of mixing powdered white lead (*isbidajih*) with olive oil and applying the mixture to the eyes as a *kohl*.

Cataract: (*sarsur, sad*):

The Arabs derived the name for a cataract from the characteristic shape of an eye with a cataract, which resembles a cricket (*sarsur*).

A host of different treatment regimes were recommended for treating a cataract: washing the eyes with olive oil and salt once a day for one week; cooking pomegranate, honey and processed butter (*samnih*) until a paste forms, and applying the paste to the affected eye; putting *kohl* (40) in the eyes twice a day for one to two weeks; cleaning the shell of a chicken egg (*qishrit al-bayd*); and drying it and

(40) The use of *kohl* by *kahhalin* (oculists) to treat eye diseases in Palestine see, COHEN, Amnon. *Jews under islamic rule: The Jerusalem community during Early Ottoman period*, Jerusalem, The Magnes Press-The Hebrew University, 1982, pp. 45-97; AL-TAMIMI, Abu-Abd Allah, M. *Kitab al-Murshid*, Freiburg, Schwarz, 1976, pp. 17-44.

grinding it to a powder and applying the powder to the eye as a *kohl*.

Among the herbal remedies are boiling the leaves of *Verbena officinalis* (*ri'i al-hamam*), and using the solution as an eye wash; crushing an almond stone from the *Amygdalus communis* (*luz*), soaking the powder in a cup of water for 30 minutes and sprinkling the solution in the eyes twice a day for one week; crushing the leaves of the *Lycium shawii* (*'awsaj*) and sprinkling the sap in the eyes, once a day, three times a week; soaking leaves and flowers of the *Verbascum sinuatum* (*'awarwar*) in olive oil for one to two days, then sprinkling it in the eyes once or twice a week; and crushing the seeds of the *Eryngium creticum* (*qursa'annah*) and putting them in water or olive and sprinkling the eyes, once a day for one week.

Injury or Eye Trauma (*jarh*):

Injury to an eye was the result of a host of circumstances. Among those reported: an infant' falling from a cradle, being punched in the eye at play, being hit by a stone or stick in a quarrel, being bitten or kicked by an animal (horse, camel, livestock, donkey, cow and mule), being hit by a chip dressing building stone or a splinter when chopping wood; being pricked with a needle whilst sewing or a hook while weaving, or inadvertently being caught on a fish hook(41).

Traditional medicine recommended a host of treatment regimes. Among the herbal remedies were boiling the leaves of one of the following plants in olive oil or in processed butter and apply to the injury, once a day for one week: *Ballota undulate* (*ghassih*), *Cleome droserifolia* (*samwih*), *Artemisia herba-alba* (*shih*), onion or *Allium cepa* (*basal*). Others were washing the eyes with water boiled with the leaves and flowers of the *Chamomilla officinalis* plant; boiling the leaves and flowers of the *Inula viscosa* (*tayyun*) in water and using the solution

(41) ABU-RABIA, note 34, pp. 45-92; BAILEY, Clinton; DANIN Avinoam. Bedouin Plant Utilization in Sinai and the Negev. *Economic Botany*, 1981, 35 (2), 145-162; BEN-ASSA, Benjamin. The desert' effect on the Bedouin health. *Notes on the Bedouin*, 1970, 1, 13-18. [Hebrew]; BEN-ASSA. The Bedouin as a patient. *Harefuah*, 1974, 87 (2), 73-76. [Hebrew]

as an eyewash of the injured spot, once a day for one week; soaking the branches of the *Prosopis farcta* (*yanbut*) in water and using the solution as an eyewash of the injured spot.

It was also recommended to smear olive oil on the injury to keep flies away and prevent infection (*tasammum*) and to wash the injury with lukewarm water and salt.

Night Blindness (*'ashawa, mi'shi*):

A traditional belief among Palestinian villagers of the late 1920's held that a menstruating woman can harm others. If a person has poor vision and such a woman gazes at the person, this was believed to be detrimental to the subject's eyesight (42).

Eating a number of plants and vegetables were purported to help prevent and treat night blindness or weak eyesight. Traditional medicine recommended eating the fruit of *Vaccinium myrtillus* (*'inab al-dubb, 'inab al-ahraj*), leaves of *Petroselinum sativum* (*baqdunas*), lettuce (*khass*), *Malva nicaeensis/parviflora* (*khubbiza*); carrots (*jazar*) or dates (*tamr, balah*). Other recommendations included eating a diet of fish, eggs, milk and milk products and butter. Lastly, placing a powder made from the shed skin of a snake (*thawb ham*) on the eyelids was purported to improve eyesight.

Other herbal remedies included drinking water boiled with the leaves of one of the following plants: *Verbascum sinuatum* (*'awarwar*), *Micromeria fruticosa* (*qurniya, 'ishbit al-shai*), *Vitex agnus-castus* (*shajarat Ibrahim*). Other recommendations included boiling the leaves and flowers of *Paronychia argentea* (*rijl al-hamam*) and using the solution as an eyewash once a day for one to two weeks; soaking leaves and flowers of *Verbascum sinuatum* (*'awarwar*) in olive oil for one to two days then sprinkling the oil in the eyes once or twice a week; soaking

(42) GRANQVIST, Hilma. *Birth and childhood among the Arabs*; Helsingfors: Soderstroms, 1935, p. 161; a similar belief found among Awlad 'Ali tribes in Egypt: to appear before children in the clothes worn during intercourse is believed to cause them eye problems. ABU-LUGHOD, Lila. *Veiled Sentiments: Honor and Poetry in a Bedouin society*, Berkeley and Los Angeles, University of California Press, 1988, p. 144.

the leaves, flowers and fruits of *Malva nicaeensis/parviflora* plant (*khubbiza*), or seeds of *foeniculum vulgare* (*shawmar*) in olive and drinking the oil or using it as an eyewash.

Other substances included employing an eyewash of spring mineral water, rose water, or a solution of sugar and boiled water; putting onion juice drops in the eyes; sprinkling the milk of nursing mother in the eye early in the morning, twice a day for one week; and sprinkling the bile of a black goat in the eye once. Crush *Mylabris syriaca* beetle (*dhirnah*) in salt and water, and to sprinkle the eye once a day, for one week.

Healers are reported also to recommend avoiding strong bright sunlight and sun glare; avoiding walking outside on windy days; and staying away from smoke-filled places such as the kitchen; or lime kilns (43).

Eye Tics (*raffit al-rimsh*, *raffit al-'ayn*):

Palestinian Arabs' believed that a twitching eyelid or eye tic was a sign of an impending episode of weeping that would be precipitated by the receipt of bad news and so forth.

Uncontrollable twitching of the upper eyelid was treated by placing a piece of straw or chaff (*qasala*, *qashshih*) above the eyelid. Other remedies recommended putting *kohl* into the eyes, once a day for one week; anointing the eyelid with olive oil, twice a day for one week; or anointing the eyelid and sprinkle oil from *Nigella sativa* (*habbit al-baraka*) on the eye, twice a day for one week.

5. CONCLUSIONS

Palestine at the junction between Asia, Africa and Europe, served as a cultural, economic, political, medical and military meeting point throughout history. Many factors affected Palestinian health during the

(43) ABU-RABIA, Aref. *Bedouin century, education and development among the Negev Tribes in the twentieth century*, New York and Oxford, Berghahn Books, 2001, p. 46.

Ottoman and British Mandate periods. Some of the diseases, mainly eye diseases and inflammations, were contracted due to poor nutrition and hygiene; a combination of unsanitary conditions; lack of bathing water under crowded living conditions; and a hot dry climate that also includes periods of cold, humidity and dust. Such geographic and environmental contributed to poor personal hygiene. They were further exacerbated by socio-economic factors such as substandard and overcrowded housing, and a low level of education.

With a lack of modern health services, mainly among villages and Bedouin encampments, traditional healers continued to treat patients, and the patients continued to appeal to the traditional healers. From the viewpoint of the healers, modern medicine did not endanger their position, but was useful to solve some of the complicated cases. They considered modern medicine complimentary to their healing methods, not opposed to them (44).

The use of traditional medicine and appeal to traditional healers, over many centuries, established a relationship of psychological-therapeutic dependence on the part of Palestinians with regard to the healers. This dependence was deeply rooted in their psyche and reinforced and legitimized by Palestinian culture.

The many and varied medicinal substances which we were able to identify as used in traditional treatments of eye diseases included plants species, animal species, various kinds of minerals and substances of mixed origin. Analysis of the finding shows that Palestine served as the geographic origin of the medicinal substances. All the plants used in traditional medicine grew in Palestine. These plants were available because they grew as wild plants and were part of the natural fauna. The minerals that were locally processed and used in traditional medicine included asphalt, types of salt, spring water, sulfur, copper and iron. Some of these materials were exported from to neighboring lands or to European countries.

(44) ABU-TAHA, note 38; ABU-RABIA, note 38; AL-HRUB, AL-Haj Ahmad Salih, Personal communication, 21 October 1996, 5 November 1997, 1 July 1999.

The rich variety of approaches employed by Palestinian healers to treat eye diseases is indicative of the depth and breadth of indigenous medicine practiced in the region.

Although the 20th century brought a cure for eye diseases and inflammation, nonetheless «Palestine's Eyes» are still bleeding.

