REVIEW

doi: 10.5455/medarh.2018.72.374-388

MED ARCH. 2018 OCT; 72(5): 374-388

RECEIVED: SEP 05, 2018 | ACCEPTED: OCT 15, 2018

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One Hundred Fifty Years of Organized Health Care Services in Bosnia and Herzegovina

Izet Masic

ABSTRACT

Introduction: Austro-Hungarian monarchy had great impact on healthcare system in Bosnia and Herzegovina (B&H), and consequences of that exist today. **Aim:** To launch of the section „The Most Influential Physicians in the Development of Health Care in Bosnia and Herzegovina“, in which, within next issues of the Medical Archives will be presented the prominent physicians, dentists and pharmacists who gave contribution to development of healthcare system in B&H. **Results:** This paper provides a full overview from the literature about health care circumstances during 150 years in Bosnia and Herzegovina and important of the role health care institutions and of all the doctors working in B&H during the Austro-Hungarian administration. To some of them is devoted more attention in the texts about their life and work and their contribution to the development of the health service in B&H. Also, author gave description of the others, except for the medical activities who have contributed to our homeland, such as Dr. Jozef Kecet, Dr. Julije Makanec, Dr. Teodora Krajewska, Dr. Josef von Preindlsberger, Dr. Hamdija Karamehmedovic and others, but there are many more that we should know about and mention them. **Conclusion:** The fact is Austro-Hungarian model of healthcare system in that time was functional for that period and great improvement in comparison to past and the fact is that that system represents a basis even for modern medicine in territory of B&H.

Keywords: Bosnia and Herzegovina, Health Care Systems, History.

1. SOCIAL CIRCUMSTANCES DURING OTTOMAN AND AUSTRO-HUNGARIAN PERIOD IN B&H (1463-1918)

In Bosnia and Herzegovina (B&H), before its occupation by Austro-Hungarian military in 1878 the territory covered by the current state and some eastern regions, which belonged to it at the time of its independence, no major resorts. The state was located in the mountainous region, surrounded by countries of different religions and interests, which conflict had a significant impact on the state and progress (1-3).

There was little literate population, while practically the only literacy gained in madrasas and mosques in maktab the major towns, the Muslim population, then the monasteries perched in the rugged and little affordable areas, and partly in the Bosnian nobility and gentry. Epidemics are constantly ravaged almost all of its parts, people are exhausted because it was not drugs (4-6). Population assistance is sought in a variety of fortune and priests, the wealthy were approached Dubrovnik that

they are in the city provide treatment, or that they send a doctor from Dubrovnik (5, 6). Hospitals and health care and treatment of patients was not established until the second half of the nineteenth century, and the largest percentage of the population is generally treated in their homes (7-10). With the arrival of the Turks in the territory of B&H in 1463 which they brought with them a new state structure, significantly changed the views of the entire life of man and society. Turks bring with them experience and medical literature that were adopted from the Arabs, which was already at an extremely high level (11-20). Turks after his arrival in Bosnia brought a new way of social and personal life, which, in addition to prescribing the maintenance of high levels of personal hygiene, insist on some other activities and measures of personal and social life. Raise the public baths, and every Muslim houses had a special form of a home bathroom (5, 6, 7). Raised are the first water supply, thereby establishing a practical first sanitary facilities in B&H. According to data of Alija Karahasanovic (1), up to half of

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Figure 1. "Mahmutćehajina ćuprija" - bridge in front of City hall (Rathaus) in Sarajevo, on the top of the picture is Vakuf's hospital (Hastahana), built up on October 8th, 1866, the first hospital in B&H

the seventeenth century in 92 towns in B&H, there were a total of 56 public baths, and only the fourth in Sarajevo. He also built and public toilets. The first was built in Kovaci around the 1526, and later raised another in the present clock tower at the bazaar, and one on the Miljacka. At each place they built a public fountain for washing before regular religious observance, and wealthy citizens have brought the water in your backyard (5, 6). The first modern water supply received Mostar 1886, Sarajevo 1890, Banja Luka 1908 and Tuzla 1910. During 1910 in another 36 major sites in B&H received water, sewage work included a little slower. The first was built in Sarajevo 1896. In addition to every mosque is built in a public fountain. The very measure of personal hygiene is not sufficient in order to prevent various diseases, especially those of epidemic character, which then-ravaged Bosnia and relate the lives of many Bosnians. The most frequent diseases were: syphilis (which, apparent by French cruisers and they called it "Frenjak". First description was from 1790 when local physicians in village Škrlevo near Rijeka (Fiume), Croatia, reported about "new disease" and named it "Morbus Škrlevo", in French - "Mal di Fiume"), tuberculosis, leprosy, trachoma, favus and other fungal diseases, etc. (5). The last two centuries in B&H, ravaged the acute infectious diseases, some of which are related epidemic and the lives of endemic diseases - cholera, which is frequently penetrated from other countries, smallpox, which in B&H was a frequent and inevitable phenomenon until the 1907 year, followed by typhoid fever and dysentery, due to poor water supply and poor hygiene of foodstuffs, as well as measles, scarlet fever and diphtheria, among children (5, 6). About mental illnesses, their prevalence and treatment in the Turkish period, there is not much data.

2. TREATMENTS OF THE POPULATION DURING THE OTTOMAN PERIOD

The health situation in Bosnia and Herzegovina before the arrival of the Ottomans were closely linked with economic and political situation in the country, and depended mainly of interest and opportunities in the surround-

ing countries. Little has been written by the population consisted mostly nobles or clerics. Outbreaks are often ravaged, and the lack of drugs patients are very often killed. Strong influence in education of the population played the Franciscans in the thirteenth century because they were among first to begin to deal with health activities, and the arrival of Jews from Spain to Bosnia in 1492. Later throughout B&H acting skilled physicians and pharmacists trained in medical schools of East and West.

By the annexation of B&H in 1878, the Monarchy has provided its educated staff from all fields of life and work that build, manage, and improve all forms of life, and also in the field of health care. Inherited health professionals in already built instructions during the rule of Topal Sherif Osman Pasha, and a staff who came from Vienna, Budapest, Bern, Paris, Prague and other cities of the Monarchy played a very important role in the treatment of the population, all forms of health care and the needs of this population, especially in the prevention of many diseases that were spread in these areas. All the above, it was necessary to organize a good health service in towns and villages, introduce good legislation, build hospitals and health homes, and hire quality, educated staff (5-10).

3. THE FIRST HEALTH CARE INSTITUTIONS AND THE FIRST MEDICAL PROFESSIONALS

During the period from the 16th to the 19th century, until the establishment of Vakuf's hospitals - Hastahana's in the five Bosnian-Herzegovinian cities (Sarajevo, Tuzla, Mostar, Travnik and Banja Luka), the population in B&H was mostly treated by medicines and herbs from the "ljekarusa's" - rulebooks or other written documents written by trained but also learned "traditionalist's", at-tar's (ittar's), religious staff (hojja's, friars, etc.); or they were transcripts of medical manuscripts from other languages that have been brought to our country in various ways (Arabic manuscripts of "Avicennian medicine") (11-20). More professional were: barbers (they represented as surgeons) and the healers who set the diagnosis and prescribed medication (used alternative medicine). The Franciscans, who studied in Western countries, treated population with translated or personally written "ljekarusa's" (medicine recipes), preparing herbs from grass, oil and fat, or acquiring them from at-tars, the forerunner of pharmacists. Pharmacy has begun since the early 11th century, when the monks in Monte Cassino (Italy) began to deal with medicine. This interest is linked to the emergence of the one of oldest medical school in Europe, in town of Salerno (Salernum in Campania, Southern Italy). That school had enormous influence on the development of medicine and pharmacy and health in general in the 12th century. Numerous works have been translated into such an environment into our languages. One of the most famous parts is "Regimen sanitatis Salernitanum or Flos Medicinæ". This work was in use until the 19th century. In BiH, such writings have emerged from a national experience. The recipes were based on medicinal herbs and superstitions that the people of BiH were inclined to. Drugs are differently

accepted from the medical side. Medical historians think that they were created at the time of the fall of ancient medicine, so there were some views on the world such as astrology, alchemy, magic, etc (16-23). The books of Fr. Franjo Gracic and Fr. Petar Maresevic differ in form and form. In 1895, Fr. Gracic published his medical book in Latin in Padua: „A theoretical and practical analysis of the priests on the behavior of the crazies, the house and the snake poison, about many other diseases and their main drugs, and some other things“. This work is first published book of medical content of one author from B&H. The most famous *ljekarusa* dates from 1774. It is preserved in Fojnica Monastery, written by a bosančica. In 1791 a *ljekarusa* called „*Pharmacopoeia familiaris bossinensis*“ was published. The text „Summary Review of Health and Medical Opportunities of Bosnia and Herzegovina in the Past“, from the „*Prosveta Calendar*“ (issued from 1905 to 1914), Dr. Risto Jeremic (2, 5) talks about health culture in BiH through a brief history. „With the arrival of the Turks, we began to cultivate a health culture in Bosnia... The first graduate doctors of Bosnia were the Franciscans, the Friars of the Italian Universities: Fr. Petar Bustrović (1708-), Fr. Franjo Gracic (1720-1799), Fr. Tadija Lagarevic (1761-1840) Fr. Mato Nikolic (1784-1844), Fr. Tomo Dafinic, Fr. Petar Maresevic (since 1837 he was the first doctor of medical sciences in B&H) and Fr. Mijo Sucic (since 1850 he was the first specialist in surgery in B&H). Ivan Franjo Jukic founded the first journal in BiH „*Bosnian Friend*“. Drugs and recipes were published there. Until then, they were released in some other editions, most often in calendars. In 1795, Fr. Franjo Gracic printed a medical booklet in Latin on the treatment of certain diseases. Fr. Mato Nikolic graduated medicine in Feldsberg in 1807 and he is the first doctor in the history of B&H. In his personal skill was physician-surgeon Fr. Mijo Sucic (died 1865). Numerous documents testify that the Franciscans in their medical practice aided all people, regardless of their religious or other differences. In Italy, he was graduated in Padua in 1850 and he was graduated from Sarajevo by Isaac Salom, a military doctor and a member of the Sarajevo Administrative Council. The first physicians Muslims were Mehmed Serbic and Zarif Skender, graduated in Istanbul in 1873. At the end of the 18th and early 19th centuries in Sarajevo, practitioners of Jews: Jozef Haim Salom and Samuel Sumbul. There were also foreign doctors, such as Dr. Franz ?, Dr. Pavle Kramer, Dr. Gustav Gaal-Velibeg, Dr. Gabor Galanthay. By the middle of the 19th century, the Turks or Greeks worked in BiH, often serving Turkish military sanitation. The first among them was the Swiss Jozef Kecet, who was a personal physician of Omer Pasha Latas, and later Topal Sherif Osman Pasha, and his bibliographer, who left two books with factorial description of events in B&H during that period. The new power of laws and regulations initiates the construction of new, more modern health care institutions to primarily protect their new citizens. The health service is organized according to the laws of governed the Monarchy itself. A major obstacle to these efforts was the conservative perception of the local population, and the lack of financial

Figure 2. Network of health care institutions in B&H built up during Austro-Hungarian period, in 1901. Cover page of the the book „The Roots of Medicine and Health Care in Bosnia and Herzegovina“, written by Izet Masic

resources and the educated medical staff. For this reason, a special department was established at the State(Land) Government in Sarajevo, headed by a doctor from the Austro-Hungarian Monarchy. There are 6 districts from Bihac, Banja Luka, Mostar, Sarajevo, Travnik and Tuzla, and they are placed at the expense of the terrestrial budget, with an annual salary of 1200 forints. Each county has represented a special healthcare community with one doctor who performs health care services privately and manages its own home apothecary. The poor population was treated free of charge.

At the time of occupation, the city of Sarajevo had two Turkish hospitals (Figure 1) - Vakuf's and Military (both opened in 1866), and quarantine (Churche Han). The military hospital was a closed type and used for stationary treatment, mostly for soldiers, and the Vakuf's hospital had modest capacities (a total of 40 beds). There were four trained doctors: Dr. Theophil Koetschet, Dr. Leopold Kramer, Jacov(b) Sumbul and Rafo Atijas. There was a modern pharmacy in which Eduard Plajell worked, who came to Sarajevo in 1877 (5, 6).

On the basis of the Austro-Hungarian Government's order of 1879, all „promoted, graduate or probed doctors, ranches (*Wundaerzte*), dentists, veterinarians and midwives who attended school at the appropriate school establishments in the Austro-Hungarian Monarchy are allowed to practice in B&H. That is why all doctors had

to file a healthcare application. They were obliged to do the practice neatly, keeping a professional secret.

By the Austro-Hungarian annexation of Bosnia and Herzegovina in 1878 the state is changing its material base and social structure. With the occupation army, came skilled workers: the Germans, Hungarians, Czechs, Polishs and others who build the barracks, railways, housing for the military. For all of them must be well-organized health service. It called for the formation of the first social insurance funds, so in 1888 in Bosnia formed the so-called fraternal insurance fund intended for miners, such as those that have already been formed on the territory of Slovenia, Croatia and Dalmatia in 1854, and Serbia 1866. True, the social legislation in Austria dates back to the 1810, and in 1887-1888 was released in Austria the Health Insurance Act (5, 6). The Government of Bosnia adopted a Law on Social Insurance, which entered into force in 1910. Otherwise, the Basic Health Act was passed in Austria 1870, and in Hungary 1876 (the law written by renowned hygienists Fodor). These data suggest that illustrate the Austro-Hungarian Empire took strict care of the health care of your appliances and citizens of countries that were occupied. According to the unique concept of the organization, socially-oriented health services, with strict organizational principles proclaimed that every hospital (district, county, municipal), each clinic must arrange the outpatient service and maintain appropriate hygiene and safety measures.

First, so-called „Necessary hospitals“ (notsspittaler) who had a small number of beds and only the most basic equipment were founded, and since 1886 the construction of the so-called „municipal hospitals“ that were run by municipal doctors or district doctors.

Such hospitals were founded in: Tuzla (1886, 30 beds), Prijedor (1886, 13 beds), Brcko (1886, 16 beds), Mostar (1887, 42 beds), Konjic (1889, 14 beds), Banja Luka, 64 beds), Visegrad (1896, 11 beds), Bijeljina (1900, 27 beds), Trebinje (27 beds), Foca (6 beds), Prnjavor (20 beds), Bosanski Novi (20 beds), Derventa (32 beds). From 1892 to 1903 county hospitals were founded in: Kotor-Varos, Kladanj, Srebrenica, Cazin, Livno, Vares, Gacko, Kljuc and Gorazde (see Health institutions network in 1901 on Figure 2). In 1879, a total of 7 doctors were employed in the civil service in BiH, and in 1893, that number increased to 64, out of which 41 were in the civil service, 19 were municipal services, and 3 doctors worked only as private doctors. The end of the Austro-Hungarian rule in BiH is characterized by an increased number of health-care staff, so that the total number of doctors in BiH amounted to 168, out of which 106 were in the state administration, 30 in the municipality, in the company and factory 9, in the terrestrial railways 5, and there were 18 private doctors. By taking the Austro-Hungarian monarchy into power in Bosnia, the social structure is changing. Qualified workers from Germany, Czech Republic, Hungary, Poland are eligible to settle. Railways, barracks, residential buildings, hospitals are build.

The lack of hospital capacities was motivated by the authorities to build the State/Provincial („Landesspital“) in Sarajevo, which was built and opened on July 1, 1894. In the State Hospital were employed high quality doc-

tors who, besides the clinical part, also engaged in scientific research in the field of medicine. So many of the scientific and professional papers that were recognized outside the borders of B&H were also published. Many of them were published in the first scientific journal in B&H - „The Annual of the State hospital in Sarajevo - Godisnjak Zemaljske bolnice u Sarajevu“, which dates from 1897 to 1903 in German. At the beginning of the First World War in 1914, a total of 234 physicians, 141 inpatients, 8 dentists and 71 MA Pharmacists worked in 17 hospitals (837 beds), 58 municipal ambulances and 43 public pharmacies. On average, one inhabitant had 0.6 beds, one physician was 12.912, one had 16.222 inhabitants, and one apothecary 40.384 inhabitants.

4. THE LIST OF PHYSICIANS IN B&H IN THE AUSTRO-HUNGARIAN PERIOD

Doctors in provincial service

- Agatstem Josef, Amrus Milan, Atanackovic Pavle, Bauer Leopold, Bauer Josip, Bayer Karel, Berger Ludwig, Bermann Marko, Bernstein Max, Besarovic Milos, Biach Arnold, Bilic Ljubomir, Mleinchner Martin, Bodo Kolo-man, Braun Isidor, Cziner Chamaides Johann, Czegley Max, Curinaldi Bruno, Cvijic Djoko, Delijanis Kosta, Diamant Siegfried, Dockal Jan, Dorner Alexander, Duller Johann, Djokic Damjan, Engel Ferdinand, Fischer Rudolf, Foglar Josef, Fric Vladimir, Friedmann Alexander, Gafenko Ivan, Galzinski Franz, Gandija Adolf, Gerstler Josef, Gluck Alexander, Gluck Leopold, Goldhaber Mayer, Goldstein Rudolf, Gramatowicz Epifanius, Haas Bertold, Hanosek Vladislav, Hansel Philipp, Herlinger Dragutin, Herzmann Eduard, Hildes Oskar, Horak Erwin, Horn Maurus, Hodlmoser Karl, Israel Isak, Jacob(v) Samuel, Januszewski Vladislav, Jovanovic Milan, Karamehmedovic Hamdija, Karlinski Justin, Katz Josef, Kaunitz Paul, Kaunitz Sigmund, Keck Bohuslava, Knoiz Ignatz, Kobler Geza, Kobrinski Adam, Koetschet Theophil, Kofmann Martin, Korszynski Ludomil, Kostic Josif, Kostic Milivoj, Krajewska Theodora, Krizan Stjepan, Kraulik Franz, Kritina Josef, Kucharski Simeon, Kudas Jan, Kukric Stjepan, Lederer Arnold, Lefkovitz Moritz, Lesanovski Anton, Lichtscheindl Ludwig, Lowy Rudolf, Mager Leo, Mahic Hasan, Makanec Julije, Markovic Dimitrije, Marowski Miecislav, Mayer Elias, Midzic Muharem, Mikucki Vladislav, Molnar Alexander, Moucha Milosav, Mujezinovic Ejub, Neymayer Viktor, Olczewska Hedwig, Orlik Vilko, Pawlikov Ivan, Pinto Alois, Plentaj Dragan, Pollatschek Bernhard, Pordes Ignatz, Prasek Branislava, Prasek Emil, Pravdic Oton, Preindlsberger Josef, Prop-per Heinrich, Radulovic Mile, Rakic Kornelija, Romus-zkan Josef, Rosenzweig Fischl, Rostok Otto, Saidenfeld Jakob, Saric Murat, Sattler Moritz, Sattler Feuerstein Rosalia, Sattler Stanko, Sekora Kornel, Selak Max, Siat-eczki Kazimir, Skutetzki Richard, Smicka Franz, Sollner Jakob, Szollos Moritz, Sopinski Roman, Stetka Method, Seat Spiro, Schiffer Max, Schonfeld Leo, Schossberger Alexander, Schwarz Otto, Spichagel Petar, Steidler Karl, Steiner Karl, Stix Julius, Telecki Dusan, Telecki Katari-na, Tomovic Evdoksije, Tovara Franjo, Unterlugauer Jo-

sef, Weiss Otto, Weszelowski Bela, Wertheimer Jaroslav, Windakiewicz Vladislav, Wodynski Roman, Woinarski Witold, Zahradka Egon Karl, Zauderer Rernhard, Zechmeister Hugo, Zwibach Wilhelm, Zarzicki de Novine Leon, Zmigrod Boleslav.

Of these 147 physicians were: 59 Jews, 20 Polish, 15 Germans, 14 Czechs, 14 Serbs, 13 Croats, 5 Muslims; 3 Ukrainians, 1 Italian, 1 Hungar, 1 Romanian, 1 Russian.

Railway doctors:

- Bajlon Ante, Biberauer Julius, Goldfarb David, Dimitrijevic Lazo, Pawlikov Ivan, Corovic Dusan.

Of these 6 were: 2 Serbs, 1 Croat, 1 German, 1 Ukrainian, 1 Jew.

Spa doctors:

- Goldfarb Samuel, Kostic Josif.

Police doctor:

- Grunfeld Josef.

Miners doctors:

- Foglar Josef, Goldberger Adolf, Limbersky Josef.

From these was: 2 Jews; 1 Chech.

Factory doctors:

- Band Pinkas, Berger Bruno, Berger Ludwig, Berger Max, Bernstein Maximilian, Friedrich Bogumil, Hempf Adolf, Jurinac Ljudevit, Muller Paul, Polgar Josef, Schick Karl, Schwarz Josef, Torok Paul, Uzorinac Zivko, Wogg Viktor.

Of these 15 were: 8 Jews, 3 Germans, 2 Croats, 1 Czech, 1 Hungarian.

Municipal doctors:

- Babic Aleksandar, Bukvica Abdulahbeg, Bukinac Djordje, Berger Ludwig, Bilinski Tadeus, Bulat Franz, Cabrajic Luka, Cermak Anton, Denislic Mustafa, Dokuzovic Anton, Fried Koloman, Friedmann Heinrich, Fojarewich Anton, Fronius Friedrich, Furth Ernst, Grgurica Ante, Grunberg Josef, Gruszkiewicz Jan, Hand Leon, Haramy Franz, Ivanovic Pero, Jeremic Risto, Jojkic Milan, Kestler Josef, Kohout Jakob, Korbel Hermann, Kornfeld Marsel, Kras Milan, Kremanović G., Krulj Uros, Kubach Jan, Lesanovski Anton, Lochert Josef, Lowy Samuel, Malic Jovo, Mirkovic Ljubomir, Mujezinovic Ejub, Pacek Emil, Pejic Lavoslav, Rizzo Petar, Serbic Sami Mehmed, Skarda Jan, Trammer Friedrich, Weinberg Jakob, Zecevic Mehmed.

Of these 44 were: 10 Jews, 8 Serbs, 7 Croats, 5 Muslims, 4 Czechs, 3 Germans, 3 Poles, 2 Hungarians, 1 Ukrainian, 1 Italian.

Private doctors:

- Fischer Ignatz, Januszewski Gisela, Jeremic Todor, Klinger Beno, Loffler Leopold, Pacu Jovan, Potocka Franz, Rauch Paul, Stern Albert, Weiss Alexander.

Of these 10 were: 6 Jews, 2 Serbs, 1 Czech, 1 Polish.

Dental doctors:

- Gero Samuel, Kner Max, Oreskovic Pavle, Sumbul Jakob, Schumann Richard, Cokic Pajo.

Of these 6 were: 3 Jews. 1 German, 1 Serb, 1 Croat.

Doctors born in B&H since the end of 1918.

- Antic Jovan, Atanackovic Pavle, Babic Aleksandar, Babic Risto, Besarovic Milos, Bilic Ljubomir, Bozickovic Dragoljub, Bokonic Jovo, Bukvica Abdulahbeg, Bustrovic fra Petar, Vasiljevic Jovo, Vujicic Stevan, Vucicevic

Momcilo, Govedarica Simo, Delijanis Vladimir, Delijanis Konstantin, Denislic Mustafa, Dimitrijevic Lazar, Djokic Damjan, Zerajic Milan, Zerajic Risto, Zecevic Mehmed, Ivanisevic Luka, Ivanovic Pero, Israel Isidor, Jeremic Risto, Jeremic Todor, Jovanovic Milan, Karamehmedovic Hamdija, Karanovic Simo, Kecmanovic Vojislav, Kostic Josif, Kostic Milivoj, Kostic Slobodan, Krulj Uros, Kujundzic Vladimir, Kukric Stjepan, Maglov Marko, Mandic Dusan, Maresevic fra Petar, Markovic Dimitrije, Milankovic Risto, Miljanic Petar, Mirkovic Ljubomir, Mistic Todor, Midzic Muharem, Mujezinovic Ejub, Neskovic Milan, Perovic Dragan, Prastalo Zarko, Rizvanbegovic Ahmedbeg, Salatic Savo, Salom Josef, Samokovlija Isak, Saric Murat, Skender Zarif, Stjepanovic Pero, Sucic fra Mijo, Todorovic Ljubomir, Todorovic Pero, Corovic Dusan, Filipovic Djoko, Hafizadic Sulejman, Cvijic Djoko, Cabrajic Luka, Cokic Pajo, Corlukic Luka, Cubrilovic Staka, Sain Risto, Serbic Sami Mehmed.

Of these were: 50 Serbs, 11 Moslems, 7 Croats, 3 Jews.

The list of doctors during the Ottoman and Austrian period in Bosnia and Herzegovina

- Alikafic Alija, Andrijevic Ivan, Antic Jovan, Atanackovic Pavle, Babic Aleksandar, Babic Risto, Babic Caslav, Babunovic Vucko, Banic Branko, Bergmann Berta, Besarovic Milos, Bilic Ljubomir, Bozic Gavro, Bozickovic Dragoljub, Bokonic Jovo, Budimlic Rade, Bukvica Abdulahbeg, Bustrovic fra Petar, Vasiljevic Vojislav, Vasiljevic Jovo, Vladislavljevic Mico, Vujicic Gavro, Vujicic Stevan, Vukotic Hasan, Vucicevic Momcilo, Gatalo Draginja, Glavadanovic Vjekoslav, Gluck Aleksandar, Govedarica Simo, Gutesa Petar, Dadic Ibrahim, Delijanis Vladimir, Delijanis Kosta, Denislic Mustafa, Deronja Osman, Dimitrijevic Lazo, Djokic Damjan, Djuric Aleksandar, Zerajic Jevemija, Zerajic Milan, Zerajic Risto, Zec Nedo, Zecevic Mehmed, Zimonjic Bogdan, Ivanovic Pero, Ilic Teodor, Jamnicki Ante, Jelacic Veljko, Jelacic Savo, Jeremic Milan, Jeremic Risto, Jeremic Todor, Jeftanovic Zdravko, Jovanovic Milan, Jovanovic Branko, Juzbasic Branko, Karamehmedovic Hamdija, Karahasanovic Alija, Karanovic Simo, Kasikovic Relja, Kaunic Pavle, Kecmanovic Vojislav, Kisic Nikola, Komadina Salko, Konforti Jakob, Kermes Adzo, Kostic Josif, Kostic Milivoj, Kostic Slobodan, Krnetic Danica, Krulj Uros, Kujundzic Vladimir, Kukric Stjepan, Kusan Vjekoslav, Laus Stjepan, Lekic Jozo, Ljeskovac Borislav, Lojovic Novak, Lukac Feodor, Maglov Marko, Maglov Milada, Majic Hasan, Malic Jovo, Mandic Dusan, Maresevic fra Petar, Maric Ante, Markovic Dimitrije, Metilj Mehmed-alija, Milankovic Risto, Milisic Sveto, Milosevic Dušan, Milutinovic Bozo, Mirkovic Ljubomir, Mitrovic Dušan, Midzic Muharem, Mistic Todor, Mujezinovic Ejub, Mujic Safet, Miljanic Petar, Neskovic Milan, Opijac Hasan, Ostojic Djuro, Perovic Drago, Popovac Ismet, Popovic Pero, Prastalo Zarko, Princip Nikola, Radetic Milutin, Ridjanovic Muhamed, Rizvanbegovic Ahmedbeg, Rundo Petar, Sabljic Nikola, Sadikovic Sefik, Salatic Savo, Salom Josef, Samardzic Milivoj, Samokovlija Isak, Saric Murat, Skender Zarif, Stjepanovic Pero, Sucic fra Mijo, Tadic Jozo, Teofanovic Sveto, Todorovic Ljubo, Todorovic Milo, Todorovic Pero, Corovic Dusan, Cupina Lazar, Fi-

lipovic Djoko, Folgar Josip, Hafizadic Sulejman, Hodzic Mehmed, Hlubna Dragutin, Cvijic Djoko, Cabrajic Luka, Cabrinovic Vukosava, Cavka Vladimir, Cokic Pajo, Corlukic Luka, Cubrilovic Branko, Cubrilovic Staka, Sain Miletic Risto, Santic Mara, Serbic Mehmed.

5. PHYSICIANS IN BOSNIA AND HERZEGOVINA AT THE END OF THE AUSTRO-HUNGARIAN PERIOD

Health professional in B&H on October 15th 1909

a) National Government for B&H in Sarajevo

Department for health at the administrative Division of the National Government

1. Geza Kobler, MD, government adviser with the rank of court counselor (Knight by Medal of Emperor Franz Joseph - K.M.F.J.), chief physician, chief of Department of Internal medicine at State (Landesspital) hospital in Sarajevo.

2. Filip Hensel, MD, County physician, employed in the Office for physicians management, for hospital and pharmacy affairs.

3. Henrik Proper, MD, County physician, employed in the Office for physicians management, for hospital and pharmacy affairs.

4. Jakov Seidenfeld, MD, County physician, employed in the Office for physicians management, for hospital and pharmacy affairs.

b) National Health Council

1. Geza Kobler, MD, head physician, President of the medical department, government trustee and advisor.

2. Roman Wodynski, MD, K.M.F.J., pathologist, chief physician, president of the National health council.

3. Josef Preindlsberger, MD, K.M.F.J., chief physician, government advisor, member of the National health council.

4. Karl Bayer, MD, chief physician, government advisor, member of the National health council.

5. Bruno pl. Curineldi, MD, K.M.F.J., government advisor, health advisor in Mostar, member of the National health council.

6. Fridrik Fronijus, MD, city head physician in Sarajevo, member of the National health council.

7. Roman Sopinski, MD, K.M.F.J., health advisor in Sarajevo, member of the National health council.

8. Ladislav Januszewski, MD, K.M.F.J., health advisor in Banja Luka, member of National health council.

9. Jakov Seidenfeld, MD, medical corps advisor in Sarajevo, member of the National health council.

10. Ladislav pl. Mikucki, MD, chief physician, member of the National health council.

11. Julije Biberauer, MD, chief physician of the B&H railroads, member of the National health council.

12. Risto Jeremić, MD, city physician in the Donja Tuzla, member of the National health council.

13. Maks Teich, mr. Ph., provizor, associate member of the National health council.

14. Filip Hansel, MD, County physician, senior clerk.

c) Health professionals at the County areas

1. Vladislav Januszewski, MD, K.M.F.J., medical corps advisor, National medical corps advisor, medical corps supervisor, physician for County area Banja Luka.

2. Isak Israel, MD, medical corps assistant, physician for County area Banja Luka.

3. Rudolf Fischer, MD, medical corps advisor, medical corps supervisor, physician for County area Bihac.

4. Kornelija Rakic, MD, medical corps clerk, office doctor at County area Bihac.

5. Bruno pl. Curinaldi, MD, K.M.F.J., governmental advisor, National health advisor, medical corps supervisor, physician County area Mostar.

6. Bohuslava Keck, MD, medical corps clerk, office physician at County area in Mostar.

7. Roman Sopinski, MD, K.M.F.J., medical corps advisor, National health advisor, medical corps supervisor at County area in Sarajevo.

8. Teodora Krajewska, MD, office physician at County area in Sarajevo.

9. Bernard Zauderer, MD, medical corps supervisor, County area in Travnik.

10. Aleksandar Grunhut, MD, medical corps supervisor, County area in Donja Tuzla.

11. Hedwiga Olszevska, MD, office physician, County area in Donja Tuzla.

12. Bernards Ollacsek, MD, local physician of the Central penitentiary in Zenica.

Health professionals at the County offices in B&H

1. Ilija Mayer, MD, District chief physician in Derвента, Banja Luka County.

2. Berthold Haas, MD, County physician in Derвента, Banja Luka County, substation in Bosanski Brod.

3. Bodo Koloman, MD, County physician in Bosanska Dubica, Banja Luka County.

4. Karlo Steiner, MD, County physician in Bosanska Gradiska, Banja Luka County.

5. Stjepan Kukric, MD, County physician in Kotor Varos, Banja Luka County.

6. Eduard Hercmanm, MD, County physician in Bosanski Novi, Banja Luka County.

7. Ferdinand Engel, MD, County physician in Prijedor, Banja Luka County.

8. Josip Krutina, MD, County physician in Prnjavor, Banja Luka County.

9. Mark Bermann, MD, County physician in Tesanj, Banja Luka County.

10. Arnold Lederer, MD, County physician in Cazin, Bihac County.

11. Aleksa Dorner, MD, physician in Kljuc, Bihac County.

12. Dimitrije Marković, County physician in Krupa, Bihac County.

13. Ludwig Berger, MD, County physician in Drvar, Bihac County.

14. Ivan Kudas, MD, County physician II grade in Sanski Most, Bihac County.

15. Bolesslav Zmigrod, MD, County physician of II grade in Bileca, Mostar County.

16. Oto Pravdic, MD, County physician in Gacko, Mostar County.
17. Martin Blicher, MD, District chief physician in Konjic, Mostar County.
18. Isidor Braun, MD, County physician in Ljubinje, Mostar County.
19. Antun Lesanovski, County physician in Ljubuski, Mostar County.
20. Simeun Kucharski, MD, District chief physician in village District in Mostar, Mostar County.
21. Ljudevit Lichitscheindl, MD, District chief physician in Nevesinje, Mostar County.
22. Karlo Steidler, MD, County physician in Stolac, Mostar County.
23. Rudolfo Lowy, MD, County physician in Trebinje, Mostar County.
24. Sigmund Kaunitz, MD, County physician in Cajnice, Sarajevo County.
25. Aleksander Friedmann, MD, County physician in Cajnice, substation Gorazde, Sarajevo County.
26. Mavro Horn, MD, County physician in Foca, Sarajevo County.
27. Moses Schiffer, MD, County physician in Fojnica, Sarajevo County.
28. Franjo Galzinski, MD, County physician in Rogatica, Sarajevo County.
29. Jakov Sollner, District chief physician in Sarajevo, Sarajevo County.
30. Miacislav Marowski, MD, District chief physician in Visegrad, Sarajevo County.
31. Bela Wescelowski, MD, District chief physician in Visoko, Sarajevo County.
32. Otto Rostok, MD, County physician in Visoko, substation Vares, Sarajevo County.
33. Josip Folgar, MD, County physician in Bugojno, Travnik County.
34. Makso Bernstein, MD, County physician in Bugojno, substation Kupres, Travnik County.
35. Damjan Djokic, MD, County physician in Glamoc, Travnik County.
36. Epifanije Gramatowicz, MD, County physician in Jajce, Travnik County.
37. Dragan Plentaj, MD, County physician in Livno, Travnik County.
38. Vladislav Windakiewicz, MD, County physician in Livno, substation Grahovo, Travnik County.
39. Kazimir Siatecki, MD, County physician in Prozor, Travnik County.
40. Otto Schwarz, County physician in Varcar Vakuf, Travnik County.
41. Ivan pl. Gaffenko, MD, physician in Zenica, Travnik County.
42. Djoko Cvijic, MD, County physician in Zepce, Travnik County.
43. Ivo Chamaides, MD, County physician in Bijeljina, Donja Tuzla County.
44. Viljem Cvibach, MD, County physician in Brcko, Donja Tuzla County.
45. Leopold Bauer, MD, County physician in Gracanica, Donja Tuzla County.

46. Ervin Horak, MD, County physician in Gradacac, Donja Tuzla County.
47. Eudoksije Tomovic, MD, County physician in Kladanj, Donja Tuzla County.
48. Oskar Hildes, MD, County physician in Maglaju, Donja Tuzla County.
49. Mavro Lefkovits, MD, District chief physician in Srebrenica, Donja Tuzla County.
50. Josip Katz, MD, County physician in Donja Tuzla, village district, Donja Tuzla County.
51. Mavro Szolos, MD, County physician in Vlasenica, Donja Tuzla County.
52. Aleksa Schossberger, MD, County physician in Zvornik, Donja Tuzla County.

Health professionals in State hospital in Sarajevo

1. Ivan Knotz, MD, District chief physician, manager.
2. Ludomil Korcinski, MD, K.M.F.J., chief physician, Department for internal diseases.
3. Julijan Solarski, MD, secondary physician, Department for internal diseases.
4. Witold Wojnarski, MD, District chief physician, Department for internal diseases.
5. Ejub Mujezinovic, MD, secondary physician, Department for internal diseases.
6. Josef Preindlsberger, MD, K.M.F.J., chief physician, Department for surgery, National health advisor, government advisor.
7. Milivoje H. Kostic, MD, physician, Surgery Department.
8. Muharem Midzic, MD, secondary physician, Surgery Department.
9. Abdulah Bukvica, MD, secondary physician, Surgery Department.
10. Milan Neskovic, MD, physician trainee, Surgery Department.
11. Hugo Zechmcister, MD, chief physician, Department for skin diseases and syphilis.
12. Eugen Dzinbanovski, MD, secondary physician, Department for skin diseases and syphilis.
13. Milos Besarovic, MD, physician trainee, Department for skin diseases and syphilis.
14. Ladislav pl. Mikucki, MD, chief physician, Department of gynecology and midwifery, National health advisor.
15. Kosta Delyannis, MD, asistent physician, Department of gynecology and midwifery.
16. Petar Spicnagel, MD, physician, Department of gynecology and midwifery.
17. Karl Bayer, MD, chief physician, government advisor, National health advisor, Head of Department of mental illness.
18. Egon Zahradka, MD, County physician, Department of mental illness.
19. Roman Wodynski, MD, K.M.F.J., National health advisor, government advisor, pathologist of the State (Landesspital) hospital.
20. Maks Teich, mag. Ph., provizor of the hospital pharmacy.

21. Karl Anderle, mag. Ph., pharmacy assistant of the hospital pharmacy.

Health professionals in County hospitals

1. Arnold Lederer, MD, County physician, Manager of the County hospital in Cazin.
2. Otto Pravdic, MD, County physician, Manager of the County hospital in Gacko.
3. Aleksa Fiedmann, MD, County physician, Manager of the County hospital in Gorazde.
4. Eudoksije Tomovic, MD, County physician, Manager of the County hospital in Kladanj.
5. Stevo Kukric, MD, County physician, Manager of the County hospital in Kotor Varos.
6. Dragan Plentaj MD, County physician, Manager of the County hospital in Livno.
7. Mavro Lefkviets, MD, County physician, Manager of the County hospital in Srebrenica.
8. Otto Rostok, MD, County physician, Manager of the County hospital in Vares.
9. Aleksa Dorner, MD, County physician, Manager of the County hospital in Kljuc.

Health professional at the municipal hospitals

1. Jan Skarda, MD, city physician, manager Municipal hospital in Banja Luka.
2. Ivan Majnaric, MD, secondary physician, Municipal hospital in Banja Luka.
3. Herman Korbel, MD, municipal physician, manager Municipal hospital in Bihac.
4. Leopold Pejic, MD, municipal physician, manager Municipal hospital in Bijeljina.
5. Eduard Hermmann, MD, County physician, manager Municipal hospital in Bosanski Novi.
6. Bernard Otokar, MD, municipal physician, manager Municipal hospital in Brcko.
7. Josip Grunberg, MD, municipal physician, manager Municipal hospital in Derventa.
8. Mavro Horn, MD, County physician, manager Municipal hospital in Foca.
9. Martin Bleicher, MD, District chief physician, manager Municipal hospital in Konjic.
10. Fridrik Trammer, MD, city primary physician, manager Municipal hospital in Mostar.
11. Antun Pesic, MD, secondary physician Municipal hospital in Mostar.
12. Petar Ivanovic, MD, city physician, manager Municipal hospital in Prijedor.
13. Josip Krutina, MD, County physician, manager Municipal hospital in Prnjavor.
14. Siegfried Sohweiger, MD, city primary physician, manager Municipal hospital in Travnik.
15. Risto Jeremic, MD, municipal physician, manager Municipal hospital in Donja Tuzla.
16. Micielav Marowski, MD, manager Municipal hospital in Visegrad.
17. Josip Kostic, MD, manager of the Spa Ilidza, Sarajevo.

Health professionals in Military hospitals

1. Maximilian Schneider, MD, headquarters chief physician of II grade, commander of the Military hospital No. 25 in Sarajevo.

2. Gotlib Bohumil (Bogoljub) Arnstein, MD, headquarters chief physician of II grade Military hospital No. 25 in Sarajevo.

3. Ludvig Steinitzer, MD, K.M.F.J., headquarters chief physician of II grade Military hospital No. 26 in Mostar.

4. Josip Lowental, MD, headquarters physician Military hospital No. 26 in Mostar.

5. Aleksa Majewski, MD, K.M.F.J., headquarters chief physician of II grade in Banja Luka.

6. Joshapet Janowski, MD, headquarters physician in Banja Luka.

7. Hugo Antal, MD, headquarters physician in Nevesinje.

8. Edmund Geduldiger, MD, headquarters chief physician of II grade in Trebinje.

Health professionals in military pharmacies

1. Karl Brandhuber, manager of military pharmacy in Sarajevo.
2. Franjo Glas, chief officer of military pharmacy in Mostar.

Medical staff in State hospital from 1910 to 1918

At the end of 1910 at the State hospital - "Landesspital" in Sarajevo worked following physicians: Ivan Knotz, District chief physician, as Manager of the hospital. At the Department for internal diseases: Ludomil Korcinski, as primary physician, Hamdija Karamehmedovic as secondary physician, Mustafa Kadic, as trainee physician. At the Department of Surgery: Josef Preindlsberger as primary physician, Milivoje Kostic as assistant, Ejub Mujezinovic as secondary physician, Muharem Midzic as secondary physician and Dusan Selecki as secondary physician. At the Department of dermatology and venerology Hugo Zechmeister as primary physician, Milos Besarovic and Aleksandar Gluck as secondary physicians. At the Department of gynecology and obstetrics: Ladislav Mikucki as primary physician, Kosta Delijanis as assistant, Petar Spicnagel and Katarina Selecki as secondary physicians. At the Department for mental diseases: Karl Bayer as primary physician and Egon Zahradka as County physician. Pathologist of the hospital was Roman Wodynski and provisor of the pharmacy Max Teich, Mr. Ph and Carl Anderle, pharmacy assistant.

During 1911 at the Department of internal diseases came Ljubo Bilic, physician trainee, at Department of Surgery came: Murat Saric and Dusan Selecki as secondary physicians and Lazarevic and Staka Cubrilović as physician's trainee. At the Department of dermatology and venerology came Franz Lisicki and Dragutin Herlinger, as secondary physicians and Paul Atanackovic as physician trainee. At the Department of gynecology came Muhamed-beg Zecević, secondary physician and Sava Kolar, physician trainee, and Petar Spicnagel left the Department. During the World War I State hospital in Sarajevo, as all other hospitals in B&H mainly took care of wounded, mostly from Salonika Front. Besides founding of several so called backup hospital, Jajce military barracks functioned as the hospital for malaria.

At the beginning of 1918 at State hospital in Sarajevo worked: Ivan Knotz, National advisor as the tempo-

rary manager, Ludomil Korczynski, primary physician of the Department of internal diseases, Josef Preindlsberger, primary physician of the Department for surgery and ophthalmology, Milivoje Kostic, primary physician, Aleksandar Gluck, primary physician of the Department for skin and sexually transmitted diseases, Ladislav Mikucki, primary physician of the Department of gynecology and obstetrics, Theofil Koetschet, primary physician of the Department of psychiatry, Emil Prasek, chief of Department of pathology, Pavao Kaunitz, pathologist, and as assistant physicians, when needed, at all departments worked: Egon Zahradka, Josip Folgar, Kosta Delijanis, Hamdija Karamehmedovic, Dragutin Herlinger, Ljubo Bilic, E. Jovanovic, Savo Salatic, Milan Radulaski, Ivan Stupnicki, V. Jojkic, Ahmed-beg Rizvanbegovic, Vjekoslav Glavanovic, Rafael Papo, Ivo Pehovac, Vladislav Delijanis, Arnold Laufer, Ratchel Wisberg. At the hospital pharmacy worked Max Teich, and Carl Anderle. By the end of the World War I there were several changes of the existing staff within hospital some physicians left the State hospital, but exact data does not exist.

6. THE MOST INFLUENTIAL PHYSICIANS IN OTTOMAN AND AUSTRO-HUNGARIAN PERIOD

6.1. JOZEF KECET (KOETSCHET) (1830-1898)

Jozef Kecet (Joseph Koetschet) has worked in Mostar and Sarajevo as personal physician of Omer Pasha Latas, and later of Topal Sherif Osman Pasha, the Ottoman governor of Bosnia (1861-1869) (Figure 3). Born on 14 February 1830 in Delémont, Switzerland. Studies completed in Bern, Vienna and Paris. After completion of medical school he went to Turkey, where he worked as a Turkish military physician in the Crimean War (1853-1856). Accompanied by a controversial Omer Pasha Latas, Kecet came to Bosnia, where at one time worked as a Turkish military physician and as a personal doctor of Topal Sherif Osman Pasha. It is known that he also tried to deal with diplomacy, as the Austro-Hungarian officer, and that he was offered the services of personal physician of the Montenegrin prince, which he refused with a large dose of diplomacy. Accompanied by Omer Pasha Latas returned to Turkey, and after death of Omer Pasha in 1871, Kecet coming into conflict with the military powers in Istanbul and he returned to Bosnia and Herzegovina, in the city of Mostar, where at one time worked as the city doctor. He left Mostar after several years, and in 1875 he worked in Sarajevo as the city physician. He died on 22 July 1898 in Sarajevo and was buried in the cemetery Kovaci. He had two sons, Aleksandar, born 10 May 1862, and Teofil Ladislav Kecet (Theophil Koetschet), born 29 April 1864, which graduated in medicine in Vienna.

Important and interesting fact recorded in the literature is that in Vakuf's hospital in Sarajevo, opened on October 8th of the 1866, in the year 1791 Dr. Karel (Karl) Bayer (1850-1914), who was Direc-

Figure 3. Dr. Jozef Kecet, founder of the Vakuf's hospital in Sarajevo

tor of Vakuf's hospital from March 1885 (and had also private surgery in Sarajevo at his flat in Prusackova street 17)) carried out the earliest recorded neurosurgical operations for epilepsy (on three patients with post-traumatic epilepsy) (29-31, 35). All three patients had suffered from epileptic fits caused by bone fragments in the brain. The operations consisted of craniotomy, removing of the bone fragments and closing the dura mater. The patients were reported cured (31). Dr. Bayer was member of State Health Council from 1896 and also the first President of Society of physicians of Bosnia and Herzegovina (35).

6.2. MEHMED SERBIC (1847-1918)

Mehmed Serbic Sami was born in Sarajevo 1847 where he finished high Ruzdi. After Ruzdi went to Istanbul and remained there for 12 years. In that period graduated medical studies in 1873 at "Ecole de Medicine", opened in 1843 in Istanbul (Figure 4). He has diploma in Turkish and French. In 1874 he was appointed as physician in Tuzla, Zvornik province, and worked till 1866 when Hastahana closed and Dr. Serbic continued to work in new opened hospital. In 1879 he notified diploma at Vienna University. As a physician he followed the Bosnian pilgrims to Mecca in 1892, when 120 pilgrims from 59 of them died from the plague. As a physician, he participated in the war against the Austro-Hungarian 1875-1876, around Bijeljina. He is the founder of Kiraethana (Library) in Tuzla 1891 where he was Director until 1914. A regular member of the Medical Association of the Croatian Kingdom and Slovenia became on 1 January 1896. He had spoken Turkish, Arabic, Persian, French, Greek and German language. On Turkish language he had written in 1869 the book "Kavanini Dzerahin" - "Surgery regulations" as the first edition manuscript of treating wounds. Practically it was the first book about surgery in B&H, containing 369 pages in 24 chapters, and which included large sections of the surgery. To him and other doctors this was an outstanding guide. His daughter Dr. Hiba Serbic Ramadanovic was the first Muslim woman who graduated medicine in Belgrade in 1939. The first Muslim woman physician in B&H was Sevala Iblizović, graduated medicine in Zagreb in 1931.

Figure 4. Dr. Mehmed Serbic, founder of the Vakuf's hospital in Tuzla

6.3. JULIJE MAKANEC (1854-1891)

Julije Makanec comes from the Croatian noble family Makanec. After Baron Jelacic abolished the celibacy, the family sold all their possessions and moved to Zagreb, and later to Bosnia and Herzegovina Travnik and Sarajevo) (Figure 5). Dr. Julije Makanec II was a physician, a member of the City Council of Sarajevo. He was one of the experts who came to Sarajevo in 1879 to be the chief city pharmacist, then became a temporary dis-

trict physician, and he was also a police physician. In 1884 he founded the „Bosnische Post“ magazine and opened a printing house in his house in Kulovica Street under the name of „Spindler and Loschner“ (his partner and his wife, by the birth of Loschner). Later he sold the magazine to the first editor of Eugene Topffer, and the press gave Spindler a lease. Through

Figure 5. Dr. Julije Makanec, founder of National Museum

the „Bosnische Post“ - „Bosanska posta“) magazine, a public call was sent to interested parties to support the establishment of a special Museum Society for Bosnia and Herzegovina that would work on preparations for museum establishment. To prevent the destruction of archeological antiquities and their relocation from the country in 1880 he founded the first Archaeological Society. Dr. Makanec was long-term Director of the Society. He invited expert (in 1886) Dr. Ciro Truhelka, archeologist of the Museum of Arts and Crafts in Zagreb, to come to Sarajevo and help in organisation of Museum. Truhelka will later be profiled as one of the most eminent researchers in BiH, but will also be long-term director of the National Museum. Delighted with this project, the City Administration, supported by H.E. Benjamin Kalaj (Kallay), assumes funding for the Archaeological Society, which in 1888 opened the first museum in BiH with the help of Kosta Hörmann, Karl Pač (Patsch), Ćiro Truhelka and Vejsil Ćurčić. The museum was initially housed in the Gazi Husref-bey palace building. The Society then gathered around 500 members and immediately started working not just for collecting and studying the antiquities, but also for exploring nature. When the National Bank of Sarajevo was founded, it became a member of the management of the first and second year since its foundation. The exchange office of Josip Loschner was also one of the initiators of the deceased, and in the latter years he was reluctant to take a bathing place in Kiseljak to obtain a lucrative voice in and out of the country. From these short lines, Dr. Makanec, apart from his medical attendance, has been living actively in municipal, cultural and economic affairs, gaining a great reputation and respect. As a doctor, he created a friendly social position for himself, as rarely one of Austro-Hungarian citizens. His scientific education, beside medical education, was extensive. Apart from mother's language, he spoke several foreign languages, and also Turkish. He was a man of his own mind, objective in mind, full of different ideas. Dr. Julije Makanec died of an illness in 1891 in Jeddah (Džeda), where he was a physician of Bosnian Hajja's on a pilgrimage to Mecca. Makanec than was only 37 years old (4-6).

5.4. TEODORA KRAJEWSKA (1854-1935)

Teodora Krajewska (called her Dr. „Quine of Bosnia“), was a Polish-born Austro-Hungarian physician, writer

and teacher. Teodora was born in Warsaw in 1854, then part of Russian Poland (Figure 6). She left Warsaw in 1883, travelled to Switzerland and enrolled in the University of Geneva. Krajewska first studied physiology, becoming the first female teaching assistant in the university's history, and then took up medicine. Krajewska passed her final exams in 1891 and received an award for her doctoral dissertation the following year, but found that she could not obtain the nostrification of her diploma or practice medicine in her homeland (5, 34). In 1892, she was hired by the authorities of Austria-Hungary to work as a public health official in Bosnia and Herzegovina. One of the first women to practice medicine in

Figure 6. Dr. Teodora Krajewska

Bosnia and Herzegovina and Austria-Hungary, Krajewska mainly treated Bosnian Muslim women, whom she regarded as susceptible to particular health problems. Due to the specific health situation in the country at the end of the Ottoman and Austro-Hungarian period beginning, there was a need for the involvement of women physicians, who are required to have doctors in general medicine and a good knowledge of the Bosnian language. At that time, women could only study at medical schools in Switzerland and in Vienna - at the early twentieth century, 1901 the study of medicine has become available in Vienna for women. The State Government had intended to systematize the place of women doctors in a hospital in Sarajevo, seeking to be appointed for two women students of the Faculty of Medicine in Zurich (34). If these measures proved useful, place the physician would be entrusted to women and doctors in other places. The circle of women candidates was narrowed down to the Czech and Polish women (34). Prejudice against them were enhanced because of the political situation. Their task was to offer free medical help and advice to women who have just birth and their patients in the home or clinic. These two physicians were pioneers in scientific research activities in Bosnia and Herzegovina.

Krajewska wrote detailed notes about the state of women and Muslim customs. These writings, published in 1989, reveal the patronizing attitude towards Muslims that was common for the era. Krajewska stayed in Bosnia after the collapse of Austria-Hungary but the loss of eyesight forced her to retire in 1922. In 1928, she moved back to Warsaw, a decision she regretted, where she died. Austro-Hungarian districts of Bosnia and Herzegovina. Krajewska was first responsible for the towns in the district of Tuzla and then for those in the district of Sarajevo. Teodora Krajewska was named the public health official (Amtärztin) of the District of Tuzla with the rank of captain by the decree of 28 November 1892. In order to perform obstetric and gynecological procedures, she undertook training in a clinic in Vienna. Women could

not study or practice medicine in Austria-Hungary at the time, but exceptions had to be made for Bosnia and Herzegovina, where Muslim women refused to be treated by male physicians. Krajewska was thus not only one of the first female physicians in Bosnia and Herzegovina but in Austria-Hungary as well. Seven women in total were employed to treat Bosnian women; Krajewska was one of the three Russian citizens and one of the two ethnic Polish's, including Bohuslava Kecková. Before assuming her office, Krajewska had to take Austro-Hungarian citizenship. She succeeded Anna Bayerová, a Czech, who had resigned shortly after her appointment due to frequent disagreements with her military superiors. Bayerová was unwilling to care predominantly for Bosnian Muslim women, as her superiors had expected, while Krajewska embraced the task (34). Krajewska's arrival in Tuzla in March 1893 was announced by the town crier. She was dismayed to find "these marvellous Slavic women covered by veils". Krajewska learned Serbo-Croatian quickly. She usually rode a Bosnian pony on her visits to remote mountain villages but had to travel by foot when the winters were too severe for the horse. The demand for Krajewska's services was such that the Austro-Hungarian authorities soon employed Bohuslava Kecková, another Polish, who took up post in Mostar. She returned to Warsaw, now capital of Poland, in 1927. She found that the city had changed immensely and she did not feel at home there anymore. She had been one of the best known and most respected people in Sarajevo, but only an anonymous old woman in Warsaw.

5.5. GEZA KOBLER (1864-1935)

Geza Georg Kobler, born on 3 June 1864 in Osijek in Slavonia. He studied in Vienna and graduated in 1887. He worked as a secondary physician and an assistant at clinics Bamberger, Mexnert and V. Schrotter (Figure 7). In 1894 was invited to Sarajevo to act as the Head physician (Primarzt), doctor of Internal medicine and Director of the newly established Landesspital in July the 1st of 1894 (5, 6, 31). In 1911 he returned to Vienna as a medical and veterinary officer of the Ministry of Internal Affairs, and with that duty in 1919 he was retired. Upon his return to Vienna for a time worked as a medical specialist with the Commission for the disabled and as a member of Council of doctors of the Provincial Government of Lower Austria. His scientific work related to internal medicine, pulmonology, medical chemistry, especially in blood diseases, kidney disease and infectious diseases and public health. Regardless he published books, "A foreign body in bronchi and the effect caused by these states", Vienna, 1895, "Quarantine - a question in the international sanitary legislation" from 1898, "Sur les quarantains dans les Roysers d'épidemies", Paris 1900. In 1903 he chaired in Sarajevo Con-

Figure 7. Dr. Geza Kobler, the first Director of the Landesspital in Sarajevo in 1894

gress of German's Society of Dermatology. In 1910 in the "Annual of Landesspital", as Head physician, Dr. Kobler reported that public health in B&H was approaching the ideal of an entirely "nationalized" public health system - efficient combating of epidemic and endemic diseases in B&H was more advanced than every else in the Monarchy (5). He passed away in Vienna in 1935.

5.6. JOSEF VON PREINDLSBERGER (1863-1938)

Josef Preindlsberger (von Preindlsperg) was born on 6 March 1863 in Vienna, where he studied and graduated in 1887. His education was acquired in clinics and wards of the Vienna General Hospital. One time was a Weinlechner assistant. From 1893 to 1919 he worked as chief physician of the Department for surgery of the State Hospital (Landesspital) in Sarajevo (5, 6, 27, 31) (Figure 8). As perfect surgeon, assistant of famous Vienna's professor Billroth, he had great reputation in Sarajevo. In one important fact from February 1899 (recorded in "Bosnische Post") was written that Dr. Pre-

Figure 8. Dr. Josef Preindlsberger during surgical treatment in hospital

indlsberger tested X-ray equipment in Sarajevo at one young boy with wounded chest. It was only four years after discovered X-rays by Wilhelm Conrad Roentgen's Y-rays in 1895. After the war he had to leave Bosnia, and since been residing in Vienna. His scientific papers relating to various fields of surgery, especially urological surgery. He has released a publication entitled "Treatment of tuberculosis of joints", Vienna, 1894 and over 40 other scientific papers, most of them in "Godisnjak Zemaljske bolnice u Sarajevu" in German language. He married in 1896 with Milena Brozovic, who was the first woman journalist in BiH and the first journalist a professional in BiH at all, the first woman's editor and first woman publisher in B&H. In addition, in 1889 she became the first female member of the Anthropological Society of the Habsburg Monarchy in Vienna. Therefore, for the women's cultural history of Bosnia and Herzegovina and the female question Milena Mrazovic von Preindlsberger is extremely important. In the same year (in 1896) she was married a doctor of the Landesspital in Sarajevo, Dr. Josef Preindlsberger, leaving the "Bosnische Post" department and turning to writing books and texts for various European newspapers. She wrote about all the important events such as the annexation of B&H, the murder of the H.E. Franz Ferdinand by Gavrilo Princip. In 1900,

the book „Bosnisches Skizzenbuch“ was published in Innsbruck, and in 1905, also in Innsbruck, „Bosnische Volksmaerchen“, containing 15 folk tales that she chose as the most beautiful of this large collection. Illustrations for the book were then made by famous Ewald Arndt. Milena Mrazovic has written an interesting story from the first days of the occupation of Sarajevo under the title „Grabesfenster“, The new book was a great book written „Bosnische Ostbahn“ (Wien, 1908) and eventually again „Bosnisches Skizzenbuch“ (Dresden, 1909). The Roman of the dervish life of the Baptist Order remained unfinished. In addition to the excellent sound of the piano, Milenina's artistic activities included compositional - compositions that moved within the framework of small-format piano arrangements. Her compositions are the earliest available traces of compositional practice in Bosnia and Herzegovina.

5.7. LEOPOLD GLUCK (1854-1907)

Leopold Gluck was born in 1854 in Novi Sad. He studied high school and University in Cracow. One time he was a student and professor Hebras Zenels in Vienna. In 1881 has been appointed by the Provincial Government of Bosnia and Herzegovina as district doctor in Prnjavor (Northern Bosnia), and in 1883 year for the district physician in Travnik (5, 6) (Figure 9). Since 1886 he worked as a physician of the Prison in Zenica, and in the 1894 the chief physician of newly established Dermatology-venerology Department of the State Hospital (Landesspital) in Sarajevo. From 1901 he was appointed to director of the eponymous hospital and remained in that position until his death 1907.

Figure 9. Dr. Leopold Gluck

5.8. OTTO VON WEISS (1857-1901)

Otto von Weiss, born on 23 October 1857 in Graz as the son of a local historian. He graduated his studies in his hometown in 1880, and then worked as an assistant

Figure 10. Dr. Otto Weiss - at Gynecology and Obstetrics department of Landesspital in Sarajevo in 1894

on anatomy in Graz. Since 1881 to 1884 he worked as a cadet at the clinic operator Billroth, since 1884 until 1885 on the Clinic Carl V. Braun, then as an assistant in the Department Gustav V. Braun in Vienna. In 1892 habilitated Gynecology and Obstetrics, and in 1894 he became Chief Physician in Midwifery/Obstetric-Gynecology Department of newly established State (Regional) hospital - Landesspital in Sarajevo, where on the 5 February 1901 died (5, 6, 31) (Figure 10). Except that gained fame in his works on obstetrics, is also responsible in particular for the repair of medical relations in the, in that time, conservative Bosnia. He developed „Guidelines for midwives“, as practical rulebook for physicians. were he described new ways to improve obstetrics - it was a ten-years project realized in correspondence between Vienna and Sarajevo hospitals.

5.9. PAVLE KAUNIC (1884-1960)

Pavle Kaunic (Paul Kaunitz) was born in Vienna in 1884. His father, a physician, gets his post at the Bihac Hospital in 1886, and Kaunic begins his primary education in Bihac, and complete it in Fojnica. Graduated at Gymnasium in Sarajevo. He enrolled at the Medical Faculty in Vienna and completed his studies in 1909 (5, 6, 35) (Figure 11). As a scholar of the Government of B&H he spent four years at the specialization at the Vienna Faculty of Medicine with professors: Weichselbaum, Koliska, Paltauf. After completing specialist examination in 1913, he was appointed as assistant to the pathologist of the Sarajevo State Hospital. During the First World War he was engaged in Military medical corps as a hygienist and bacteriologist and works to prevent and control epidemics in several cities of BiH. After the end of the war, he returns to the job of the assistant of the pathologist at the State Hospital in Sarajevo and in 1919 he was appointed as general pathologist. In the year 1925 he was named as the Head of the Institute for Epidemiology and Director of the Institute of Hygiene in 1929. From this period, he will be remembered as a participant of the event - embalming Prince Ferdinand and his wife Sophia at the „Konak“ Residence on June 28, 1914, following the assassination with supervision of Colonel of 25th Military hospital in Sarajevo, Dr. Gotlib Arnstajn (35). The Sarajevo Assassination is one of the medias and film's most processed events in history and the theme of many texts of different scale and character. The Sarajevo assassination and the practical cause of the start of the First World War on July 30, 1914, with the announcement of the war from Austria to Serbia. This is because it was considered that Serbian extremists, led by Gavrilo Princip assassinated the Franz Ferdinand and his wife Sofia of Hohenberg. The

Figure 11. Dr. Pavle Kaunic

subject that has provoked a lively interest and has been subject to mystification for many years in various ways is whether the murdered princess of Sofia was possibly pregnant and carry Ferdinand's baby in the womb, which was launched in 1924 by writer Borivoje Jevtic, close to the assassins and their circle (35). Until the publication of Jevtic's memories under the title „Sarajevo Assassination“, about the possibility that the 47-year-old Duchess was pregnant, there was no mention in the public. After the assassination, the Viennese press was full of bombing news, which was soon denied. It was written about the dozens of conscripts deployed in Sarajevo, about explosives on trees, government facilities ... even under the table for a festive lunch at the Konak residence. The worst scenarios were considered, but there was no word about the possible pregnancy of unlucky Sofia, given the fact that earlier (in 1909) - the top Viennese medical authorities strongly recommended that Sofia avoid the pregnancy in the future, given that in that years she had a stillbirth. It is difficult to assume that Sofia did not follow the advices from her doctors. However, crown proof that an undocumented Austro-Hungarian emperor was not pregnant represents the autopsy and embalming of the dead bodies of Sofia and Ferdinand, which took place between 28 and 29 June 1914. The key participant of this operation was the pathologist of the State Hospital (Landesspital), doctor Pavle Kaunic, who described the flow of the autopsy in 1958 to publicist Radivoje Papic and whose full text was published in the book by Izet Masic „The Roots of Medicine and Healthcare in BiH“ (5, 6). After the assassination, it was reported from Vienna that there will be a team of specialists in Sarajevo who will embalm the bodies of Sofia and Ferdinand. However, on the same day (June 28, 1914), the military courier handed to doctor Kaunic the letter by which Dr. Rihard Pollak urgently invited him to the Military Hospital. Dr. Polak asked Dr. Kaunic if he had the instruments and the chemicals needed to embalm the bodies of the killed. After confirmation, Dr. Kaunic was ordered to do all the preparations for autopsy and embalming with assistants Dr. Rihard Pollak and Dr. Edward Hecht. The telegraphic order arrived from Vienna, so the operation started around 22:00 hours on June 28. First Dr. Kaunic removed the blood from the blood vessels and the blood vessels were washed with saline. The bodies are embalmed with the use of glycerin and formalin. The internal organs were treated separately, according to the custom that they applied in the Habsburg dynasty. After the section provided a thorough and detailed insight into the condition of the dead bodies of Sofia and Ferdinand, the team practitioner also carried out the necessary formalities prescribed by law. A detailed report was compiled and the Death certificate completed. Pregnancy was not mentioned even as the indication, because it was not present. Before the completion of the autopsy of Sofia and Ferdinand by Dr. Kaunic and his assistants in Konak were brought the Sarajevo painter Rudolf Valic and his wife Ludmila, which was the sculptor. Ludmila Valic took the dead masks from the face of the Duke and the Duchess, and Rudolf Valic first sketched an interesting

multicolored tattoo of the forearm, created in Japan on Ferdinand's journey around the world, and then made a portrait of the dead Duke. Later, on the basis of that sketch, Valic produced a portrait of Ferdinand in oil. Later, death masks were handed over to the Emperor and the Duchess children, and the tattoo drawing was taken away by the police (35). On the 28th of August, 1914, Dr. Pavle Kaunic was awarded the Order of the Franciscan Order of the Franz Jozef I. At the beginning of the Second World War he was released from duty and returned to the duty of the bacteriologist of Military corps during the war. After the end of World War II, he led the Institute for Hygiene, the Institute for Epidemiology and works as a bacteriologist at the Military Hospital in Sarajevo. In 1949 he returned to the position of head of the Autopsy department of the Clinical Hospital in Sarajevo. On June 1950, he was elected for a part time professor at the Department of Forensic Medicine at the Faculty of Medicine in Sarajevo, which he successfully ran until his retirement in 1956. One time, until the arrival of professor Zvonimir Kopac at the Institute for Pathological Anatomy, also lectured on this subject. He has published several scientific and professional papers, of which he is known as the „Wiener klinische Wochenschrift“, No. 38: „Zur Kasuistik des Primary Trachealkarzinoms“, published in 1920, and the manual „Court Autopsy of a New-born“ in 1954 (5, 6).

5.10. EMIL PRASEK (1884-1934)

Emil Prasek and his wife Branislava Cakzynska-Prasek (1887-1958) played a significant role in the development of health care services in Bosnia and Herzegovina between the two world wars (5, 6, 31) (Figure 12). Doctor Emil Prasek from the 1909 joint prosekture of Vilhelm hospital in Vienna with Professor Karl Landsteiner and Dr. Branislava Prasek worked with professor of pediatrics Clemens von Pirquet, at Childrens Hospital in Vienna. Dr. Emil Prasek was already a distinguished researcher and scholar with a European references. During the First World War worked as a doctor at the front as the bacteriologists in fortress Przemyśl, where he had the opportunity to meet with extreme manifestations of poor hygienic conditions and, consequently, a severe infectious disease that is resistant on only succeeded in his own way. In the winter of 1914 by the decree he was sent with his wife in Sarajevo. In the world by building hospitals adapt prosekture in the microbiology institute, where he worked as a bacteriologist and terrestrial prosector of State Hospital - Landesspital after the departure of Dr. Roman Wodynski and mobilization of his assistant Dr. Pavle Kaunic. His

Figure 12. Prof. Emil Prasek, pioneer of the Public health in B&H, Dean of the Faculty of Medicine, University of Zagreb, Croatia

wife, Branislava at the same time working at Department of gynecology and obstetrics, chaired by Chief physician Vladislav Mikucki, as a pediatrician. Dr. Emil Prasek in 1915 went to Bosanski Brod to deal with outbreaks of cholera, typhoid and then in other places in Bosnia and Herzegovina. Toward the end of the First World War he becomes head of the Health Department following the departure of Dr. Bruno Curinaldi, who was retired, and Dr. Uros Krulj, who was elected as Minister of Health in Belgrade. On that occasion are presented, the so-called patents "The Sarajevo tunnel ciklonization wagons" to combat typhus, using cyanohydrogen to destroy face and bed bugs. In 1921 Dr. Emil Prasek goes for the professor of Hygiene at Zagreb, at the invitation of his good friend Professor Drago Perovic, with whom he worked in Derвента at the beginning of war, where he teaches pathological anatomy, bacteriology and hygiene. In academic year 1922-23 he was appointed to Dean of the Medical Faculty in Zagreb, and was later re-elected several times. He was a regular member of the Health Council of Croatia and Slavonia, and the state controller for medications. The last days of his life he spent working at the First Yugoslav Pharmacopoeia. Dr. Branislava Prasek in Zagreb worked as a pediatrician and medical educator in several institutions: School Polyclinic Hospital Fund State Railways, the Department for Protection of Mothers and Children by Ministry of Public Health, etc.

5.11. HAMDİJA KARAMEHMEDOVIC (1883-1968)

Hamdija Karamehmedovic was one of the most educated physicians in Bosnia and Herzegovina. He was born in Trebinje in 1883, Grammar school graduated in Sarajevo in 1903, and Medical University in Vienna in 1909 (5, 6, 28, 24, 30-33). In the year 1910 he was elected as secondary physician in the Landesspital - State Hospital in Sarajevo, and at the list of opposition deputy in the B&H Parliament (Figure 13). In 1918 he was elected to head the Department of Infectious Diseases in the Landesspital with the rank of Head physician. For Minister for Health of Yugoslavia Kingdom was elected in 1921, and dismissed a year later. Since 1924 is again the head of the Department of Infectious Diseases of State Hospital (24), and since 1931 he worked as the Director of the State Hospital. In 1932 he retired. In retirement he worked on a number of functions at the Association of physicians of B&H, and also was much engaged in the historiographical work at the Central Institute of Hygiene (Centralni Higijenski Zavod, today Public Health Institute of Derivation of B&H). With professor of Persian language, Sakir Sikiric, he translated about 50 books from Arabic, Turkish and Persian languages, of which the most

Figure 13. Dr. Hamdija Karamehmedovic, minister of health of KSCS, in 1921

important book is "Mudgez al-Kanun" - "Excerpt of Canon", written by Alauddin ibn Nafis in 13th century. He was editor of the magazine "Life and Health", published the "French School of Medicine" in 1951, "The grammatical rules of Turkish language" in 1955 and many of other works. He has visited several university medical centers in Europe with the intention to bring together qualified medical personnel for the founding of the first Faculty of medicine in Bosnia and Herzegovina - in 1914, but the First World War broken his idea to realized building up the first Medical University in former Yugoslavia (5, 6).

6. CONCLUSION

Some of the facts described in this article illustratively showing that health care system in B&H in Austro-Hungarian period was very functionally organized. The same impression could be say also for educational system organized by Austro-Hungarian model at all levels of education in this part of the Europe.

- **Author's contribution:** I.M. gave substantial contributions to the conception or design of the work in acquisition, analysis, or interpretation of data for the work and gave final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
- **Conflicts of interest:** none declared.
- **Financial support and sponsorship:** None.

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Figure 14. Cover page of the book "First hospitals in Bosnia and Herzegovina", written by Izet Masic

Figure 15. Cover page of the book "History of medicine in Bosnia and Herzegovina", written by Izet Masic

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