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### FINDS OF CUFIC COINS IN ESTONIA. PRELIMINARY OBSERVATIONS

During the Viking Age, Estonia was part of a large area in Eastern Europe where money was not counted but just weighed. Two main periods characterized by using Eastern (mostly Arabic) and Western (mainly German and Anglo-Saxon) coins can be separated, the first lasting from c. 800 till 1000 and the second from c. 1000 till 1100 AD correspondingly. While most of the Western coins found in Estonia have been published comprehensively in recent times<sup>1</sup>, the data about Arabic dirhams can be obtained mostly from older publications issued in different and sometimes difficult to obtain publications.

A project aiming to record all the dirhams kept in Estonian public collections was therefore started in the Estonian History Museum some years ago, supported by the Estonian Science Foundation (grant 5719). Up to now the data of approximately 3600 coins has been stored by using Paradox 8. Apart from this, some hoards have remained in private collections or been taken abroad and a lot of finds are almost totally lost and known only from written and uncertain sources. For instance, the find of Vara (28 coins in the collection) consisted of a whole pot of dirhams, that of Põltsamaa of two full pots, the hoard of Kavastu contained about a thousand coins, and the hoard from Saue (Friedrichshof) might initially have contained up to 10 kg silver dirhams, bars and ornaments. So the real number of Cufic coins found in Estonia is much bigger than the above mentioned 3600.

However, all together we know 35 Estonian hoards that contain Arabic coins exclusively. Beside that, there is a number of finds from the intermediate period consisting mainly of dirhams but containing a small percentage of Western deniers also (Table 1). But there are just a couple of hoards, which can be dated back to the 9<sup>th</sup>

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<sup>1</sup> A. Molvögin, *Die Funde westeuropäischer Münzen des 10. bis 12. Jahrhunderts in Estland*, Numismatische Studien 10, Hamburg 1994; I. Leimus & A. Molvögin, *Sylloge of Coins of the British Isles 51, Estonian Collections. Anglo-Saxon, Anglo-Norman and later British Coins*, The British Academy 2001.

century. In all of them Abbasid dirhams from the 160s (776–786 A.D.) and especially the 180–190s (796–815 A.D.) prevail (Fig. 1–2)<sup>2</sup>. The feature is quite common in the finds of the 9<sup>th</sup> century all over the large East–European region as well as in the East (Fig. 3) and can be explained by the high minting activity in the Caliphate during these decades<sup>3</sup>.

The overwhelming majority of the Estonian hoards with Cufic coins originate from the 10<sup>th</sup> century. Most of the coins now are Samanid dirhams struck in the 280s–320s (890–930s) and rather evenly (with slightly decreasing trend) covering all these decades (Fig. 4). After that the frequency of Arabic coins in Estonian finds dropped fast and suddenly. A new but a very slight rise is to be observed in the 380s–390s (990–1009 A.D.; Fig. 5)<sup>4</sup> and the latest dirhams discovered in Estonia bear the date 404 (1013/4). The Oriental coins of this period had mainly come from the territories of the Uqailids, Marwanids and Qarachanids. But it seems that also a number of later Samanid dirhams from the 330–360s (940–970s) had found their way to Estonia that time.

There is a difference now in the content between the hoards from Estonia and its neighbourhood. In Gotland, for example, coins of the 280s–300s (893–913 A.D.) prevail, the number of later coins being remarkably small (Fig. 6)<sup>5</sup>. A very similar picture can be observed in Schleswig-Holstein, where the coin supply decreased during the 10<sup>th</sup>

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<sup>2</sup> М. Аун, *Археологические памятники второй половины 1-го тысячелетия н.э. в Юго-Восточной Эстонии*, Таллинн 1992, p. 169; W. Anderson, *Der Chalifenmünzfund von Kochtel*, Acta et Commentationes Universitatis Dorpatensis B VII.2, Dorpat 1926, p. X–XI; А. К. Марков, *Топография кладов восточных монет (сасанидских и куфических)*, Ст. Петербург 1910, Nr. 99, 113.

<sup>3</sup> T. Noonan, *Early 'Abbasid mint output*, Journal of the economic and social history of the Orient 29, 1986, p. 113–175, here p. 123, cited according to S. Brather, *Frühmittelalterliche Dirham-Schatz- und -Einzelfunde im südlichen Ostseeraum. Die Anfänge der Gewichtsgeldwirtschaft bei den Westslawen*, [in:] *Archäologie als Sozialgeschichte. Studien zu Siedlung, Wirtschaft und Gesellschaft im frühgeschichtlichen Mitteleuropa. Festschr. Heiko Steuer*, hrsg. Sebastian Brather/Christel Bucker/Michael Hoepfer, Stud. honoraria 9 (Rahden 1999), p. 179–197, here p. 181–183; cf. T. Noonan, *Ninth-century dirham hoards from Northwestern Russia and the Southeastern Baltic*, Journal of Baltic Studies XIII, New York 1982, p. 220–244, here p. 232; T. Talvio, *Coins and coin finds in Finland AD 800–1200*, Soumen Muinaismuistoyhdistys, ISKOS 12, Helsinki 2002, p. 44; Б. Д. Кочнев, *Клады куфических дирхемов VIII–IX вв. из Узбекистана*, [in:] *Восьмая всероссийская нумизматическая конференция 17–21 апреля 2000 г. Тезисы докладов и сообщений*, Москва 2000, p. 52–53; W. Łosiński's more detailed approach (*Chronologia napływu najstarszej monety arabskiej na terytorium Europy*, Slavia Antiqua XXXI, 1988, p. 93–181, here p. 101–108) certifies basically the same but also reveals a certain difference in composition of finds from Khazaria and Volga Bulgaria in comparison to these of eastern Europe.

<sup>4</sup> Cf. R. Vasmer, *Ein im Dorfe Saryi Dedin in Weissrussland gemachter Fund kufischer Münzen*, Kungl. Vitterhets Historie och Antikvitets Akademiens handlingar, del 40:2, p. 27; W. Łosiński, *Chronologia, skala i drogi napływu monet arabskich do krajów europejskich u schyłku IX i w X w.*, Slavia Antiqua XXXIV, 1993, p. 1–41, here 16.

<sup>5</sup> The graph is compiled on the basis of the *Corpus nummorum saeculorum IX–XI qui in Suecia reperti sunt* (CNS), Stockholm 1975–1987. Cf. T. Noonan, *Why did dirham imports into tenth-century Sweden decline?*, [in:] *Festskrift till Lars O. Lagerqvist*, Numismatiska Meddelanden 37, Stockholm 1989, p. 295–301, here 296–297; Łosiński, *Chronologia, skala i drogi*, p. 13–16, Fig. 4.

century even faster than in Gotland<sup>6</sup>. In Russian finds, on the contrary, the dirhams minted a few decades before deposition prevail<sup>7</sup>. And they form the absolute majority in the finds from Volga-Bulgar<sup>8</sup>. There is only one bigger hoard from that period in Lithuania (Vėlaikiai, tpq 945/6) but it reflects almost the same features as Russian finds<sup>9</sup>. Regarding the Latvian finds they all are described too insufficiently to draw any conclusions about their chronological contents<sup>10</sup>. And, unfortunately, a great part of the numerous Polish hoards of the period under discussion consist mainly although not entirely of small fragments that are very difficult to attribute exactly<sup>11</sup>. Besides, many finds have disappeared and information is available only from old and not always reliable publications<sup>12</sup>. So, the general picture about their chronological composition revealed by W. Łosiński<sup>13</sup> is based only on a handful of coins from different parts of Poland which in comparison to tens or even hundreds of thousands of them found there may be insufficient. But in any case it clearly differs from the Estonian pattern.

Of course, any generalisation is a statistical lie to a certain degree. For instance, we have the finds of Stora Velinge II (tpq 955/6, Fig. 7)<sup>14</sup> and Kvie (tpq 960/1)<sup>15</sup> from Gotland that are more similar to the Russian deposits than to the homeland ones and there is a general increase in the number of “newer” dirhams in the hoards from the 960–970s in Sweden<sup>16</sup>. The same can be said about the Ropka find from East Estonia (Fig. 8)<sup>17</sup>

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<sup>6</sup> R. Wiechmann, *Edelmetalldepots der Wikingerzeit in Schleswig-Holstein. Vom “Ringbecher” zur Münzwirtschaft*, Offa-Bücher 77, Neumünster 1996, p. 77.

<sup>7</sup> П. Н. Петров, В. А. Калинин, *Клады куфических дирхемов*, Древности Поволжья и других регионов, вып. 3, Нумизматический сборник 2, Нижний Новгород 2000, p. 204–206; А. В. Фомин, *Древнерусские денежно-монетные рынки в 70-80-х годах X в.*, [in:] *Древнейшие государства Восточной Европы. Материалы и исследования, 1992–1993 годы*, Москва 1995, p. 63–73; cf. Łosiński, *Chronologia, skala i drogi*, Fig. 1.

<sup>8</sup> Łosiński, *Chronologia, skala i drogi*, p. 9–11.

<sup>9</sup> Z. Dukša, *Pinigai ir jų apyvarta*, [in:] *Lietuvių materialinė kultūra IX–XIII amžiuje II*, Vilnius 1981, p. 83–129, here p. 94–96.

<sup>10</sup> See T. Noonan, *Pre-970 dirham hoards from Estonia and Latvia I–IV*, *Journal of Baltic Studies*, vol. VIII, 1977, p. 238–259, 312–323; vol. IX, 1978, p. 7–19, 99–115; Т. Берга, *Монеты в археологических памятниках Латвии IX–XII вв*, Рига 1988, p. 26–32.

<sup>11</sup> R. Kiersnowski, *Pieniądz kruszcowy w Polsce wczesnośredniowiecznej*, Warszawa 1960, p. 127–128; A. Bartczak, *The early medieval silver hoard of Ciechanów in the light of Oriental coins*, *WN XL*, 1996, 1–2, p. 43–59, here p. 43–44; cf. T. Noonan, *Dirham exports to the Baltic in the Viking Age: some preliminary observations*, [in:] *Commentationes de nummis saeculorum IX–XI in Suecia repertis. Nova Series 6*, Sigtuna Papers, London 1990, p. 251–257, here p. 254.

<sup>12</sup> P. Ilisch, *Hochmittelalterliche Münzfunde auf dem Gebiet des heutigen Polens — ein gemeinsames Projekt*, [in:] *Concordia ditat. 50 Jahre Numismatische Kommission der Länder in der Bundesrepublik Deutschland 1950–2000*, Hrsg. von Reiner Cunz, *Numismatische Studien* 13, Hamburg 2000, p. 203–207.

<sup>13</sup> Łosiński, *Chronologia, skala i drogi*, p. 24–33, Fig. 8, 9, 10.

<sup>14</sup> CNS 1.2.35.

<sup>15</sup> CNS 1.2.39.

<sup>16</sup> Noonan, *Why did dirham imports into tenth-century Sweden decline?*, p. 299.

<sup>17</sup> T. Noonan, *The 1958 dirham hoard from Tartu in Estonia*, *The American Numismatic Society Museum Notes* 22 (1977), p. 135–159.

and even more so about the so-called hoard of Rezwow (Fig. 9)<sup>18</sup>. However, that particular find has lost its provenance and most probably comes from the eastern part of Latvia. So, exceptions do exist, but they are small in number and do not affect the general picture. And we really have to believe that there are certain common features for any country, described above.

As we have seen, the composition of Estonian hoards of the 10<sup>th</sup> century lays somewhere in the middle those of between Russia and Gotland<sup>19</sup>. There are at least two ways to explain this. The first and simplest one is that Estonia received dirhams from both sides and our hoards are in fact a mixture of coins brought from Russia as well as from Gotland. This means that there must have been a quite lively circulation of coins in Estonia that time, but this assumption is not supported by the appearance of the coins, as they mostly are quite unworn and even unfragmented. And there is another thing, too, the frequency of graffiti on these coins. In Estonian finds their frequency is almost the same as in Russia, while in Sweden it is much higher<sup>20</sup>. So, if there had been some significant import of Cufic coins from Sweden to Estonia, we should had many more coins with graffiti's in Estonian finds, too.

The other solution is more complicated. One must keep in mind that the silver trade in the Viking Age we are talking about was a great business, carried out by merchants who owned huge amounts of coins, not only the latest issues but also older ones. According to Swedish hoards, there had to be a very strong influx of Samanid dirhams to Gotland in the late 9<sup>th</sup> and early 10<sup>th</sup> century. Judging by the Estonian finds, these coins were not yet reaching Estonia. It seems that the wave of Eastern silver arrived in Estonia some decades later, when it was already weakened. Of course, the contents of silver reserves available in the East had changed with time. So the Estonians got what the merchants could offer — a mixture of coins from several decades. The flow of silver continued to Gotland, too, but as there already was a massive reserve of earlier dirhams, the new coins coming to the area did not affect the composition of Swedish hoards so much<sup>21</sup>.

This means that Arabic coins had to come to Estonia via Russia. But why then is the composition of hoards in Estonia and Russia different, too? Apparently, there were several categories of merchants, specialising in trade over longer or shorter distances. Obviously, the men doing business with the Rus' had much closer and more direct contacts to the deliverers as well as to the consumers of silver (remember the Volga-Bulgarian finds!) than the West-oriented merchants did. And it seems that the

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<sup>18</sup> R. Vasmer, *Ein neuer Münzfund des elften Jahrhunderts in estnischem Privatbesitz*, *Õpetatud Eesti Seltsi Aastaraamat* 1934, Tartu 1936, p. 155–224.

<sup>19</sup> W. Łosiński, *The economical links of early-medieval Estonia*, *WN XL*, 1996, 1–2, p. 61–66, is of different opinion emphasising the similarity of the finds from Estonia and Gotland. But he relies only on finds of late 10<sup>th</sup> century published by A. Molvögin (*Die Funde*) and containing also already West-European deniers.

<sup>20</sup> I. Leimus, *Graffitid Eestis leitud araabia müntidel*, [in:] *Arheoloogiga Läänemere-maades. Uurimusi Jüri Seliranna auks*, Tallinn–Tartu 2003, p. 143–152; I. Hammarberg, G. Rispling, *Graffiter på vikingatida mynt*, *Hikuin* 11, 1985, p. 63–78; И. Г. Добровольский, И. В. Дубов, Ю. К. Кузьменко, *Граффити на восточных монетах*, Ленинград 1991.

<sup>21</sup> Noonan, *Why did dirham imports into tenth-century Sweden decline?*, p. 297–299.

area of their activities normally did not extend over the Estonians' border. So, the Oriental coins were brought to Estonia via Russia but mainly by merchants trading with Swedes. This does not exclude the possibility that some contacts of the Russian-oriented merchants with Estonians could have been made sometimes, for example at the end of the 10<sup>th</sup> century, when the main stream of the dirhams had already come to the end. That is probably why the flow of Cufic coins to Estonia lasted a bit longer than to Sweden.

Comparing the temporal distribution of the hoards and the coins themselves, one has to notice that we have a lot of hoards from the decades with few coins and vice versa. Obviously, the reasons building the hoards and hiding them were completely different. The first of them depended on the intensity of minting in the Caliphate as well as on the contacts between the East and the West. The second one was based on totally different issues. It is commonly known that the periods of war are usually accompanied by plenty of hoards. Of course, in insecure circumstances the people normally hide their valuables, but the point is that they were not able to uncover them because of having been killed, deported etc. That means that any feature with crucial results for the demographical situation, plague, hunger or whatsoever, could cause the same phenomenon — enormous number of deposits. Usually all this happened simultaneously and it is extremely complicated to separate different reasons here. However, sometimes the extension of events allows us to do that. For example, the military conflicts never involved such large areas as climatic conditions (drought, cold etc.) could affect.

In order to find out the reasons for hiding hoards in Estonia and prove the correctness of our suggestions, one has to examine the temporal distribution of hoards over a wider area. It turns out, that several finds from different countries were hidden at the same time. For instance, the Estonian hoards from Kohtla and Saaremaa (?) as well as Finnish hoards of Svedjelandet and Housulanmäki all have the same tpq of 223 (= 837/8 AD). In addition, there is one more deposit from Finland (Hammarudda) with the tpq 220<sup>22</sup>. Thomas Noonan has spoken about the first Oriental silver crisis in this connection<sup>23</sup>, which had forced people to deposit their savings. But there is not a slightest trace of any silver crisis (special hiding activity) according to the numismatic evidence from Russia, Sweden and Latvia or from the West Slav territories during this decade<sup>24</sup>. Besides, the crisis-theory would presuppose the habit of massive use of silver coins at the beginning of the 9<sup>th</sup> century already, which at least in case of Estonia and Finland seems extremely unlikely. It means that what we have here is something very local, probably a result of some major Viking raid.

Things are different in the 860s. Apart from two Estonian finds (tpq 247 = 861/2) there are a number of hoards from Russia and Sweden (Fig. 10)<sup>25</sup>. In addition, all three

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<sup>22</sup> Talvio, *Coins and coin finds in Finland*, p. 42–44.

<sup>23</sup> T. Noonan, *The first major silver crisis in Russia and the Baltic, c. 875–c. 900*, *Hikuin* 11, 1985, p. 41–50, here p. 41–42; Talvio, *Coins and coin finds in Finland*, p. 89–90.

<sup>24</sup> About the hoards of the early 9<sup>th</sup> century see: В. Л. Янин, *Денежно-весовые системы русского средневековья*, Москва 1956, p. 86, 90; Talvio, *Coins and coin finds in Finland*, p. 88; Noonan, *Ninth-century dirham hoards*, p. 225–226; Brather, *Frühmittelalterliche Dirham-Schatz- und -Einzelfunde*, p. 182.

<sup>25</sup> В. Л. Янин, *Денежно-весовые системы*, p. 100–102; Łosiński, *Chronologia napływu*, p. 160–161; Talvio, *Coins and coin finds in Finland*, p. 88.

Latvian 9<sup>th</sup> century hoards date back to the 850s–870s<sup>26</sup>, as well as three out of six Finnish finds<sup>27</sup>. There are just three hoards of the 9<sup>th</sup> century from Schleswig–Holstein, but two of them have a tpq of 867 and 873<sup>28</sup>. Additionally, two out of three Norwegian finds have tpq 852 and 862/3<sup>29</sup>. And the only Lithuanian find, published more or less satisfactorily, has a tpq 853/4<sup>30</sup>. To the same group one may count also the hoards of Pinnow and Karnice from Pomerania<sup>31</sup>, although the other finds from that area belong to the initial decades of the century. So what we have got now is both extensive and intensive hoarding around the 860s all over the region, especially in Russia and Sweden<sup>32</sup>. Attempts have been made to explain this feature in connection with the famous events of rejecting and recalling of the Varangians in 859–862 described in the chronicle of ‘Nestor’<sup>33</sup>, but all this took place just in a small territory in the North–West of Russia which is certainly not enough to explain this wider phenomenon. Neither one can apply the crisis–theory for the period as there was no lack of silver. On the contrary, as numerous finds demonstrate, the coins from the 850s and particularly the 860s make up a great part of the hoards<sup>34</sup>. So there must be other, more general and maybe common reasons for both the accumulation of hoards and the Viking raids to Russia. For example hunger, which could force the Vikings to move and cause the death of people over large areas.

Speaking about the 10<sup>th</sup> century there was a complete stop in the hoarding activity in Estonia during the first decades. A new rise started in the 320s and especially in the 330s (930–940s AD). From that point onwards the distribution of hoards in Estonia is evenly compact reaching its peak in the 340s and the 360s (950s and 970s AD) (Fig. 4). Then a sharp decline follows — just two finds are known from both the 370s and 380s (980–990s AD). After that the depositing becomes more active again. At the moment six Estonian hoards are recorded from the 390s (1000s) and even eight from the 400s (1010s) (Fig. 5) but one cannot ignore the fact that starting from the 980s the West–European deniers began to play a more and more important role in the silver import to the Baltic<sup>35</sup>. That is why the percentage of Arabic coins reaches c. 50% only in eight finds from total 18 of the period. Later, since the 1020s the dirhams as a rule are just marginal in hoards, replaced by deniers, but they continue to occur in finds, represented by single coins, until the 12<sup>th</sup> century.

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<sup>26</sup> Noonan, *Pre-970 dirham hoards from Estonia and Latvia I*, No. 1, 2, 4; Берга, *Монеты*, p. 27.

<sup>27</sup> Talvio, *Coins and coin finds in Finland*, p. 88.

<sup>28</sup> Wiechmann, *Edelmetalldepots*, p. 97.

<sup>29</sup> According to Łosiński, *Chronologia napływu*, p. 161.

<sup>30</sup> Duka, *Pinigai ir jų apyvarta*, p. 92, No. 7.

<sup>31</sup> T. and R. Kiersnowscy, *Wczesnośredniowieczne skarby srebrne z Pomorza*, Warszawa–Wrocław 1959, No. 123, 67; Noonan, *Ninth-century dirham hoards*, No. 5, 7.

<sup>32</sup> See also Łosiński, *Chronologia napływu*, p. 109, 122.

<sup>33</sup> В. М. Потин, *Русско-скандинавские связи по нумизматическим данным (IX–XII вв.)*, [in:] *Исторические связи Скандинавии и России IX–XX вв.*, Ленинград 1970, p. 64–80, here p. 68–69.

<sup>34</sup> Noonan, *The first major silver crisis*, p. 43–47.

<sup>35</sup> Molvögin, *Die Funde*, No 7–20.

How does it look among our neighbours? In Latvia, eight relatively small finds from the 10<sup>th</sup> century are known belonging mostly to the first half of the 10<sup>th</sup> century<sup>36</sup>. But remarkably two of them date from 913/4 and 914/5, which may reflect some accident of local character. Almost the same (seven small finds) is to be said about Finland<sup>37</sup>. The situation is even worse in Lithuania where just one hoard from the period is published sufficiently (see above). Five deposits with Arabic coins, three of them from the first third of the century, are known from Schleswig–Holstein<sup>38</sup>. Russia and Sweden (especially Gotland), on the contrary, are very rich<sup>39</sup>. Even in Denmark, situated further away, 25 hoards consisting totally or mainly of Arabic coins are recorded<sup>40</sup>. The numerous Polish hoards are a special issue, as we stated before. But still we can use data from more than 30 Polish finds from the 10<sup>th</sup> century<sup>41</sup>.

If we put the data about the chronological division of hoards from different countries (with one precondition: a sufficient number of finds) onto a diagram, an interesting picture is revealed (Fig. 11). In general, if we leave aside the empty third of the century, the Estonian graph most of all resembles the Russian and the Polish ones. But most astonishing is the accumulation of finds from every country under examination around the 950s! Once again, attempts have been made to explain this as the results of a silver crisis in the East, in the emirate of Samanids, or the temporary shrinking of the silver influx from the East that time<sup>42</sup>. Now it seems to be more justified, since there really was a deep decline in the silver import from the East to Europe in the middle of the 10<sup>th</sup> century. Could it make people hide their money? Probably. But before deciding, we should examine the very similar processes from the previous and

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<sup>36</sup> Noonan, *Pre-970 dirham hoards from Estonia and Latvia I*, No. 5–11, 14; Берга, *Монеты*, p. 27–29; К. Дуцмане, А. Озолиня, *Новые поступления монетных находок в Музей истории Латвии*, [in:] *Седьмая всероссийская нумизматическая конференция, Ярославль 19–23 апреля 1999 г. Тезисы докладов и сообщений*, Москва 1999, p. 180.

<sup>37</sup> Talvio, *Coins and coin finds in Finland*, p. 45–46.

<sup>38</sup> Wiechmann, *Edelmetalldepots*, p. 97.

<sup>39</sup> There is no survey of all the hoards from these countries but quite a lot of data can be found in: В. Л. Янин, *Денежно-весовые системы*, p. 118–119; CNS; Noonan, *Why did dirham imports into tenth-century Sweden decline?*, p. 296.

<sup>40</sup> A. Kromann, *The latest Cufic coin finds from Denmark*, [in:] *Commentationes de nummis saeculorum IX–XI in Suecia repertis. Nova Series 6*, Sigtuna Papers, London 1990, p. 183–195, here p. 186.

<sup>41</sup> According to: J. Ślaski and S. Tabaczyński, *Wczesnośredniowieczne skarby srebrne Wielkopolski*, Warszawa–Wrocław 1959; T. and R. Kiersnowscy, *Wczesnośredniowieczne skarby srebrne z Pomorza*, Warszawa–Wrocław 1959; R. Kiersnowski, *Wczesnośredniowieczne skarby srebrne z Polabia*, Wrocław–Warszawa–Kraków 1964; A. Gupieniec, T. and R. Kiersnowscy, *Wczesnośredniowieczne skarby srebrne z Polski środkowej, Mazowsza i Podlasia*, Wrocław–Warszawa–Kraków 1965; M. Haisig, R. Kiersnowski, J. Reymann, *Wczesnośredniowieczne skarby srebrne z Małopolski, Śląska, Warmii i Mazur*, Wrocław–Warszawa–Kraków 1966. For additional data from the recent publications not available in Estonia I am most indebted to Prof. Dr Stanisław Suchodolski, Warsaw.

<sup>42</sup> J. Landgren, *Från Samarqand till Stora Sojdeby. En studie av importen av sensamanidiska mynt till Sverige under vikingatiden*, Uppsats i påbyggnadskurs i arkeologi vid Stockholms Universitet Numismatiska forskningsgruppen 1998, p. 18, 20.

Table 1. The hoards with Cufic coins in Estonia<sup>43</sup>

Find	Tpq		Reference	Number of coins
	AD	AH		
1. Rõuge stronghold*	808/9	193	Aun 1992, 169	4
2. Kohtla	837/8	223	Anderson 1926	481
3. Mrs. Matson (Saaremaa?)	837/8	223	SM 7169	87
4. Peipsi	861/2	247	Markov 1910, 99, 113	75
5. Vicinity of Pärnu	861/2	247	Markov 123	8
6. Valjala	934/5	323	Anderson 1926	30 v. 36
7. Põltsamaa I	940/1	329	AI 5000/13	475 [516]
8. Väänikvere	942/3	330	AI 5000/14	490
9. Vara	944/5	332	AI 5000/466	29 [full pot]
10. Mäksa	948/9	337	Markov 1910, 98	149
11. Vesneri	951/2	340	Markov 1910, 126, 129	17
12. Saue-Vanamõisa	951/2	340	Vasmer 1927	996 [2 full pots]
13. Parivere	953/4	342	Anderson 1926	6 [a part of a hoard]
14. Koigi (Paide)	954/5	343	Frey 1920	150 [bigger part]
15. Raadi	959/60	348	Markov 1910, 103, 133	17+2+5 [hoard]
16. Meeksi	963/4	352	AI 5000/468	9
17. Kumna*	967?	353	Molvõgin 1994, 1	28
18. Kavastu	969/70	359	Markov 1910, 322, 323	[about 1000]
19. Erra-Liiva II	973/4	362	AI 5000/219	136 [176]
20. Mrs. Makko	975/6	364	AI 5000/1262	94
21. Ääsmäe	976/7	365	Markov 1910, 319, 321	335
22. Ropka	977/8	366	Noonan 1977	41
23. Kehra	978/9	368	Molvõgin 1994, 2	412
24. Rezwow	980/1	370	Vasmer 1936	192
25. Lõmala	983		Molvõgin 1994, 36	98
26. Uduvere*	985		Leimus 2003	5
27. Erra-Liiva I*	996		Molvõgin 1994, 3	3
28. Räägi*	998		Molvõgin 1994, 6	19
29. Põltsamaa II	1002		Markov 128; Molvõgin 1994, 4	19 [2 full pots]
30. Võlla*	1002		Molvõgin 1994, 8	74 [300]
31. Kloodi	1002		Molvõgin 1994, 7	94
32. Paunküla	1009		Molvõgin 1994, 10	102
33. Sootaga	1009		Molvõgin 1994, 11	6
34. Vihula?*	1009		Molvõgin 1994, 12	31
35. Paljassaar*	1010		Molvõgin 1994, 13	11
36. Vaabina	1012/13		Molvõgin 1994, 14	205
37. Vööpsu	1013		Molvõgin 1994, 15; Markov 1910, 101	111
38. Immaküla	1014		Molvõgin 1994, 16	36
39. Aa	10th c.		Markov 325	1
40. Põide ms.	10th c.?		Leimus 1976, 58	47
41. Kaarma parish	10th c.		Leimus 1976, 50	20
42. Mihkli, Koonga	?		Leimus 1976, 32	
43. Pärnu, Tammiste	10th c.		Leimus 1976, 25	
44. Audru, Võlla I	?		Leimus 1976, 18	
45. Vicinity of Rakvere	10th c.		Markov 329	2
46. Tartu	?		Markov 92, 96, 105, 106, 125	
47. Rõngu	?		Markov 92	
48. Vicinity of Tartu	?		Markov 107, 108, 109, 119, 122	
49. Vigala	10th c.		Markov 318, 324, 328; Molvõgin 1994, 23	

next centuries. As we noticed before, there was a strong accumulation of hoards around the 860s already without any significant evidence of crises. Later, by the mid-11<sup>th</sup> century the silver import to Gotland ceased almost totally again. But it did not involve any hiding activities. On the contrary, in the 1050s and particularly in the 1060s it was much lower than during the proceeding decades (Fig. 12). So, there is no reason to think that the people acted in other ways only in the 10<sup>th</sup> century.

Therefore I suggest that we should be cautious in blaming silver crises for the increasing hoarding in the periods under observation. There could be many other factors, having an impact over very large areas. First of all, the climate had (and still has) a decisive role in the living conditions of people. Just a year or two of lean harvest could bring hunger and drastically diminish the population, the monetary reserves of which remained in the soil for centuries. Do we have any proof for such a suggestion?

Unfortunately, the data about the climate of such early period is insufficient. However, the glaciologists have studied the ice of Greenland and established that the highest acidity of the ice sheet in the last 1500 years occurred just before the middle of the 10<sup>th</sup> century (Fig. 13)<sup>44</sup>. That in its turn indicates volcanic eruptions, which could cause global cooling. For instance, the volcanic explosions of the early 20<sup>th</sup> century (Katmai 1912 etc.) made the global temperature fall c. 0.5 C but according to the ice-analyses they reached just one quarter of the strength of the mid-10<sup>th</sup> century eruption. It means that something very serious really happened then and the average temperature must have dropped a couple of degrees at least. However, as the Pinatubo eruption (1991) has shown, within 2 years the cooling had disappeared. But still, in conditions of fragile prehistoric agriculture, even a short-lasting cooling must have caused a crop failure, bring hunger and death to a lot of people.

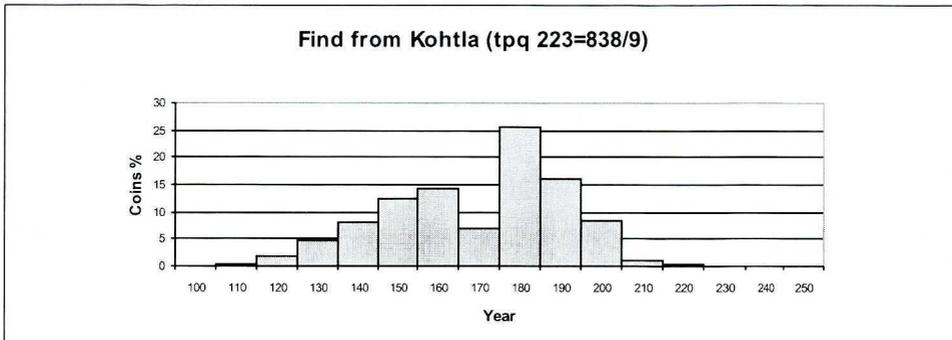


Fig. 1

<sup>43</sup> Hoards with more than 50% West-European coins indicated by \*.

<sup>44</sup> <http://earth.usc.edu/~geol150/evolution/lastmillenia.html>

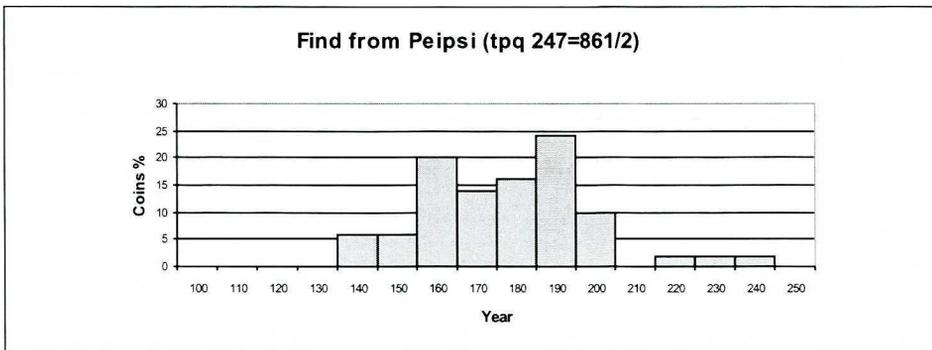


Fig. 2

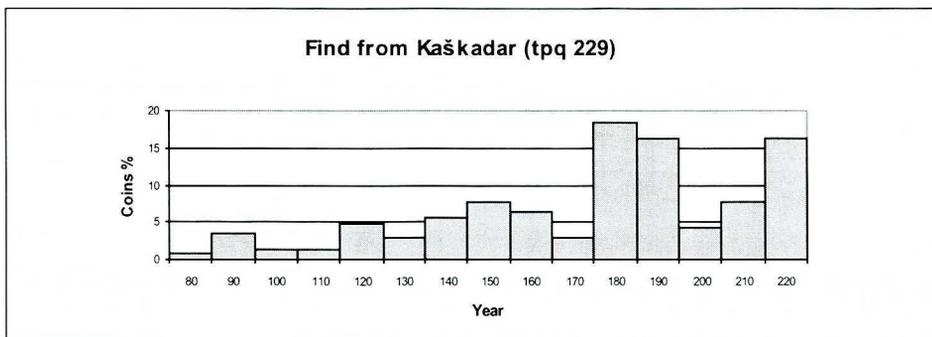


Fig. 3

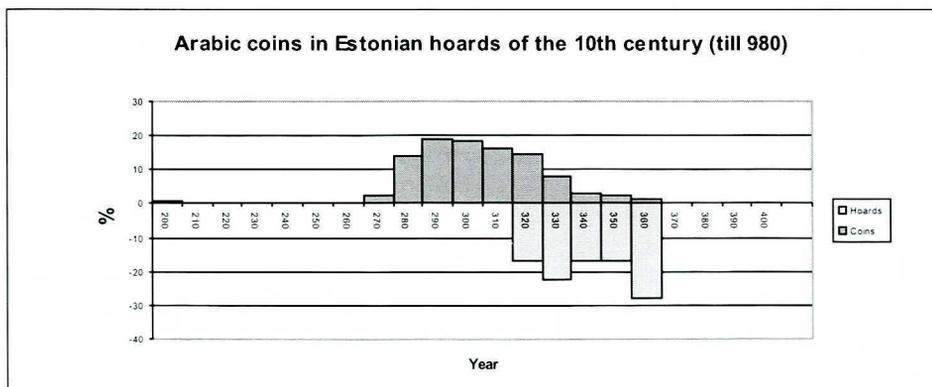


Fig. 4

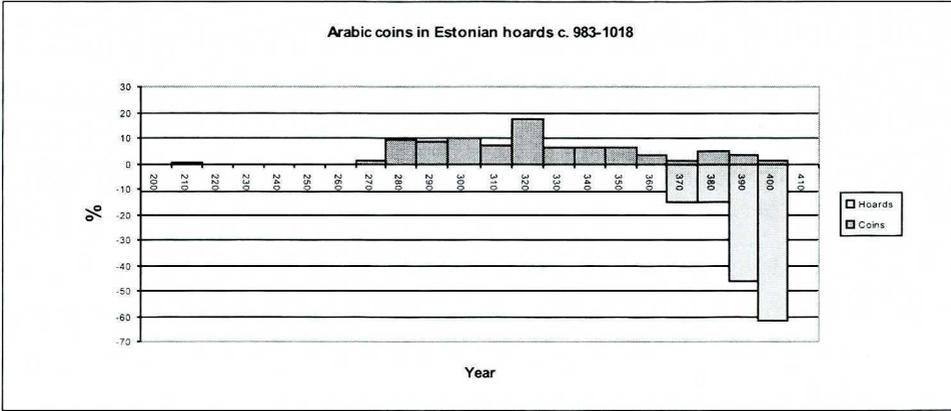


Fig. 5

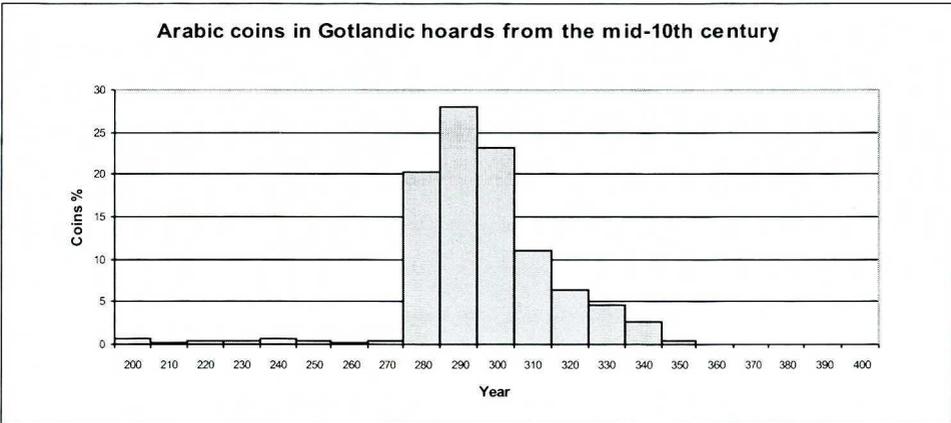


Fig. 6

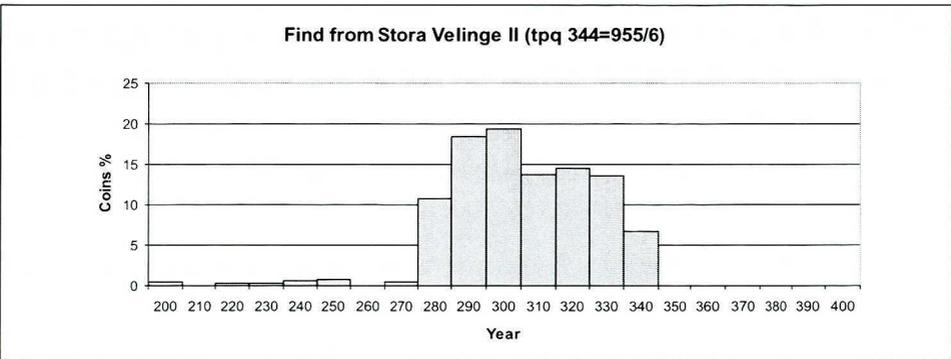


Fig. 7

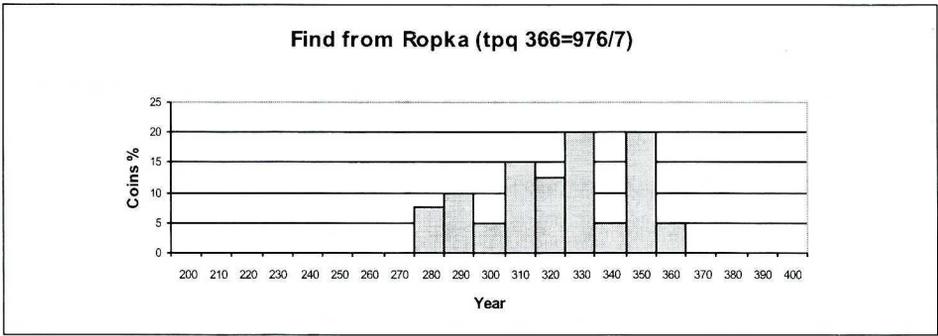


Fig. 8

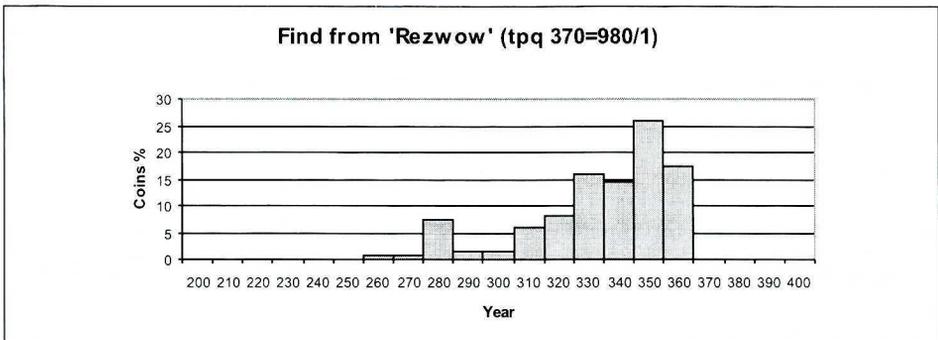


Fig. 9

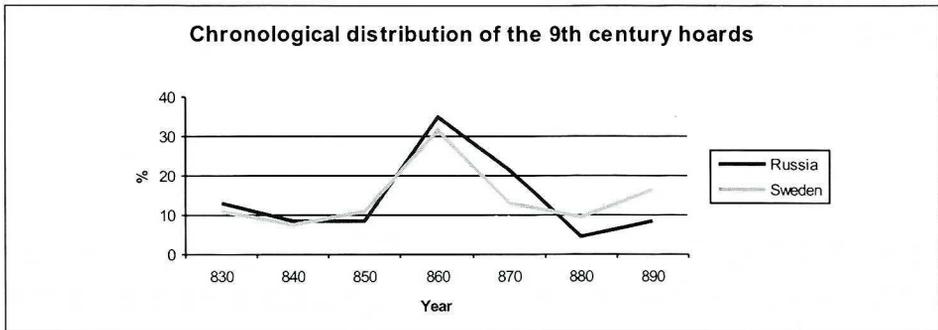


Fig. 10

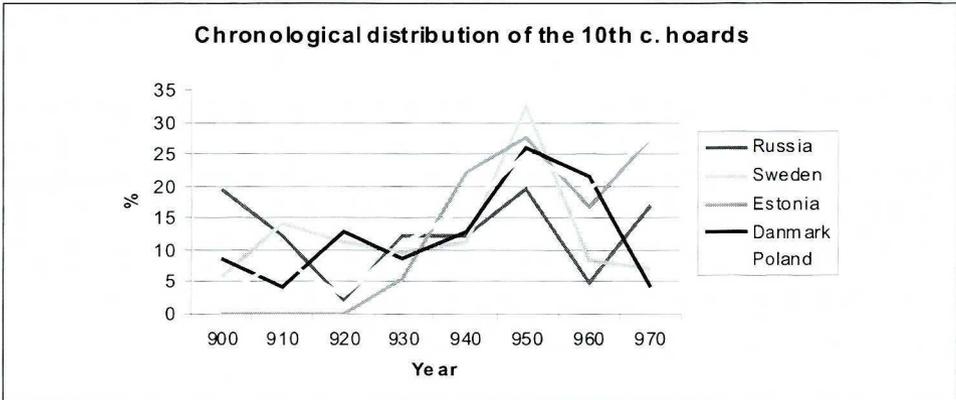


Fig. 11

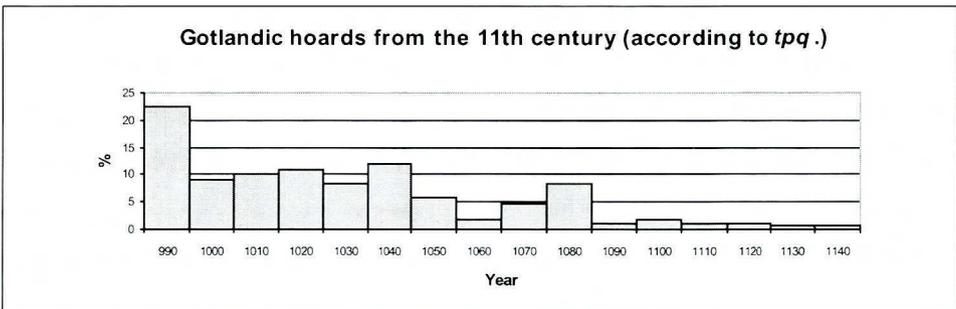


Fig. 12

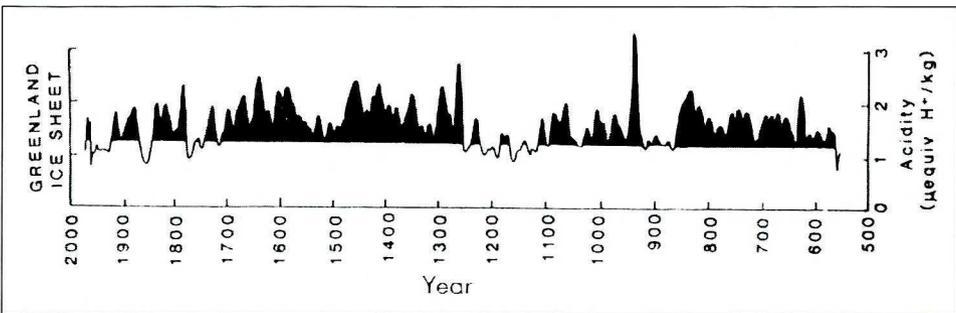


Fig. 13

## ZNALEZISKA MONET KUFICKICH Z ESTONII. WSTĘPNE OBSERWACJE

(Streszczenie)

Do dzisiaj zarejestrowano w Estonii 35 skarbów zawierające wyłącznie dirhemy. Ponadto z samego końca X w. pochodzi kilka dalszych depozytów, składających się w przeważającej części z monet orientalnych, jednak już z niewielką domieszką monet europejskich. Tylko kilka skarbów można datować na IX w. Dominują w nich monety dynastii Abbasydów z lat 160. (776-786 A.D.), a przede wszystkim 180. i 190. Hidżry (796-815 A.D.). Skład taki jest typowy dla zespołów z IX w. znajdowanych zarówno w Europie Wschodniej jak i na Wschodzie i tłumaczony jest dużą aktywnością menniczą Kalifatu w tych dziesięcioleciach.

Zdecydowana większość depozytów z monetą arabską z Estonii pochodzi z X w. Zawierają one głównie monety dynastii Samanidów, wybite w latach 280–330 H. (890-940 A.D.). Zasadniczo liczba monet rozkłada się równo na poszczególne dziesięciolecia, z niewielką tendencją spadkową. Po tym okresie liczba znalezisk monet arabskich w Estonii gwałtownie spada. Drugi okres wzmożonego ukrywania skarbów z dirhemami przypada na lata 380–400 H. (990-1010 A.D.), choć ich liczba jest zdecydowanie mniejsza niż w pierwszej fazie. Najmłodszy dirhem znaleziony w Estonii pochodzi z 404 r. H (1013/4). Skarby z tej młodszej fazy składają się głównie z monet dynastii Uqajlidów, Marwanidów oraz Qarachanidów oraz niewielkiej ilości starszych monet samanidzkich z lat 330–370 H. (940-980). Skład X-wiecznych skarbów dirhemów z Estonii zbliżony jest częściowo do składu skarbów gotlandzkich, po części do składu depozytów z Rusi. Najprawdopodobniej monety orientalne dostały się do Estonii poprzez Ruś, ale za pośrednictwem kupców szwedzkich.

Porównując chronologię skarbów oraz zawartych w nich monet, można zauważyć, że w dekadach, kiedy ukryto dużo depozytów, zawierały one stosunkowo mało monet i na odwrót. Powody, jakie skłaniały ówczesnych ludzi do zbierania kruszcu i do jego chowania były różnicowane. Pierwsze były zależne od wielu czynników, między innymi aktywności menniczej Kalifatu czy intensywności kontaktów między Wschodem a Zachodem. Przyczyny powodujące ukrywanie srebra były zupełnie innej natury. Chodzi przede wszystkim o takie, które powodują zmiany w sytuacji demograficznej, to znaczy wojny, plagi, głód oraz inne. Ich wynikiem mogło być ukrycie dużej liczby skarbów. W Europie nadbałtyckiej, szczególnie w Szwecji i na Rusi, można zauważyć niezwykle intensywne nagromadzenie srebra ukrytego w latach 860. Drugi moment tak liczego ukrywania kruszcu miał miejsce około połowy X w. Ten drugi okres wzmożonego deponowania próbowano tłumaczyć zazwyczaj jako efekt wezwania Waregów na Ruś w latach 859–862 lub kryzysem srebrnym na Wschodzie. Ale w grę mogły wchodzić jeszcze inne przyczyny, mające szeroki zasięg terytorialny. Chodzi tu zwłaszcza o klimat, który miał i ciągle ma istotny wpływ na warunki życia ludzi. Badania glaciologów nad pokładami lodu na Grenlandii ujawniły, że największe zakwaszenie pokrywy lodowej w ciągu ostatnich 1500 lat miało miejsce tuż przed połową X w. Zakwaszenie takie mogło powstać w wyniku silnych erupcji wulkanicznych, które z kolei mogły spowodować chwilowe (kilkuletnie) obniżenie temperatury o kilka stopni. Oziębienie niewątpliwie stało się przyczyną zaburzeń wegetacji roślin i w efekcie głodu i zmniejszenia się populacji ludzkiej.

*Thum. z ang. Mateusz Bogucki*