

Emergency Money in Hungarian Pharmacies from World War I to the Hungarian Soviet Republic

Attila Szabó^{1,2}, Miklós Vecsernyés¹ and Ildikó Bácskay¹

1. Department of Pharmaceutical Technology, Faculty of Pharmacy, University of Debrecen, Debrecen 4032, Hungary

2. Bethlen Pharmacy, Debrecen 4026, Hungary

Received: December 09, 2013 / Accepted: February 17, 2014 / Published: February 28, 2014.

Abstract: All of the existing emergency notes of pharmacy in Hungary between 1914 and 1919 were collected, presented and studied. The concept of emergency money, the causes and circumstances leading to its development were defined. The historical backgrounds of these reasons were studied and presented in chronology order. The various issued emergency money of pharmacy was classified and demonstrated in pictures. When an economic crisis turns up in the life of mankind, special solutions will occur. World War I breaking out a hundred years ago and the Hungarian Soviet Republic created such a situation in Hungary. The official currency was replaced with a new one, the amount of which could not cover the daily purchase of people. The lack of change led to print numerous emergency notes in different fields of life. In this study, all of the so-far discovered pharmaceutical emergency money was collected and presented systematically. The paper is considered to be unique since in the field of the history of pharmacy similar ones have not been born recently. The released notes provide an instantaneous picture of the industry (art, typography, chemical industry etc.) of the given country as well. These pieces of paper are regarded to be valuable treasure among numismatics.

Key words: Pharmacy, notes, emergency money, the Austro-Hungarian Monarchy, World War I, the Hungarian Soviet Republic.

1. Introduction

Collecting historical evidence related to the profession of pharmacist dates back to the end of 19th century and the beginning of the 20th century. During the World War I a lot of them were destroyed. When the economic situation of the countries involved in the war started to improve, the survived material memories helped people remember good times in the past. The topic of emergency money is related both to the profession and to numismatics.

In terms of history of science numismatics is a very essential resource. It often helps to interpret questions of history of economy as well. The images, subtitles also help understanding a historical era [1].

In Hungary, Faludi is considered to be the first to study Pharmacy-related coins and keep appropriate

grouping [2]. These are the following: (1) pharmacists' personal coins; (2) reward coins; (3) pharmacists guilds, corporations, school association coins; (4) congress and exhibition coins; (5) coins of herbs and botanical gardens; (6) advertising coins of pharmacies and medicines; (7) emergency money of pharmacy.

The collection of Faludi provides the core of medal collections of the Semmelweis Museum in Budapest. Later Husszar tried to illustrate coin collection of pharmacists. According to his study there are three large groups and three small ones to classify coins: (1) personal coins; (2) coins of institutions, congresses, botanical gardens; (3) advertising coins of pharmacies and medicines; (4) pharmacy-like coin weights; (5) emergency money of pharmacy; (6) bages related to pharmacy. Unfortunately, his work did not cover emergency notes between 1914 and 1918 [3]. Although Szatmary wrote a separate study on coins related to alchemia, these have never been classified into the

Corresponding author: Attila Szabó, Ph.D., research fields: history of pharmacies in Europe, pharmaceutical propedeutics. E-mail: szabo64a@gmail.com.

mentioned groups [4].

Even a previous study by Zalay investigated personal coins, coins of universities, academies, scientific societies, congresses and other events, and coins of drug companies and pharmacists issued from the 18th to the 20th century [5].

The so-far found emergency money in Europe is presented in Richter's catalog. "Notgeld Österreich Deutsch-Österreich und Nachfolgestaaten mit Nebengebieten ad 1918" by Richter Rudolf is the only catalog available in other languages.

It can be stated that available previous studies deal with only health-related coins [6, 7].

While several articles and books have been published on emergency money by numismatists, among pharmacists it has remained completely unknown. During the examined period very few pharmacies and companies issued such kind of notes. Furthermore, they turned up in small number. It often happens that a piece of paper is found when people inherit their grandparents' library or in a second-hand book store it falls out of a book by accident. It is obvious that many people wished to preserve them as cherished memories of the past, but some just used them as bookmarks without being aware of their value.

2. Searching, Buying and Organizing Emergency Notes

Finding and purchasing emergency notes was part of our personal collection mainly at auctions. Developing and working out the classification of these notes, cataloging methods, is unique, independent work. Also the definition of emergency money was needed to define. Presenting the crucial reasons leading to its development and the circumstances is partly our own research, partly on the basis of available resources.

3. Identifying One of the Curiosities of Emergency Money

According to Lente [8], company punching appeared on emergency notes. Although they were

applied to make the notes invalid but sometimes pharmacists consciously riddled their initials for authentication [8].

4. Definitions

To understand the significance of emissions of emergency money, it is necessary to define some terms.

The "**Korona**" was the first gold-based currency in our country, which was issued on the basis of the 1892.

It was the currency of the Austria-Hungary Monarchy until 1925 [9]. The "pengő" was introduced in that year through the Act XXXV. (When the "pengő" replaced it (1925, Act XXXV))

Financial crisis is not easy to be defined properly. At the macro level, decline in production growth, inflation and rising of unemployment are significant. While at the micro level, changes in consumption and in financing structure are the most characteristic [10].

The meaning of **inflation** is double. On the one hand, it means a permanent and continuous price increases, on the other hand, it expresses depreciation process [11].

Deflation means the opposite of inflation [11].

Stagflation occurs with the co-existence of inflation and stagnation, which means that economic growth stops and there is no expanded reproduction [11].

Emergency money is issued in a state of emergency by institutions without having the right of release. A siege, a war and an economic crisis when the central monetary emission is prevented are considered to be a state of emergency. They are typically paper notes, but coins, stamps, notes made of leather, silk, aluminium foil, clay, cards and crops have been used. During and after the World War I (1914-1920) in Hungary civil authorities and economic organizations issued them because of the lack of official currency. Emergency money was even used in POW camps [12]. During the invasion of Hungary in some cities like Debrecen, Pécs, Szeged and Szécsény emergency notes were issued and were used in the same way as the official means of payment and value [13].

Austro-Hungarian Empire was established in central Europe between Austria and Hungary between 1867 and 1918 with a common monarch called Franz Joseph of Habsburg [14]. It used to be the second biggest and the third most populated country in Europe [15].

Austro-Hungarian Bank was the central bank, set up on the basis of the Act XXV, 1878 as the legal successor of the Austrian National Bank [16].

The Hungarian Soviet Republic

The Tisza-led government resigned on 23rd October 1918. The opposition (Mihály Károlyi, civil radicals and the Social Democratic Party) established the Hungarian National Council on 25th October 1918. IV. Charles, the King of Hungary appointed Károlyi Prime Minister and he was sworn in front of the National Council on 1st November. On 13th November 1918 Károlyi travelled to Belgrade to negotiate the Balkan Entente military leader about a separate peace treaty between the victorious Allied Powers and Hungary. His attempts ended in failure. The French General Franchet d'Espèrey humiliated Károlyi by saying "woe to the defeated". On 4th November 1918, communists from the former territories of Hungary were called to Moscow to form a group and establish the Hungarian Communist Party. Although on 11th January 1919, the Károlyi government resigned, the National Council elected him the president of the Republic. Berinkey formed a new government but internal and external political situations forced him to resign on 20th March 1919. The following night the government of the Republic of Councils was established, chaired by Sándor Garbai but under the management of Béla Kun. The social base of the Soviet Republic declined steadily, its foreign policy was completely insulated, the economic crisis grew and the military situation became hopeless that is why the dictatorship of the proletariat was doomed to failure. Its leaders resigned on 1st August 1919 and Gyula Pótlak was asked to form a government [12, 17-19].

5. Events from the 19th Century (1860-1892)

5.1 Dreaming of the New Currency of the Monarchy

At the end of the 1860s the opening of the American "omstok-Mine" silver mines shook the basis of the silver-based currency systems fundamentally all over the world including the Austro-Hungarian Monarchy. By the end of the 1870s, it was more favourable to minting coins from silver bars since the denomination value of the money was higher than the value of the silver it was minted from. While one by one the European states were changing over to the gold-based currency system, the Monarchy was sticking to the old one. Therefore, silver from abroad was streaming into the country resulting in weakening the economy of the Monarchy. For this reason, Sándor Wekerle, the minister of finance, put forward a proposition to the Emperor suggesting a switch to the new currency system. However, this was received by the court of Vienna with some reservation, since the idea was of Hungarian origin. Finally, as Franz Joseph, the Emperor and Hungarian King signed the Acts XVII and XVIII on August 11, 1892, the gold-based currency system was adopted by the Monarchy. The new system was named after the monetary unit Korona (Krone) and called the Korona-system [9, 20].

5.2 "Korona" is the New Currency of the Monarchy

On the basis of the name of the accepted official currency, the new currency system is called Korona. The monetary standard was defined on the basis of the average Vienna stock exchange trading prices of the Napoleon (III) gold in the period 1879-1891. As a result 3208 Korona could be minted from 1 kg of gold [9]. (Fig. 1)

5.3 Coverage of the Currency

With not enough gold reserves available, the currency system was also backed by silver, and thus also called "limping" system. It must be noted that the gold reserves of the Austro-Hungarian Bank founded



Fig. 1 10 Korona gold coin from 1892.

on September 30, 1878 was matching that of the biggest European central bank by the turn of the century. The majority of this gold reserve was provided by Hungary with its grain export and the issuance of bonds [21]. As a background, during the Crimean War (1854-55) and the American Civil War (1861-65), both the Ukrainian and American grain disappeared from the world market.

6. Events from the 20th Century (1912-1914)

6.1 Protection of Precious Metal Reserves in the Monarchy

The outbreak of World War I caused panic in the financial world. Neither the governments nor the banks were prepared for the possibility of a war. They did not take the necessary measures and thus a massive shortage of money took place when people started to withdraw their deposits from the banks. In order to protect the precious metal reserves in that war situation, gold and silver coins were withdrawn from cash flow [22]. Instead, printing of paper bank notes was ordered. The biggest disruption however was caused by the shortage of coins. Since copper and nickel were used in the military industry, to provide enough change other coinage metals had to be found [22].

6.2 The Lack of the Amount of Money Placed onto Market

In order to alleviate the disruption of the cash flow, Korona banknotes of 250, 2000 and 10,000 denomination were introduced on September 27, 1915 [22]. Paper bank notes could cover only a small part of

the lack of needed change. In order to prevent the shortage of funds 1, 2 and 5 Korona notes were planned to put into circulation [22].

6.3 The Lack of Change

The main confusion was caused by the lack of metal coins. The 10 and 20 Fillér coins were collected and new 10 Fillér coins were minted from the so-called "new silver" (an alloy). Then the government had 20, 10 and 2 Fillér coins minted from iron. (Government had the 20, 10 and 2 Fillér coins minted from iron [22, 29]. (In order to prevent iron from rusting, sherardizing was implemented.)

7. Events of the 20th Century (1914-1918)

7.1. Inflation Caused by the War

More and more states entered the war, which was getting more and more expensive. Governments fighting in the war had to face the ever growing problem of shortage of small change. This problem occurred in Germany, Belgium, Poland and in France too. This situation was further aggravated by the fact that the chief secretary of the Austro-Hungarian Bank, Frigyes Schmid refused to provide Hungary with the appropriate amount of Vienna printed bank notes [22].

7.2. Emergency Money Born by the War

The lack of appropriate amounts of small change led to the practice well known throughout history; the 2 Korona bank note issued on August 5, 1914 was simply divided into two (Fig. 2) [22]. Therefore, the Austro-Hungarian Bank hurriedly released Korona 1 dated on December 1, 1916. That step did not seem to



Fig. 2 The 2 Korona bank note issued on August 5, 1914, was simply divided into two.

help provide enough change in cash flow. In fact, there were areas mainly in the south-eastern part of the country that were completely isolated economically.

As a consequence, offending the Austro-Hungarian Bank but yet with its tacit approval, various substitutes for small change were issued by authorities or even private firms. Compared to Western European countries “emergency money” (Notgeld) of private origin was emitted at a smaller scale. Their use spread mostly in areas where the enemies threatened to attack, or in the staging area of the army. Private firms turned to this method only in order to emit very small denominations and with a variety of exchange durations. Apart from the minimally required texts decorative motifs of the printing houses can be seen on these “bank notes”. Authenticity was provided by signatures or stamps. In Hungary, the war Notgelds were made in the spring of 1915 (Fig. 3). Local small factories and businesses were forced to create their own local emergency money to be able to fulfil their businesses. Private individuals turned to this solution only with great caution, small denominations and various redemption durations [23].

8. The Outcome of World War I (1918-1924)

8.1 Effects of Losing the War on the Monarchy and the Hungarian Soviet Republic

On September 28, 1918 Chief Marshal Ludendorff announced there was no hope of the successful completion of the war and asked for the immediate negotiations with the Entente. On November 2, 1918 the World War was over. When the Austrian High Command heard the news they started to transport all of the significant values to Vienna. Libert, the government councilor launched a 50 million worth of precious goldcrown set to Vienna, which was prevented by Miksa Faragó in Budapest [17].

8.2 Effects of the Hungarian Soviet Republic on the Financial World

Mihály Károlyi who was also the Minister of

Finance and the Prime Minister of Hungary ordered on November 14, 1918 to remove the 600-year-old Kőrmöcbánya Mint because of the risk of the occupation of the Czech. First the mint was saved to Veszprém, then to a MAV-machine factory in Kőbánya and finally to the Weiss Manfréd Factory in Csepel. There 20, 10 and 2 Fillér coins were minted of iron between October 31, 1918 and March 21, 1919. The management of the central bank of Vienna granted the Karolyi Government's request and the clichés of banknotes of Korona 200 and 25 were sent to Budapest by Lajos Beck on a special train. During the period of the mentioned government, 25 Korona bank notes were not emitted. These home-made mint notes had distinguishing marks. The public did not welcome this white-backed so-called “white money”, they preferred to the previous release “blue money” which was treated by as a foreign currency. The Hungarian Soviet Republic nationalised banks and major institutions [24]. The absence of exchange, as a phenomenon, at the time of the dictatorship of the proletariat is becoming more prominent. Emergency notes became accessories of the cashflow of the Soviet Republic. Therefore, they were issued mostly between April and June 1919. After the dictatorship of the proletariat ceased, the use of these funds also ceased [25].

8.3 Other Emergency Notes are Necessary

The National Price Commission ordered that café and restaurant owners, traders and everybody else (pharmacists) to give back small change from the total otherwise they commit a crime by making the price higher than they had been and it involved paying fine.



Fig. 3 A note issued by private pharmacists in 1915.

As a result, new editions were born [26]. The difficulties of expenditure are increased by the contact of the People's Commissioner of Finance and by obstructing transport and broadcasting. Money tickets were numbered, signed and stamped when they were used.

9. Financial Situation in Hungary after the Peace Treaties Closing the War

The Peace Treaty of Saint Germain signed with Austria declared that the successor states of the Hasburg Empire had to stamp on the banknotes in circulation within two months and replace them with their own currency within a year and then the OMB was liquidated. It ended in a great amount of money, but the few stock holdings also went abroad. On June 4 1920, the Kingdom Of Hungary led by Miklos Horthy signed the Treaty of Trianon. (Hungary lost 72% of its former areas and 64 % of its population.) From Csepel the mint was moved to the Archduke Joseph Cultural Barracks where stock-yards were converted into a new mint and coinage is still going on there today. On June 24, 1924 the National Bank of Hungary was founded. On August 25, 1925 Hungary's first independent currency appeared, called Pengő and was also gold-based [27]. Further studies are needed to cover this topic.

10. Presentation of Cataloged Emergency Money

10.1 General Description of Emergency Money of Pharmacy

10.1.1 Notes Issued by Medicine Factory

Denominations: 1 Korona, 2 Korona, 5 Korona, 10 Korona

Size: 127 × 85mm, white paper with red-based color printing, leaving a 40 mm edge of the paper. On the printout, there is a man with a big beard and moustache, in front of him there is a mortar. It was issued by Chinoin Factory, so on the note the logo of the factory, a curving snake turns up. Reference can be

read about where it is accepted. Date of issuing: July 1, 1919, Újpest (Fig. 4) [28, 29].

10.1.2 Notes Issued by the Association of Pharmacists in a Hungarian Town (Szeged)

Denomination: 10 Fillér, size 43 × 30mm, front: blue background with white letters "Board of Pharmacy of Szeged", in one of the two white circular fields there a blue 10, in the other one there is a blue snake. Between the two white fields there are some words in blue "coin replacement ticket", back: rubber stamp of the accepting pharmacy or signature of the pharmacist or both.

Denomination: 20 Fillér, similar to 10 Fillér but red used instead of blue.

Denomination: 50 Fillér, similar to 10 Fillér but gray is used instead of blue (Fig. 5).

10.1.3 Private Issues of Pharmacists Notes from 1915

A pharmacist from Orsova called Ferenc Freyler issued it between 1915 and 1916. Denomination: 10 Fillér, white cardboard paper with a rubber badge frame, in the middle "Freyler Ferenc/gyógyszerész/Orsova" (name, job, town), above the frame a machine printed sequence number, size: 62 × 39 mm.

Denomination: 20 Fillér, similar to the 10 Fillér note but yellowish white cardboard was used instead of white cardboard paper.

Another pharmacist, called Daubner József, from Homokszil issued it between 1915 and 1916. Denomination: 10 Fillér, white paper with black printing in Hungarian and in German, size: 114 × 50



Fig. 4 A note issued by factories (Factory Chinoin) in 1919.



Fig. 5 Notes issued by Association of Pharmacists in a Hungarian town (Szeged) in 1919.

mm (rear seal on the back)

Denomination: 20 Fillér, similar to the 10 Fillér note.

Denomination: 50 Fillér, similar to the 10 Fillér note but greenish blue paper was used.

Denomination: 1 Korona, similar to the 10 Fillér note but orange paper was used. (Fig. 3)

10.1.4 Notes form 1919

A pharmacist called Zalay Károly from Cegléd issued it.

Denominations: 10 Fillér, 20 Fillér

A pharmacist called Illés Sándor from Cegléd issued it.

Denomination: 10 Fillér, 20 Fillér, 50 Fillér (Fig.6)
Green, blue and yellow paper was used with black printing.

A pharmacist called Hauer Lajos from Cegléd issued it.

Denominations: 10 Fillér, 20 Fillér, 50 Fillér (Fig 6.)
Yellow thin paper was used with black printing in Hungarian. Size: 44 × 32 mm.

A pharmacist called Török Gyula from Keveháza issued it.

Denomination: 20 Fillér, 30 Fillér.

A pharmacist called Frankl Antal from Szeged issued it.

Denominations: 10 Fillér, 20 Fillér, 50 Fillér.

A pharmacist called Török Márton from Szeged issued it.

Denominations: 10 Fillér, 20 Fillér. Thin blue paper was used with black printed Hungarian text, size: 30 × 27 mm.



Fig. 6 Notes issued by private pharmacists in 1919.

Table 1 Emergency money of pharmacists issued by organizations and pharmaceuticals between 1914 and 1919.

Location of release	Issuing organization	Denomination of emergency money	Time of release
Csongrád county Szeged	Pharmacy Board of Szeged	10 Fillér	1919
		20 Fillér	
		50 Fillér	
		1 Korona	
Pest county Újpest (part of Budapest)	CHINOIN Pharmaceutical	2 Korona	1919
		5 Korona	
		10 Korona	

Table 2 Private funds, issued between 1914 and 1919.

Location of release	Issuer pharmacist	Name of pharmacy and year of establishment	Denomination of emergency money	Time of release
Caras-Severin County Orsova	Freyler Ferenc	Magyar Korona 1827	10 Fillér 20 Fillér 50 Fillér	1915-1916
Timis county Homokszőlő	Daubner József	Minerva 1896	10 Fillér 20 Fillér	1915
Csongrád county Szeged	Frankl Antal	Szent György 1869	10 Fillér 20 Fillér	1919
Csongrád county Szeged	Török Márton	Erzsébet Királyné 1907	10 Fillér 20 Fillér	1919
Pest county Cegléd	Sándor Illés	Szentlélek 1807	10 Fillér 20 Fillér 50 Fillér	1919
Pest county Cegléd	Dr. Zalay Károly	Remény 1886	10 Fillér 20 Fillér 50 Fillér	1919
Pest county Cegléd	Hauer Lajos	Rákóczi 1914	10 Fillér 20 Fillér 50 Fillér	1919
Timis county Kevevára	Török Gyula	Szentlélek 1846	20Fillér 30 Fillér 50Fillér	1919

10.2 Pharmaceutical-Related Emergency Money Issued between 1914 and 1919

It can be stated that pharmaceutical-related emergency money can be classified into three categories: (1) Issues of companies and factories (Fig. 4); (2) Issues of Pharmacists Association (Fig. 5); (3) Private issues of pharmacists between 1915 and 1919 (Fig. 6). According to the time of releasing all of the so-far found ones were collected and presented in tables (Table 1 Table 2) In fact, emergency money issued by private pharmacists mainly appeared in Transylvania, southern part of Hungary and in the capital because of the mentioned historical events.

11. Conclusions

International and National Numismatic Associations and some individual collectors have dealt with and written about emergency money in general but emergency notes connected to pharmacy issued between 1914 and 1919 have not been collected, classified and studied before. That is why this study is regarded to be unique in this field of science.

It is true that this study was carried out in Hungary and covered emergency notes related to Hungary, but it

can be stated that they also provide a nice picture of industry (art, typography, paper making etc.) in the studied period. Therefore historical events, social changes and the causes of economic crisis were followed and studied to make it easier to understand how and why emergency money had appeared in the past. These pieces of paper are considered to be great value among numismatists.

In the future we would like to extend our research to the entire territory of the Austro-Hungarian Empire to discover other emergency notes related to pharmacy with the help of the mentioned Catalog Richter and present them in our classification system which is introduced in this study. Hopefully, we managed to interest others in this research field. As a result, we may as well collect globally and classify new finding according to the described classification system.

References

- [1] K. Bíró-Sey, L.Eperjessy, Introduction to the Collection of Romanian Money, Press by the Association of Hungarian Numismatics, New Edition, Budapest, Hungary 2002, pp. 8- 11.(in Hungarian)
- [2] L. Huszár, Gy. Kincses, Pharmacy-related coins, Bulletin of the Association of Hungarian Numismatics, 4 (7) (1930) 7-10. (in Hungarian)

- [3] L. Huszár Lajos, Pharmaceutical coins in the Semmelweis Medical History Museum Comm. Hist. Artis Med. 71-72 (1974) 173-174. (in Hungarian)
- [4] A. Alföldi, Congress and Exhibition Coins, Numismatics XXXIII, Journal of the Hungarian Association of Numismatics. 33 (1934) 33-38 (in Hungarian)
- [5] K. Zalai, Pharmaceutical numismatics, Press by the Hungarian Society for Pharmaceutical Sciences. Budapest, Hungary, 1998, pp. 3-19. (in Hungarian)
- [6] J. Antal, L. Huszár, Medicina in Nummis. From the Numismatic Collection of the Semmelweis Museum for the History of Medicine. Medicina, Budapest, Hungary. 1986, pp. 15-26. (in Hungarian)
- [7] L. Lampé, Á. Szállási, Medicina in Nummis Debreceniensis, Press by the Universitas Debreceniensis Sedes Scientiarum Medicorum Et Santorum. Debrecen, Hungary(1997, pp.76-82. (In Hungarian)
- [8] I. Lente, Company punching appeared on emergency notes, Hungarian Perfin 1 (8) (2010) 9-11
- [9] K. Leányfalusi, Á. Nagy, The "Korona-Fillér" Money System. Coins and Paper money in Hungary 1892-1925. Press by the Association of Hungarian Numismatics, Budapest, Hungary. 2006, pp. 6-7, 9-10. (in Hungarian)
- [10] B. Ács, Have the economic crisis been predicted in 2008. Ph.D. Thesis, Pécs, (2011). (in Hungarian with English abstract)
- [11] Zs Merényi, G. Megyesi, T. Szűcs, Á. Matits, V. Mihók, Gy. et al., My money, Financial Education Program (in Hungarian) Press by the Foundation of Financial Needs. Budapest, Hungary, 2010, available online at: <http://www.penziskola.hu/konyv/az-en-penzem>
- [12] Révai New Encyclopedia. Babits Publisher, Szekszárd, 2006, p. 658. (in Hungarian)
- [13] B. Ambrus, Hungarian Emergency Money I-II, Hungarian Academy Edition. Budapest, Hungary. 1986, pp. 346-356 (in Hungarian)
- [14] G. Glatz, Austro-Hungarian Empire 1867-1918. Press by the Association of Hungarian Numismatics, Budapest. Hungary, 2001, pp. 89-92.
- [15] Révai New Encyclopedia, Babits Publisher, Szekszárd, 2005, p. 435. (in Hungarian)
- [16] Révai New Encyclopedia, Babits Publisher, Szekszárd, 2007, p. 434. (in Hungarian)
- [17] S.Vadász, L. Dombrády Lóránd, Hungarian Revolutions in 1918-1919, Journal of Hungarian Militaria. 125 (2) (2012) 442-445 (in Hungarian)
- [18] G. Glatz, The period of revolutions, Press by the Association of Hungarian Numismatics, Budapest, Hungary, 2007, pp. 345-448. (in Hungarian)
- [19] T. Hajdú, Hungarian Soviet Republic, Hist. Artis Med. 43 (2012) 231-245. (in Hungarian)
- [20] Gy. Rádóczy, G. Tasnádi, Hungary paper money from 1848 to 1992, Hist. Artis. Med. 68 (1992) 56-73
- [21] Gy. Rádóczy, Financial Situation in the Austro- Hungarian Empire in the XIX. Century, Journal of the Association of Hungarian Numismatics. Budapest. 23 (1973) 453-456 (in Hungarian)
- [22] B. Ambrus, Emergency Paper Moneys in Hungary from 1914 to 1919, Press by the Association of Hungarian Numismatics. Budapest, Hungary, 1987, pp.13-15.
- [23] M. Kupa, Corpus Notarum Pecuniarium Hungariae, (in Hungarian) Press by the Association of Hungarian Numismatics, Budapest, Hungary, 1993, pp. 34-38.
- [24] É. Nánási, The History of Mint in Budapest in 1918- 1927, Press by the Association of Hungarian Numismatics Budapest. Hungary, 1987, pp. 12-24. (in Hungarian)
- [25] B. Ambrus, Emergency paper money in Hungary from 1914 to 1919, Press by the Association of Hungarian Numismatics, Budapest, Hungary, 1986, pp. 62-69 (in Hungarian)
- [26] Apostolic Bulletin Regulation, (1920), (in Hungarian)
- [27] T. Bácskai, From the National Bank of Austria to the Bank of Hungary, Press by the Economic and Legal Publisher, 1993, pp. 120-125. (in Hungarian)
- [28] I. Adamovszky, Catalog of Hungarian emergency money between 1723 and 1959 Press by the Association of Hungarian Numismatics, Budapest, Hungary, 2008, pp. 23-28. (in Hungarian)
- [29] Pocket Calendar of 1920 for Pharmacists in Hungary (own family library), Press by the Hungarian Society for Pharmaceutical Sciences, Budapest, Hungary, 1920, pp. 78-80. (in Hungarian)