



A late 8th century hoard of dirhams and hack silver from Vitsiku village in North-East Estonia

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INTRODUCTION

In 2019, a Cufic coin, a silver artefact bent in the form of a bracelet, and five fragments of silver ingots were discovered by a hobby searcher in Vitsiku village, Ida-Viru County. The exact find spot is located about two and a half kilometres south of the ancient Kohtla (*Odris*) village, next to the former riverbed. In April 2021 three more dirhams and a half, and seven fragments of silver ingots were unearthed at the same spot (Smirnova 2021), also a microscopic bit of silver had been found there in September.

Preliminary archaeological investigation of the site, directed by Mauri Kiudsoo, took place on 3 May 2021. In addition to monitoring the plough layer with a metal detector, trial pits were dug at the location of the discovered hoard remains, to examine the general stratigraphic situation. Trial pits and further survey with a metal detector confirmed the supposition that the hoard was not in a compact cluster, but was scattered over the field by ploughing. However, mapping the silver artefacts revealed that they remained within a clearly limited area measuring 10 × 5 m; only two specimens have been found somewhat further.

No finds suggesting a settlement layer – potsherds, animal bones, burnt stones, etc. – were discovered there. An occupation layer referring to a settlement site was absent also in the trial pits dug further in the field. The historical maps and the information obtained from the archaeological fieldwork both clearly indicated one-time wetland (peripheral area), the upper layer of which had mineralized due to ploughing, drainage and mining. Vitsiku village was founded only in the late 19th – early 20th century, also supporting the assumption of modest settlement activity in the surrounding (KNR, ‘Vitsiku’).

Besides the silver hoard there is another find spot in the neighbouring field, related presumably to non-ferrous metal casting. Those different sites are located at approximately

100 m from each other. We should also note a Middle Iron Age socketed axe found 40 m from the silver hoard and one tiny medieval (?) silver mount, which has come to light not far from the residues of bronze casting (Kiudsoo 2022).

The find of Vitsiku belongs to the group of numerous hoards from quite a restricted area. This is the district richest in hoards, located on the territory of the town of Kohtla-Järve and its closest vicinity in the present-day Ida-Virumaa County and it was northeast part of Askalae parish in prehistoric Virumaa. Two out of six known Estonian dirham hoards from the 9th century, Kohtla (*tpq* 837/8) (Leimus 2007, no. 2) and Ontika (*tpq* 890/1) (Leimus 2021) are located just a couple of kilometres away from each other. Also, the find spots of the hoards from Erra-Liiva (*tpq* 366 = 977/8), Aa (Leimus 2007, no. 22, c4), and Vainu (*tpq* 955/6) (Leimus, forthcoming), as well as numerous deposits from the 11–12th centuries are all from the same limited area. At the present stage of research, altogether about 25 Viking Age silver hoards are known to have been found there, probably associated with the Purtse harbour site (Kiudsoo 2016, 179–188; Kiudsoo 2019, 131–132, fig. 122; Leimus & Kiudsoo 2020, 63).

COINS

The find under observation here is remarkable in many respects. Starting with the coins, four intact Cufic coins and a broken half of a dirham were found in total (Figs 1–5). The finds of Arabic coins are not rare in Estonia. However, the dirhams in this hoard are somewhat exceptional and deserve closer scrutiny (Table 1).

Table 1. Coins from the Vitsiku hoard.

Tabel 1. Vitsiku aarde müündid.

Compiled by / Koostanud: Ivar Leimus

No. / Nr	Dynasty / Dünastia	Caliph / Kaliif	Governor / Asevalitseja	Mint / Vermija	Year AH / Aasta AH	Weight gr / Kaal gr	Remarks / Märkused
1	ʿAbbasids	Al-Mahdi	Yazid	al-ʿAbbasiya	167	2.49	
2	ʿAbbasids	?	Yazid	al-ʿAbbasiya?	? (Until 177)	2.78	Folded
3	ʿAbbasids	Harun ar-Rashid	Rawh	Ifriqiya	171	2.57	
4	ʿAbbasids	Harun ar-Rashid	Nasr?	Ifriqiya	176	2.18	Obv. graffiti K
5	ʿAbbasids	Harun ar-Rashid	al-Fadl	Ifriqiya	[176-179]	0.5	Broken half



Fig. 1. ʿAbbasids, caliph al-Mahdi, al-ʿAbbasiya mint, 167 AH.

Jn 1. Abbassiidid, kaliif al-Mahdi, al-ʿAbbasiya, 167 AH. (AI 8560: 1.)

Photo / Foto: Ivar Leimus

According to the dates on the coins this hoard is extraordinarily old. The youngest dirham that can be identified with certainty has been minted in 176 AH that corresponds to the year 792/3 of the Christian Era. Unfortunately, one coin that bears the name of Yazid, the governor of Ifriqiya, is folded in a way that leaves the minting data invisible. Although Yazid died already in 787 AD (= 171 AH), his name remained on the coins until 177 AH (Lowick msc., 66). Thus, theoretically this coin could have been struck even in 793/4 of the Christian Era. Also, the broken half of the dirham with the name

of Fadl on the reverse cannot be dated precisely. It was Al-Fadl ibn Rawh behind the name who became the governor of Ifriqiya in spring 791 (= 175 AH) and was killed in autumn 794 (= 178 AH). His name appears on coins from 176 to 179 AH (= 792/3–795/6 AD) (Lowick msc., 76–80). Consequently, the most recent coin in the hoard cannot be younger than from the mid-790s.

No hoard with such an early composition is previously known in Estonia. So far, the most ancient complex of Cufic coins consisted of four dirhams, excavated on the Rõuge hill fort in southeast Estonia. Here, the most recent coin bears the year 193 AH (= 808/9 AD) (Leimus 2007, 12, no 1). The new find from Vitsiku is exceptional also in a broader context. A lot of single dirhams from the 8th and even 7th century have been discovered in Eastern and Northern Europe, indeed, but hoards of dirhams appear only in the very end of the 8th century and they are rare:

1. A small hoard with forged dirhams (four to seven pieces, corroded to each other, some of them Umayyad, AD 700/1) has been found in a stratified layer at Ribe, Denmark, dendrochronologically dated to the 780s (Kilger 2008, 213). But this is not a hoard, in fact and we do not know the purpose for manufacturing these forgeries.
2. There is only one single hoard from the 8th century known from Gotland, the deposit of Hässelby. It consisted just of four dirhams (the most recent from 796/7 AD) and an amount of hacksilver (CNS 1. 3. 3; Kilger 2008, 220).
3. From a hoard (*tpq* 798/9), unearthed before 1840 allegedly somewhere in the vicinity of Penzlin four dirhams survived: one coin from Tabaristan and three of `Abbasid dynasty (two struck in Baghdad, one in Isfahan (today's Ešfahān in Iran) (Masch 1840, 96; Kiersnowski 1964, 52, no. 132). The dating of the whole hoard



Fig. 2. `Abbasids, uncertain caliph, al-`Abbasiya mint, uncertain year.

Jn 2. Abbassiīdid, teadmata kaliif, al-`Abbasiya, teadmata aasta.

(AI 8560: 10.)

Photo / Foto: Ivar Leimus



Fig. 3. `Abbasids, caliph Harun ar-Rashid, Ifriqiya mint, 171 AH.

Jn 3. Abbassiīdid, kaliif Harun ar-Rašid, Ifriqiya, 171 AH.

(AI 8560: 8.)

Photo / Foto: Ivar Leimus



Fig. 4. `Abbasids, caliph Harun ar-Rashid, Ifriqiya mint, 176 AH.

Jn 4. Abbassiīdid, kaliif Harun ar-Rašid, Ifriqiya, 176 AH.

(AI 8560: 9.)

Photo / Foto: Ivar Leimus



Fig. 5. `Abbasids, caliph Harun ar-Rashid, Ifriqiya mint, uncertain year.

Jn 5. Abbassiīdid, kaliif Harun ar-Rašid, Ifriqiya, teadmata aasta.

(AI 8560: 11.)
Photo / Foto: Ivar Leimus

- is uncertain because of the low number of coins known. As a rule, the dirhams from North African mints dominate in the finds from the late 8th – early 9th century (see below), which is not the case here. Apparently, the hoard of ‘Penzlin’ was buried during the early 9th century.
4. Only two coins have preserved from the Latvian hoard of Uņģēni (*tpq* 792/3). In addition, a spiral silver ring of the ‘Permian’ type and another one of the Gotland type were found with the coins (Urtāns 1977, 167–168, no. 46, fig. 76), but the Gotland ring, judging by the typology, cannot be manufactured before the late 9th century.
 5. Only three coins (one dirham of Umayyad and two of `Abbasid dynasty, the most recent one from 168 AH = 784/5 AD) are known from an early hoard found near Glazov, Udmurtia in 1850 (Markov 1910, 7–8, no. 38; Ivanov *et al.* 2004, 188, no. 200). Significantly again, there are no African coins among them. Initially, this hoard must have been substantial since 77 dirhams from it were presented to the Vyatka Museum by a student at the local high school in 1870 (subsequently stolen). Most certainly, this was only a part of the whole. Thus, we may never learn the composition of this remarkable find.
 6. The large hoard from Novye Mliny (Paristovka) in Ukraine (*tpq* 787/8) that initially must have contained more than 800 dirhams has vanished long ago and the data on its composition is scarce (Kilger 2008, 213, footnote 16, 250). According to Richard Vasmer who witnessed seven coins, i.e., less than 1% of the hoard, they mainly were minted in the 770–80s (Fasmer 1927, 289–290). Russian scholar Alexey Fomin dates the hoard to the early 9th century (Fomin 1982, 20), which seems rather plausible since there was only one North African dirham among the seven coins recorded. Besides, all the early hoards of dirhams are, as a rule, small or even very small in the number of coins, which is not the case here. The massive influx of Cufic coins to Europe started only around 810 (Fomin 1982, 16–17).
 7. The existence of the Pokot’ hoard from Belarus is doubtful in the first place (*tpq* 797?, Kilger 2008, 251). More likely, they are some single-found coins (Petrov 2014, 89) that have been assembled to a hoard subsequently on a writing desk.
 8. The relatively small hoard of Staraya Ladoga with its 31 coins (*tpq* 786/7) is the only remarkable exception (Markov 1910, 140, no. 24). There are no more attested 8th-century dirham hoards from the territory of today’s Russia. Thus, according to our knowledge, the hoard of Vitsiku is the third certain hoard of Cufic coins from the late 8th century and the second oldest in the region so far.

Another peculiarity of the hoard of Vitsiku lies in its composition that exclusively consists of the North African dirhams from al-`Abbasiya and Ifriqiya. The toponym Ifriqiya designated mainly the area, which covered nowadays’ Tunesia, and its old capital Kairuan (Qairawan). Al-`Abbasiya was situated next to Kairuan and existed already in the 8th century (Fenina 2007) although most reference works indicate it was founded only in 801.

Al-ʿAbbasiya was one the most productive mints of the Caliphate from the late 760s to the early 790s, and particularly in the 780s its output was overwhelmingly the largest in the ʿAbbasid state (Noonan 1986, 145–149, 170–172). Ifriqiya, too, was among the leading mints of the Caliphate in those years. That is why North African dirhams spread widely in the period. The high productivity of the North African mints, in its turn, relied on the newly discovered silver deposits of the western Maghrib (Heidemann 2011, 458 and references), that seem to have been depleted by the 810–20s, though.

Still, everything is not that clear as it seems. There is a strange phenomenon related to the proportion of the North African coins in hoards from different areas. Their percentage is significantly higher in finds from the territory of today's Russia than from the lands situated more westwards (Kilger 2008, 215–221). Considering the location of the African mints represented in hoards we logically would expect more North African coins in western finds, on the contrary.

In fact, African coins have been found in Western Europe, too (Ilisch 2005). The famous hoard of Steckborn, Switzerland (*tpq* 799/800) contained, apart from 21 North African dirhams also three Carolingian deniers. And there is a hoard of 123 coins from Ilantz, Switzerland (*tpq* 793/4) that mostly consisted of western deniers but also had two dirhams struck in Ifriqiya. Only 49 coins survived from the enormous hoard of Wiesbaden-Biebrich, Germany (*tpq* 786–791), one of them a dirham from Ifriqiya, again. Still, mostly the western finds comprise European deniers. Some single-found African dirhams also come from approximately the same area – Switzerland, Italy, and Austria. In addition, two (?) dirhams reputedly have been found in Slovenia. Thus, the topography of finds proves that relatively few North African dirhams really travelled in Europe from the South, too. But they did not get any further than Southern Germany by that way and there is no reason to expect their arrival to the Baltic via Western Europe.

But how then the African dirhams got to the Far North? Fomin has pointed out that taxes in the Caliphate were paid in two metals – gold in the West (i.e., in North Africa) and silver in the East. But there was one exception – in Ifriqiya taxes were collected in silver instead of gold (Fomin 1990). This way the African dirhams reached the ʿAbbasids' treasury and from there they travelled further to the north and north-west with other dirhams. True, it has to be admitted that even the eastern hoards do not contain more than 33% of the North African dirhams (Ilisch 2005, 69), which is less than in some Russian finds. The explanation lies in their poorer quality – North African coins were a bit lighter and of a slightly lower fineness than the dirhams minted in the East. That is why the population tried to get rid of them. By doing so they accelerated the circulation of the North African dirhams and pushed them out of the core lands of the Caliphate (Kilger 2008, 214; Heidemann 2008, 343–347; Heidemann 2011, 459–463).

But what could cause the difference in the proportion of the African dirhams in Russian finds and in the western finds? It is possible that the finds compared here simply are not contemporary. I.e., North African coins may have reached the western lands with some chronological delay, after the apogee of their domination in everyday use was over already (Kilger 2008, 218). For instance, speaking of Gotland hoards, the most ancient of them, even though very small in the number and terms of coins, contain proportionally more African dirhams than these from the 810s (Kilger 2008, 217). And African dirhams are almost entirely absent from the early Baltic Prussian finds (Jankowiak 2021, 112).

The problem seems to have been constructed artificially, in fact. Scholars starting from Richard Vasmer (Fasmer 1933, 478) have tried to set up a periodization for the spreading of Cufic silver in Northern and Eastern Europe. Vasmer was well aware of the high proportion of African coins during his first period of the dirhams' influx to Rus' (ca. 800–825), although he did not distinguish the chronological limits of their arrival in the broader framework of the 'Abbasid silver import. However, the western scholars today, speaking of the initial period of the dirhams' circulation divide it into two phases: 1) the Caucasian link (770–90), and 2) the establishment of the dirham network (790–825) (Kilger 2008, 211–221). As we have seen, it does not fit with the use of North African dirhams.

Vyacheslav Kuleshov has a different view, taking also into account the monetary developments in the Caliphate itself. Instead of phases, he divides the use of dirhams in Eastern Europe into four stages from A to D. We can leave here aside his first stage A as it dates from 750/60 to 780/90 and move on to the next stage B. According to Kuleshov this stage encompasses the years from 780/90 to 800/10 and was driven by the first monetary crisis of the 'Abbasids. That is characterised by the decreasing importance of the dirhams from the core territories of the Caliphate on the one hand and the increasing significance of North African coins on the other hand (Kuleshov 2011, 48). The Eastern European and Southern Baltic hoards, by contrast, with the diminishing proportion of North African dirhams belong to the next stage C by Kuleshov, when the situation on the silver market had changed in favour of the Mesopotamian mints again. Thus, the chronological composition of these deposits does not reflect the real time of their assemblance.

Summing up, it may be concluded that the recently found dirhams have reached Estonia probably via today's Russia. By its composition the hoard is characteristic for the first wave of the arrival of dirhams in Europe. It contains few coins, but much more silver in the form of a bar as well as hacksilver pieces. As such, the find from Vitsiku greatly resembles the early hoards from Gotland, these of Hässelby (*tpq* 796/7), and Hammars (*tpq* 802/3) (CNS 1. 3. 3; CNS 1. 4. 6). Comprising a small number of coins (only three in Hässelby and eight in Hammars) they, too, mostly consist of silver bars and their fragments (363 and 278 grams respectively). Almost the same is to be said about the hoard from Prerow-Darss (*tpq* 802/3), East Germany, which comprised at least two heavily bent silver rings besides the coins (Kiersnowski 1964, 54, no. 143; Ulonska 2005, 1640).

There is an incision on the obverse of one Vitsiku dirham from 176 AH (Fig. 2, no. 4 on the list), which resembles the character K (Fig. 6). That could be interpreted as a runic letter, but



Fig. 6. Graffiti on the coin.
Jn 6. Mündile lõigatud graffiti.
(AI 8560: 9.)

Photo / Foto: Ivar Leimus

the art of cutting it deeply into the surface of the coin does not resemble the light scratches that are characteristic to the runic inscriptions on dirhams (Hammarberg & Rispling 1985, 66). However, similar cut marks have been observed on some coins in the Kohtla hoard (*tpq* 837/8) where they resembled Romanic numbers I, III and IX, the latter two on the coins from 171 AH. I have suggested them to have been markings made during or for counting coins one by one (Leimus 2003, 146). Possibly, the same explanation can be offered here, too.

NON-MONETARY SILVER

The hoard from Vitsiku also contains non-monetary silver (96.67 g) (Fig. 7). Most of non-monetary items here are cut-up fragments of ingots ('bracelets') that represent rings or spiral rings of rods with a square or rhomboid cross-section (Wiechmann 1996, type II 14). This type is well known from the Viking Age hoards around the Baltic Sea, especially from Gotland. There, most of the spiral rings of the type have been dated to the 10th century, although the rings occur in hoards also from the 9th century onwards (Stenberger 1958, 226 ff; Lundström 1973; Wiechmann 1996, 44; Hårdh 2016, 62–63). Complete Gotland spiral rings have been mostly found only from the island itself (Wiechmann 1996, map 52), but they also belong to the hoards discovered near the eastern shore of the Baltic Sea. Those find spots mark the waterway that connected Viking Age Gotland with north-west Russia. After reaching the coast of Courland, seafarers from Gotland turned north, passed through the Suur Strait (Est. *Suur väin*) on their way through coastal waters, headed to north-west Estonia and then along the Gulf of Finland towards the East and South (Kiudsoo 2016, 12).

At the current stage of investigation, we have information of fourteen Baltic hoards that include Gotland rings/spiral rings or their fragments; eight of those have come to light from Estonian hoards of the second half of the 10th and the beginning of the 11th century (Kiudsoo 2019, fig. 130). Complete silver spiral rings from the Ääsmäe, Väike-Rõude and Kinksi hoards are stored in Estonian public collections (AM 13749/A70; AM 28153; AI 7049: 1; AI 7055; AI 7042: 4). Although there is no complete data on the composition of the Saue Vanamõisa



Fig. 7. Non-monetary silver and coins of the Vitsiku hoard.

Jn 7. Vitsiku aarde kaaluhõbe ja müündid.

(AI 8560.)

Photo / Foto: Mauri Kiudsoo

hoard there is reason to believe that it contained more spiral rings than any other non-Gotland hoard (Leimus 2007, no. 11; cf. Stenberger 1958, 228). Additionally, there is solid data about similar items in the Pöide hoard from the island of Saaremaa, the hoard itself has gone missing (Kiudsoo 2016, 106–107 and references). The fragments of such rings are recorded in the finds of Räägi in Saaremaa, Metsaküla in Harjumaa and Varja II in Ida-Virumaa (Kiudsoo 2016, 106–107 and references).

Latvian archaeologist Vladislavs Urtāns (1977, 168, 171) mentions two Gotland rings in Latvian hoards that date from the 10th century. A hoard consisting of fragments of similar rings was also discovered by a metal-detectorists near Ventspils, Courland (Kiudsoo 2016, 107). Only one spiral rod of the same type is known from Lithuania, also dated to the 10th century (Vaitkunskienė 1981, 93, fig. 78).

All the spiral rings in the above-mentioned Baltic hoards have the ends shaped into round loops or bent to S shapes. Besides those a Viking Age silver hoard was also found 20 km east of Tallinn (Jõelähtme) (Kiudsoo 2019, fig. 130: 14; information about the rings is recorded in the archive of TLÜ AT). Unfortunately, these silver items did not reach public collections and are in private property. Both spiral rings (102 g) have tapered ends (Fig. 8).



Fig. 8. Silver spirals from the Jõelähtme hoard.

Jn 8. Spiraalvõrud Jõelähtme aardest.

Photo: Internet

This kind of rings with a rectangular cross-section and tapered ends also occur in a few unexpectedly early finds (Stenberger 1958, 27; Wiechmann 1996, 45). There is a complete spiral ring of the type in the silver hoard of Hammars, Gotland (*tpq* 802/3) that weighs 203.65 g (Fig. 9), i.e. almost exactly twice as much as each ring from Jõelähtme (pers. communication with Antje Wendt, Historiska Museet, Stockholm). The hoard of Prerow-Darss from Vorpommern, Germany (*tpq* also 802/3), contains even two simple rings of the type (Fig. 10), the complete (?) one (though broken) weighing 43.6 g (pers. comm. Claudia Hoffmann, Stralsund Museum). And there is one complete simple ring of the type in the hoard of Ugodichi, Russia (*tpq* 812/3), whose weight unfortunately is not given in the publication (Korzuhina 1954, 81, no. 9, pl. 2). Another ring from the Ugodichi find, judging by the photo, has the same rhomboid cross-section but no tapered ends.



Fig. 9. Silver spiral from the hoard of Hammars.

Jn 9. *Spiraalvõru Hammarsi aardest.*

(SHM 3045.)

Photo / Foto: Antje Wendt



Fig. 10. Silver rings from the hoard of Prerow-Darss.

Jn 10. *Höbevõrud Prerow-Darssi aardest.*

(Stralsund Museum, 1874:1529.)

Photo / Foto: Claudia Hoffmann

As a rule, the diameter of the cross-section of such rings in their thicker part is 4–7 mm, which is normally more than that of the later spirals, both with tapered ends and with loops at their ends (Wiechmann 1996, 44–45). Thus, the silver fragments with the rhomboid cross-section in the Vitsiku hoard can have only been cut or chopped off from rings or spirals of the early type. Similar fragments also have been recorded in the hoard of Hässelby, Gotland (*tpq* 796/7) (Fig. 11). Thus, together with the new find from Vitsiku we have at least five early hoards dated by the coins and containing either whole or fragmented spiral ingots.



Fig. 11. Non-monetary silver from the hoard of Hässelby.

Jn 11. Kaaluhõbe Hässelby aardest.

(SHM 8212.)

Photo / Foto: Christer Åhlin

It should be stressed that all these early hoards contain African dirhams (Kilger 2008, 217) and, in the case of Vitsiku, the monetary part of the deposit consists of them exclusively. As a rule, the proportion of North African dirhams in finds declines over time and they appear only occasionally in the hoards after ca. 840 (Kershaw *et al.* 2021, 191). It means that this type of ingots must have been introduced even earlier as thought before, already in the late 8th – early 9th century. From the very beginning, a certain weight standard seems to have been applied to these rings with the main unit of around 100 or 200 g.

This weight standard is well-known from the slightly later finds, and it was applied to other forms of ingots, too (e.g., Hårdh 1996, 141; Hårdh 2016, 59, 61–62). However, talking about the time around 800 AD only the so-called Permian rings, i.e. rings with striated sections and specific ends – a hook and a knob – can be brought as comparison. Those rings also weigh mainly 200 and 100 g and date from the late 8th century (Hårdh 2016, 13–34).

Apart from the fragments, the hoard also contains an intact silver ring weighing 31.21 g. This weight differs from the above-mentioned 100-g standard and so does the strap-formed shape of the ring, which is rather flat and broad, although has slightly tapered ends, too. Therefore, an ornamental function of the Vitsiku ring cannot be ruled out here. Seemingly, a flat and bent silver fragment may have been cut off from a similar ring. Three rings of a similar type belong to a Danish hoard from Häljarp (*tpq* 814), but they are considerably broader and also much heavier – 88.19, 86.43 and 46.75 g correspondingly (Wamers 2005, 111; pers. comm. Gitte Tarnow Ingvarsson, Lunds universitet, Historiska museet). Thus, the only possible comparative match comes from the hoard of Hässelby, although that artefact is slightly thicker and considerably narrower.

In addition, there is also a fragment of a ring with a round cross-section in the Vitsiku find. It may constitute the smooth part of a Permian ring, but other types of rings cannot be excluded either.

The proportion of non-monetary silver in the hoard (96.67 g) is much higher than that of coins (10.52 g). This amount of silver is remarkable for it is quite close to the 100-g weight unit revealed above, be it together with coins or without them. And, characteristically to most of the early dirham finds from the late 8th – early 9th century (except these from Caucasus) – the hoard from Vitsiku is small regarding the number of coins (Kilger 2008, 211). The silver hoards of the period overwhelmingly consist of whole or fragmented rings and ingots. Usually, they are believed to have been made of dirhams (e.g., Hårdh 1996, 141; Hårdh 2016, 58). That certainly applies for the following decades of the 9th (Kershaw *et al.* 2021, 197) and most of the 10th century, but hardly for the initial period of the dirham influx. Obviously, there were not enough dirhams to produce all these ingots.

Another possibility is, however, that the shortage of dirhams in early finds was caused by melting down all the North African and maybe other dirhams, in order to be manufactured into the Permian rings (Kilger 2008, 214). However, at least in the initial stage of production of the Permian rings in the 8th century, they seem to have been cast from Sasanian and Umayyad coins (Kershaw *et al.* 2021). Analogically, one may suggest that North African dirhams could have been transformed into Gotland rings slightly later. To find out if this was the case, metal analyses were carried out by Ragnar Saage. Comparatively, the fragments of ingots as well as the complete ring from the Vitsiku find, and coins of different origin were analyzed.

Metal analyses

Non-destructive analyses were carried out using a SPECTRO xSORT handheld X-Ray fluorescence (XRF) analyser. A manufacturer provided calibration was used with the following settings: a two-second screen for light elements at 50 kV and a 10 second measurement for heavy elements at 15 kV. The analysis was carried out on the untreated surface of the artefacts. This means that the compositions do not represent the average but rather the surface content. The latter is especially relevant for the elevated mercury content (more on that below). Hence the results (Table 2) should be considered as tentative, but still a good starting point.

Table 2. *Results of the XRF analyses.*

Tabel 2. *XRF analüüside tulemused.*

Compiled by / Koostanud: Ragnar Saage

No. / Nr	Inv. No. / Inv. nr	Artefact / Ese	Cu	Zn	Ag	Au	Hg	Pb	Ni
1	AI 4040: 1231: 3	Rõuge dirham hoard	0.01%	0.36%	64.77%	0.10%	34.18%	0.08%	0.01%
2	AI 4040: 1231: 4	Rõuge dirham hoard	7.61%	0.31%	90.65%	0.64%	0.06%	0.41%	0.01%
3	AI 4040: 1231: 2	Rõuge dirham hoard	1.53%	0.06%	92.81%	0.25%	4.91%	0.05%	0.01%
4	AI 4040: 1231: 1	Rõuge dirham hoard	6.03%	0.02%	91.37%	0.22%	1.96%	0.04%	0.01%
5	AI 5000: 490: 1	Roman denarii	9.79%	0.30%	88.65%	0.27%	0.36%	0.07%	0.18%
6	AI 5000: 490: 2	Roman denarii	0.01%	0.05%	95.26%	0.15%	4.13%	0.04%	0.01%
7	AI 8560: 11	Vitsiku dirham	2.25%	0.01%	95.63%	0.03%	1.29%	0.47%	0.01%
8	AI 8560: 3	Vitsiku rhomboid ingot	1.54%	0.01%	97.57%	0.19%	0.01%	0.24%	0.04%
9	AI 8560: 2	Vitsiku round ingot	2.72%	0.01%	96.28%	0.25%	0.02%	0.40%	0.01%
10	AI 8560: 12	Vitsiku flat ingot	2.36%	0.01%	96.87%	0.17%	0.01%	0.17%	0.02%

The XRF analysis of the three Vitsiku ingots (Table 2: 8–10) shows they are very close in silver content and impurities. The silver concentration is around 96–98% and there is around 2% copper. The detected impurities are gold, lead and nickel. One of the Vitsiku dirhams (Table 2: 7) had roughly a 1% mercury content, which was not detected in the ingots. According to a recent work by Stephen Merkel (2021), a thin layer of mercury on the surface of the dirhams was found on almost all of the investigated 26 coins. This strongly suggests that mercury was part of the minting process, however it is not clear how. The discovered mercury layer on the coins was very thin – about 10 µm (*ibid.*). The ingots on the other hand had a gold content, which was not detected on the Vitsiku dirham.

For comparison, dirhams from the Rõuge hoard were analysed (Table 2: 1–4). The mercury layer was also present on three of the four coins. However, the Rõuge coins have an elevated zinc content, which does not match the Vitsiku finds. Two Roman denarii from Rannu were also analysed (Table 2: 5–6). One of them (Table 2: 5) had an elevated zinc and nickel content not matching the Vitsiku finds. The other denarius (Table 2: 6), was actually quite close to the Vitsiku coin, but it had a much lower lead and copper content compared to the dirhams. The mercury present on the denarii points to a similarity in the minting process, which needs further investigation.

Taking into account that the mercury content on the Vitsiku coin is probably present only on the surface, the average mercury concentration would fall significantly when these coins would be recast as ingots. Hence, the Vitsiku ingots could have been made from North African dirhams.

CONCLUSION

So far, we did not have solid numismatic evidence for the international trade in Estonia before the 830s. The hoard of Vitsiku proves that at least the area of today's Virumaa district has been involved in international networks that connected the East and the West in the early stage of the influx of Cufic dirhams to the North around ca. 800. Whereas the coins, most probably, reached Estonia via Russia and along the southern coast of the Finnish bay, other silver objects seemingly originate from Gotland.

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DIRHEMITE JA HAKKHÕBEDA LEID 8. SAJANDI LÕPUST VITSIKU KÜLAST IDA-EESTIS

Ivar Leimus, Mauri Kiudsoo ja Ragner Saage

2019. aastal leidis hobiotsija Ida-Virumaalt Toila vallast Vitsiku külast araabia hõbemündi, hõbevõru ja viis hõbedakangide tükki. 2021. aastal tulid samast kohast päevavalgele veel kolm tervet ja üks poolik dirhem ning seitse hõbedakangide tükki (jn 7), millele hiljem lisandus väike tüki.

Arheoloogilised uuringud kinnitasid, et aardeke polnud säilinud kompaktselt, vaid selle tuumik oli laiaili küntud u 5 × 10 m alal. Mingeid jälgi kultuurikihist ei avastatud. Vitsiku jääb Kohtla ümbruskonna väga arvukate (u 25) viikingi- ja hilisviikingiaegsete aarete levikupiirkonda, mida võiks seostada muistse Purtse sadamakohaga.

Ehkki Araabia müntide leiud pole Eestis haruldased, on Vitsiku dirhemid (jn 1–5, tabel 1) meil ainulaadsed, olles vermitud Põhja-Aafrika ja kuuludes 8. sajandi lõppu. Kahjuks ei ole kõik dirhemid täpsemalt dateeritavad, kuid Vitsiku aare näib olevat kokku saanud hiljemalt 790. aastate keskpaigaks. Nii varajasi mündiaardeid on kogu Põhja-Euroopast teada väga vähe ja Vitsiku võib olla Vana-Laadoga leiu (*tpq* 786/7) järel vanuselt koguni teine. Tõenäoliselt on mündid meile jõudnud Venemaa kaudu.

Peale müntide oli leius 96,67 g kaaluhõbedat, mis valdavalt koosneb omaaegsete rahavõrude tükkidest, lisandub üks terve võru. Enamasti on siin tegemist Ojamaal valmistatud rombja ristlõikega ja mõnikord spiraalsete võrudega (jn 9), mis Põhja- ja Ida-Euroopa aaretes esinevad alates 8. sajandi lõpust ja kaaluvad

reeglina 100 või 200 g ümber. Tervele paelja ristlõikega võrudele täpset vastet ei õnnestunud leida, kuid lähimad paralleelid pärinevad Taanist ja jällegi Ojamaalt. Seega peegeldab Vitsiku aare meie kahe-suunalisi kontakte 8. sajandi lõpus. Kui mündid tulid nähtavasti ida poolt, siis hõbevõrud läänest.

Võrreldes müntide kogukaaluga (10,52 g) on kaaluhõbedat leius ligi kümnekordselt. Niisugune müntide-kaaluhõbedat suhe iseloomustab ka mitmeid teisi 8. sajandi lõpu – 9 sajandi alguse dirhemileide. Võttes arvesse dirhemite vähest hulka selle aja aaretes, tekib küsimus, mis hõbedast rahavõrud valmistati?

Käsispektromeetriga tehtud uuringud Vitsiku leidudest lubavad teha esialgseid järeldusi nende päritolu ja koostise kohta (tabel 2). Vitsiku kangide koostis on sarnane nendega koos leitud dirhemile, selle erinevusega, et dirhemi koostises on kõrge elavhõbeda sisaldus. See on aga dirhemite puhul levinud tava, et nende pind on elavhõbedaga rikastatud – ilmselt oli see vajalik nende müntimise juures. Kui aga taolised mündid üles sulatada, sulaks õhuke elavhõbeda kiht ülejäänud kangi koostisesse ja seetõttu oleks seda sulamist raskem tuvastada. Nii võis olla juhtunud ka Vitsiku kangidega. Seega viitavad XRF analüüsitud tulemused sellele, et tõepoolest võisid hõbedakangid olla valatud Aafrika dirhemitest, nagu on oletanud ka teised uurijad.