

WOODWORKING IN ESTONIA

HISTORICAL SURVEY

By Ants Viires

Translated from Estonian by Mart Aru





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INTRODUCTION TO THE ENGLISH-LANGUAGE EDITION

I feel like Captain Pike. When I was growing up, he was always old. He died at 93 in 1977; I was maybe 19 years old. I used to help out around his place, shoveling snow, that sort of thing. I got to spend a lot of time with him, usually listening to his stories while he smoked his pipe on the porch. Many of the stories talked about the old days, the usual “price of a loaf of bread” sort of thing.

Now, 40 years later, I delight in telling young woodworking students about how it was in “my day” when I was just learning the ins and outs of woodworking. We had no Internet, blogs, forums, social media, etc. – we had to wait for the information to dribble our way slowly. I read *Fine Woodworking* magazine from cover to cover, then waited two months for the next issue. There wasn’t much in between. Most of the books I could find weren’t really about what interested me. Some of that changed in 1978 with the publication of John (Jennie) Alexander’s “Make a Chair from a Tree” (Taunton Press) and Drew Langsner’s “Country Woodcraft” (Rodale Press).

I swallowed those books whole and could even quote passages (to myself; no one else would listen). By 1981, Roy Underhill’s “The Woodwright’s Shop” (The University of North Carolina Press) was published, and now I had three books I could read. Then I would pore over the bibliographies in these books to find more information. Herbert Edlin’s “Woodland Crafts in Britain” (Batsford) and J. Geraint Jenkins’s “Traditional Country Craftsmen” (Routledge) were easy enough to hunt down. Both books described the

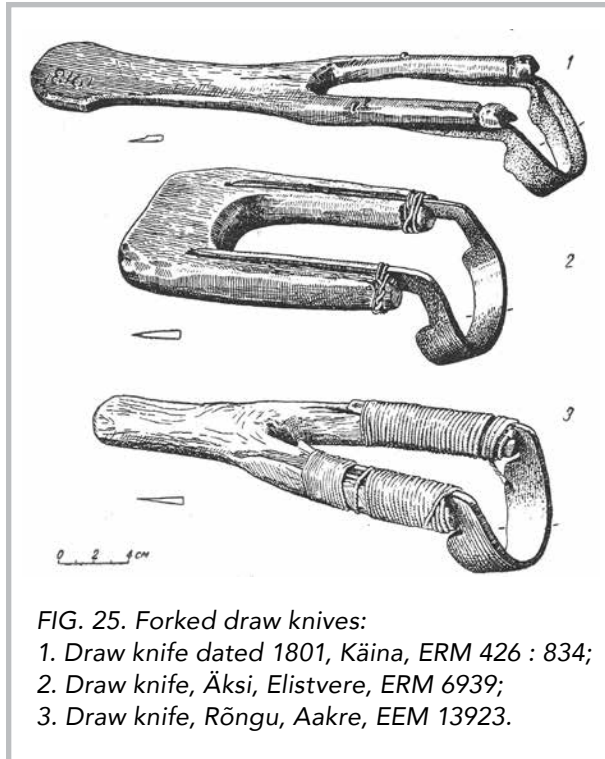
ways of English village woodworking, captured at a time when this life was vanishing.

OK, I got those, but what is this other book that all three authors mentioned? Langsner cited it as his “favorite” and Underhill as the “most important” along with the Edlin book. “Woodworking in Estonia?” I didn’t even know where Estonia was in the world. One record said the book was published in Jerusalem, by the U.S. government. Huh? It didn’t matter – no bookstore could find me a copy... back when you had to go into the store. Then the proprietor would somehow contact other bookish types and months would go by before I would get a note saying: “No dice.”

Years later, I worked regularly collaborating with Alexander, and she generously gave me her second copy of this mythical book. Then I saw what all the fuss was about. This book shows the how and why of village woodworking in Estonia at a time when it hadn’t changed much in a couple hundred years.

Now you can see for yourself, and it won’t take an act of Congress for you to get your copy.

As I think about the term we use lately, “green woodworking,” I think about the woodworkers recorded here. These were men who knew wood intimately, in ways that often fall short these days. They applied their skills at working and reading wood almost unconsciously: green wood here, dry wood there. Riven, sawn, straight grain, curved grain. Steamed and bent, hewn and sculpted. The products featured in the book are everyday items found in country households,



combining utility and beauty in ways that speak volumes. This book shows us a culture that remained connected to its environment and its traditions long after some others had lost their way.

This fine-tuned knowledge is evident throughout their work. One example is the hollowing knives (called “forked draw knives”) in the section on tools and implements. Some of these utilize very particular-shaped stock for the handles. The craftsmen chose a forked section of a small sapling to connect the two tangs of this knife into one handle. As visually appealing and quaint as this looks, the purpose was function. A handle made this way follows the fibers of the tree, and is therefore stronger than one made by bending or joining straight sections of timber. Products such as this show the depth of the craftsman’s relationship with his materials.

While some woodworkers today have this degree of tree-knowledge, in general that kind of familiarity between the craftsman and his materials is all but lost in the industrialized nations. I recently heard a student who was learning

“green woodworking” say he was accustomed to imposing his will on the wood, not letting it have a say in the process. In reading and studying this book, you will begin to see evidence of a three-way interaction between an artisan, his tools and the materials. Then you will be on your way to understanding just what these men in mid-20th-century Estonia were doing as they worked in an age-old tradition, now all but disappeared.

As I read through “Woodworking in Estonia” again, it made me want to go make something. Many things. That’s the kind of inspiration I want from a woodworking book. Me, I’m off to scour the woods for interesting shapes.

Peter Follansbee
 Kingston, Massachusetts
 October 2015

THE TWISTING TRANSLATION TALE OF 'WOODWORKING IN ESTONIA'

Publisher's note: Ever since being charmed by "Woodworking in Estonia," I've been curious about how and why it was first translated into English in 1969. Fellow woodworkers have shared strange theories about the translation with me that involve the U.S. State Department, the Israeli government and covert Cold War cash. After my years as a journalist, I suspected the story was more mundane, so I asked researcher Suzanne Ellison to dig into the public records available about the book and interview surviving members of the author's family in Estonia. This is her report.

– Christopher Schwarz, publisher, Lost Art Press

In 1960 a monograph on woodworking is published in the Estonian Soviet Socialist Republic. Within months the book is listed in U.S. government publications. Several years later the book is being translated in Israel and is listed in a CIA publication. Shades of John le Carré? "Tinker Tailor Soldier Ethnographer?"

During World War II, tremendous advances were made in science and technology. Long-range rockets, guided missiles and atomic weapons were developed, resulting in an arms race after the war. Western governments and the Soviet Union vied to increase their spheres of influence. For the post-war civilian population, such scientific advances were a cause of fear and anxiety. An American child attending school in the 1950s and into the early 1960s will remember the air

raid drills. They were taught to "duck and cover" under desks or were crowded into school basements with shelves of canned goods lining the walls. Before being stationed at military bases in Western Europe, the children of members of the U.S. Armed Forces were issued dog tags in case of separation from the family.

THE GREAT INFORMATION RACE One of the United States' concerns was the perceived gap in science and engineering education and research compared to that of the Soviet Union. A greater need for science education and funding led to the creation of the National Science Foundation (NSF) in 1950. One of the first initiatives undertaken by the NSF was to create a directory of U.S. scientists, their education, fields of research, location and expertise in foreign languages. Comparisons were made to the known numbers and fields of expertise of scientists in the Soviet Union. The U.S. directory of who was where and what they were doing would also be useful in the event of "mobilization" (i.e. war). In a March 1956 report of the Joint Committee on Atomic Energy to the U.S. Senate, the situation was characterized as "in desperate danger of falling behind the Soviet world in a critical field of competition – the life-and-death field of competition in the education and training of adequate numbers of scientists, engineers and technicians." Another problem was how to keep track of the massive amounts of domestic and foreign scientific and technological literature being generated and how to guarantee easy access to it.

Then, in October 1957, the Soviets launched Sputnik I, creating a space race and deepening the arms race. The capability to put a satellite in orbit also meant an intercontinental nuclear weapon was a possibility. The push to improve science education and expand research became more intense. The National Defense Education Act was passed, and the NSF saw its funding tripled. Improved access to scientific literature, both domestic and foreign, became urgent. In the preface to a report by the Quartermaster Research & Engineering Command (January 1959, revised March 1960) it was noted, "It is realized now that if the United States had translated available information from Russian publications there would have been no surprise at the first Sputnik launching. Information on Soviet earth satellite plans had been published a year before the launching in October 1957."

Since World War II the Library of Congress had been collecting Soviet publications to translate them, and similar efforts were underway in other government agencies, universities and private industry. The NSF was tasked with increasing the collection of foreign language scientific literature and improving the communication of the available literature. The NSF Annual Report for Fiscal Year 1957 put it this way: "All the foreign scientific publications which a United States scientist may need should be readily available to him...regardless of the language or nation in which the publication first appeared...The availability of translated, as well as the foreign publications not translated, should be called to the attention of scientists through publication of English abstracts, a translation collection, announcements..."

The need for access to, and exchange of, scientific literature from the countries behind the Iron Curtain went beyond the arms race. In any scientific or technological field of research it is vital to know about related research, controls used, reproduction of results and both failures and successes. Exchanging research and advances in medicine and knowledge gained in the sciences was of great benefit for all participants. And if one happened to come across a clue to a new satellite launch, that certainly didn't hurt.



Ants Viires with a brush scythe in 1947, Photo by Veera Puchs. ERM Fk 1907:16.

ANTS VIRES & HIS RESEARCH Ants Viires was born in Tartu, Estonia, in December 1918. In 1937 he was admitted to the University of Tartu with a focus on language studies. Within three years Estonia was caught in a brutal back-and-forth between the Soviets and Nazi Germany. The Soviets took over in 1944, and Estonia was made a Soviet Socialist Republic and would remain so until 1991.

In the 1940s Viires shifted his studies to ethnography and began to work at the Estonian National Museum; he graduated from the University of Tartu in 1945. At the same time institutions in Estonia were being brought in line to espouse Soviet ideology. Museums and universities became State, as opposed to National, institutions. Researchers were tasked with relating Estonian heritage and culture to that of Russia. Estonian researchers fled to other countries and some were purged by the Soviets. Those remaining in the country were required to be "retrained." The

Soviets labeled the Estonia National Museum a "nest of bourgeois nationalists."

Viires left the museum in 1946 to pursue post-graduate studies. From 1949 to 1956 he did not work in his field of expertise because his compulsory work for the German military during World War II was used against him. He worked in a clerical position in a factory in Elva and later as an English and German teacher in a small school in Saku. In his free time Viires continued his ethnography studies and wrote his doctoral thesis. He earned his Ph.D. in 1955 and his thesis is what we now know as the (unauthorized) 1969 edition of "Woodworking in Estonia."

In 1956, as a result of the "Khrushchev Thaw," the Soviet Union loosened control of scientific and technological publications, easing the flow of information to the West. As a result, three things happened: the Library of Congress increased its exchange agreements with Soviet libraries, Soviet scientific journals could be readily obtained by subscription, and U.S.-based dealers could order books through the state book export monopoly Mezhdunarodnaha Kniga. To keep up with the tremendous number of Russian-language journals, the NSF gave grants to domestic translation and abstracting services. Materials translated by Western European groups were also available.

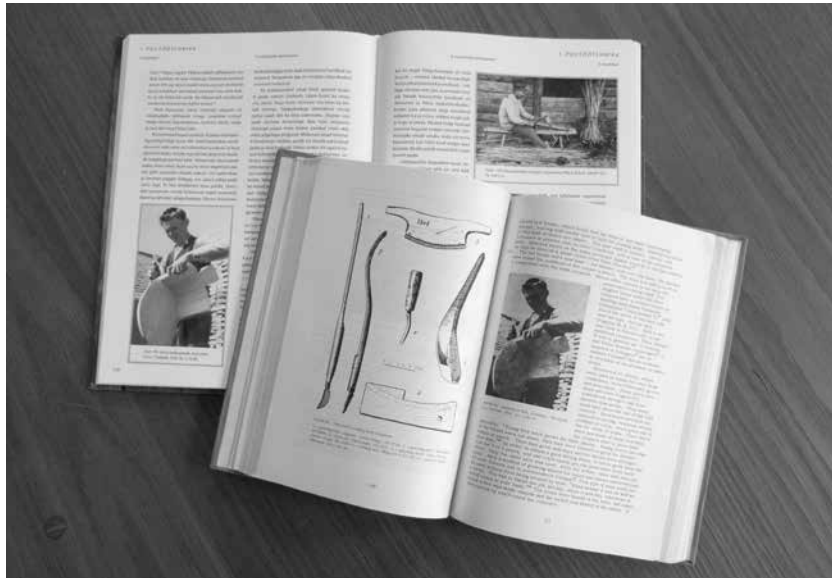
Viires was able to work again in his field of expertise when he joined the Tallinn Institute of History in 1956. In the July 1957 issue of "East European Accessions List" of the Library of Congress, a journal article by Viires is listed for the first time. Another journal article is listed in the accessions list in 1958.

TRANSLATIONS FOR FOOD Keeping up with the number of publications that were available to U.S.-based scientists and the time it took for full translations was becoming problematic. There were at least 28 academies of sciences and several thousand research institutes in the USSR. Russian-language translations had been given priority, but by 1959 the number of non-Russian abstracts and translations had to be expanded. More translations and the money to pay for them

were needed. Enter the American Foreign Food Assistance Program and Public Law 480.

Public Law 480 (PL 480), otherwise known as the "Food for Freedom" program, was signed into law in 1954. The agricultural bounty of the United States was a foreign policy tool that was initially used to help countries recover after the war and keep domestic prices from falling. It was also a means of discouraging communism. Under PL 480, agricultural commodities could be sold to foreign governments for local currencies, donated for famine or emergency relief abroad, or used for emergency situations in the United States. After a country's request for aid was approved, the U.S. firms providing agricultural goods were paid in U.S. dollars while the importing country paid for the aid in the local currency. Currencies were paid to the U.S. Embassy in the receiving country. According to the United State Senate Committee on Agriculture and Forestry, under Title I of PL 480 foreign currencies accrued from the sale of agricultural commodities could be used among other things "for international educational exchange...for carrying out programs of U.S. government agencies..." Using the provisions of PL 480 the NSF could set up contracts for translation services in countries receiving U.S. agricultural goods and the services were paid for with the local currencies accruing at the U.S. Embassies. In 1959 the NSF signed its first translation contract with the Israel Program for Scientific Translations (IPST).

IPST was formed by the Israeli government and employed multi-lingual scientists to translate books and other Soviet-bloc publications in chemistry, physics, medicine, biology, mathematics and other fields. Many of the scientists received their education partly in the Soviet Union and partly in English-speaking countries. The 150 or so translators were scientists from the faculties of Hebrew University, the Israeli Institute of Technology and research staff of other institutes. By 1964 IPST had translated 330 books and 800 articles totaling 110,000 pages. The translated publications were printed in Jerusalem and available in the United States through the Office of



The interiors of the two previous editions. The English translation used poor reproductions of the original images. For this new edition, we have obtained the original photos and images from the Estonian publisher.

Technical Services of the U.S. Department of Commerce. Complimentary copies of the English editions were sent to the origin countries in the Soviet Union, and IPST also sold editions to 60 other countries. In 1960 similar translation contracts were signed with groups in Poland and Yugoslavia.

In 1960, Viires' doctoral thesis "Eesti rahvapärane puutööndus: ajalooline ülevaade" was published by the Estonian Academy of Sciences. The full publication of a thesis was exceptional in the Soviet Union. Abstracts and articles summarizing the thesis were required by the author and printed in limited numbers but were rarely available abroad. It seems despite his "undesirable background," Viires' work was deemed too important not to be published in full. However, for this type of publication no royalties were paid. In the April 1961 edition of the "East European Accessions List" of the Library of Congress, Viires' monograph was listed for the first time.

Through listings in several U.S. government publications, a request for a cover-to-cover translation, the translation of select journal articles, or

an abstract could be made. The NSF coordinated the requests with various agencies including the Atomic Energy Commission, the National Library of Medicine, NASA, the Smithsonian Institution and the Departments of Agriculture, Commerce and the Interior. Lists of available translated material (with prices) was published regularly. Copies of translated publications were also deposited at the Library of Congress and several major university libraries.

In the case of "Woodworking in Estonia," the Smithsonian requested the translation from Estonian to English. Translations by the IPST followed a four-part process with reviews by the editorial staff, science-area specialists and English-language stylists who were immigrants from the United States, South Africa and Britain. The first listing showing the translation was underway was in the CIA's "Consolidated Translation Survey" of January 1968. It was listed under USSR-Economics as "Estonian Wood Carving Industry." Once the translation was completed it was listed in the same CIA publication one year later un-

der Scientific-Miscellaneous as "Woodworking in Estonia." The U.S. Department of Commerce, responsible for sales and distribution, provided a full description of the newly translated book in the "U.S. Government Research & Development Reports" of April 1969. "Woodworking in Estonia: Historical Survey" was described as "Wood, material forming. Culture, USSR. Rural areas, Trees, Small tools, Containers, Bending, Joining, Anthropology, Economics." Identifiers were: "Social anthropology, Estonia, Woodworking, Turning (Woodworking), Handicrafts, Furniture." As was the usual practice for an author in a Soviet-controlled country, Viires did not know his Estonian-language monograph had been listed in a U.S. government publication, selected for translation into English, translated by the IPST and made available for sale in the United States. He received four copies of his translated work, but no royalties.

Late in Estonia's pre-1940 independence period, copyright laws based on the German model had been drafted but were not enacted prior to the Soviet occupation. During the occupation Estonia was subject to the copyright regulations in the Soviet Civil Codes. The Soviet Union was not a member of any international copyright convention until 1973. Prior to this, a work was copyrighted from the moment of creation, not publication, registration was automatic and royalties were determined by state-regulated schedules. In the spirit of "the work of one should be for the benefit of all," creative output was essentially owned by the state. Large portions of a published work could be used without the author's consent and using the work of another was not considered a theft of intellectual property. The first Soviet copyright laws were in place in 1925, with changes in 1928 and 1961, and each Soviet republic was required to be in compliance. Adding to the lack of an author's rights was the provision for "freedom to translate." This was a holdover from Tsarist laws that allowed a work in Russian to be translated and published in the minority languages of the country without the original author's consent. The state could forcibly na-

tionalize any work and also held a monopoly over the printing and publishing industries. The "freedom to translate" provision was not abolished until the Soviet Union joined the Geneva version of the Universal Copyright Convention (UCC) in May 1973. Joining the Geneva version was chosen to avoid the implementation of the Paris accords of the UCC, which gave authors stronger rights over their work.

By 1969 Viires had been studying Estonian language and culture for 32 years. For 29 of those years the Soviets, the Nazis and again the Soviets were determined to wipe out Estonian identity, language and culture while Viires, working in the constricts of an occupied country, was just as determined to document and preserve those same things. According to his family members, Viires was surprised but pleased his work was translated into English and he added the translation to his bibliography. As Liina Viires, Ants' daughter, explained, to have one's work translated and published abroad was a good thing. Under the Soviets travel abroad and receiving foreign guests was severely limited and even large areas of Estonia were off-limits. Even though authors in the Soviet era had little control over their work, the opportunity to have one's work published abroad was a validation and it might open up the possibility, however slight, to communication with one's peers in other countries.

The publication of Ants Viires' doctoral thesis was exceptional in the Soviet system. In the 1960s someone at the Smithsonian saw in Viires' monograph the potential for a valuable addition to the history of woodworking and folk handicraft, and requested a full translation. Although the translation was done without the knowledge or permission of the author, it brought this unique record to the attention of American woodworkers and eventually led to the authorized English translation you are holding today.

Suzanne Ellison
Chesterfield County, Virginia
June 2016

2. The Principal Tools

There is little information about the tools used in woodworking before the 19th century in the Baltic countries.

In the middle of the 17th century Gubert enumerates in his agricultural handbook tools that every decent estate should have: "Es ist auch nöthig / dass er allerley Zimmermanns-Instrumente halte / damit er sie nich in der Nachbarschaft mit Hin- und Wiederschicken suchen dörrfte /...: nemlich ein Holtz und breit Beil, Szuillex,¹ eine starcke Hand-sage / Norkken- und Balkensage² dreykantichte Pfeile / die Sagen zu scharffen / mit vierkantichten oder plat Feilen kan man sie nicht scharffen. Aber zur Balkkensage dienen die Platfeilen /ein grosser Bohr zu den Treppen oder Leitern nötig. Item ein Bohr eines Daumens dikk / ein kleiner Bohr den Harkken / ein Zwingbohr / ein Schneidemesser / ein Lizing³ wie die Bötcher gebrauchen / zu den Trögen nöhtig / eine Zerpe,⁴ damit man Bakk-Viehe-Tröge und Mulden machet / eine gute sharffe und stumpffe Kniepzange / Hammer und Durschlage."⁵

As we see, the list contains a number of types of axes, a handsaw, bucksaw, a log saw, saw files, boring tools of several sizes, a cutting knife, a carving knife, a scooping axe, etc. The omission of a plane is noteworthy (presumably overlooked). Also of interest is the mention of large saws. Both these tools appeared in the village at a much later date.

The next more or less comprehensive list of tools is known from Estonia, but from a farm instead of an estate. A. Holter, a peasant from the neighborhood of Pärnu and the year 1818: "The farmer who is also good at handicraft has three good saws, three of four planes and two long planes, as well as some chisels and a brace and drill. He also has two or three working knives as well as two or three benches on which he can do his work. He also has a drawing and a hollowing knife by which he can make all the utensils

smooth inside and out."⁶ The text itself describes a master woodworker whose collection of tools was far more complete than that of an ordinary peasant, particularly as concerns planes and saws. Apparently that is why the axes are not mentioned; they are thought of as too-ordinary and everyday tools. In the same publication, but in another context it has been mentioned that every peasant had from six to seven axes.⁷

Here is one more note from 19th century Saaremaa where the old ways survived longer than on most of the mainland: "What woodworking tools there were in olden times - axe, knife, one or two chisels, a handplane, a rip saw, and if there was also a brace and bit, that was all. He who had a carpenter's bench and a few planes as well as some little saws, too, was already a master."⁸

So the principal woodworking tools in Estonian villages were axes, knives, hollowing and

¹ Lt zuleksts "carpenter's axe:" The word has been used in Latvian mainly in the XVII century (Sehwers, p. 217).

² Bsks Norkensage "corner saw, two-man saw" (bsks Norke < enurk (corner) see Kiparsky, p. 57).

³ Lt lizenis "spokeshave" (Bielenstein, p. 340).

⁴ Lt zërtnis, zërknis "scooping axe" (Bielenstein, p. 322).

⁵ Gubert, pp. 7-8 translation: "It is also necessary that he should have various carpentry tools, so he need not look for them in the neighborhood..., namely a chopping axe, a broad axe, carpenter's axe, a strong handsaw, a corner and a crosscut saw, triangular files for the sharpening of saws, because they cannot be sharpened with quadrangular four-sided or flat files. But the pit saw needs wider files. A large auger that it is necessary for stairs or for ladders. Also an auger the thickness of the thumb, a small rake borer, a gimlet, a drawknife, a drawing knife, a bucksaw, a carpenter's hollowing knife, which cooper's find necessary for making troughs, a (cross-axe/trough axe) with which (necessary for troughs) bread and animal troughs are made, good sharp and blunt tongs, a hammer and punches (perhaps chisels)."

⁶ Beiträge XI, 1818, p. 33.

⁷ Ibid, p. 28.

⁸ KV 34, 532 Pöide.

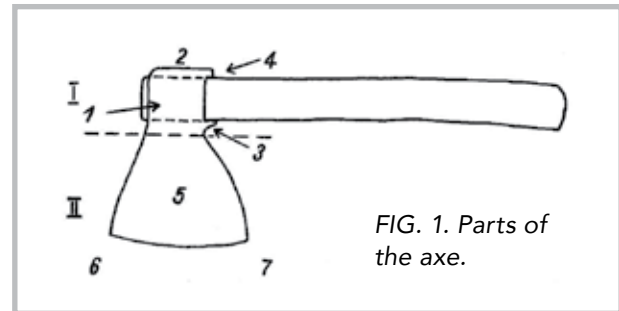
drawing knives, augers, chisels, saws and planes; of these the latter were mainly in the hands of woodworkers. In this chapter we will give a historical overview of the main groups of objects, finally dwelling on some more general resources and also on workrooms. We will look at special tools for various other special works separately, along with the observation of the respective technical procedures.

a. Hatchets and Axes

The importance of the hatchet and the axe as universal tools was maintained in the farmers' woodwork right through the medieval period. In Estonia numerous special factory-made tools that appeared on the market in the second half of the 19th century seriously reduced duties of the axe. Before the introduction of the saw into forestry work, which took place in the third quarter of the 19th century, most wood cutting and chopping was done by the axe. The pit saw, which appeared about the same time, largely ended splitting of logs into boards by means of the axe and wedges. Extensive spread of planes considerably narrowed the earlier practice of smoothing surfaces with the axe, which did not yield much poorer results in case of careful work.

As in the development of tools in general, so also the hatchet and the axe followed a path of specialization in the course of their history. In their case, however, the greatest variety in their use was reached toward the end of the feudal period. Thereafter they were replaced by other, more suitable tools. This development took place primarily among artisans. The variety of axes used by the farmer has always been more limited.

The history of the development of types of axes in the prehistoric period has been relatively well studied, but the further development of the axe has been rather deficient. Ethnographers and archaeologists have only touched upon the issue in passing. Although the Estonian National Museum has more than 100 field finds of various axes from different periods, they are largely very loosely dated. Consequently, it is possible to discuss the history of the development of the axe



only in very general terms.

Before going more fully into this development of the axe, it would be useful to acquaint ourselves with the terms denoting the parts of the tool. These are generally identical with the parts as known all over the world, adapted both in language and in application to use in Estonia.

The Estonian word "kirves" (axe) is of the same origin as all West Baltic and Finnish terms (Latvian "cirvis," Lithuanian "kirvis").

The axe (see Fig. 1) consists of two main parts – the head (I) and the blade (II). The head contains the eye, which is usually a triangular aperture (1), serving for the insertion of the handle. (In western Estonia the handle was known as the "kuvvas" or "kuuda.") The rear part of the head, which is often used as a hammer, is called the heel (also the base, or simply, again, the eye) (2). The hook (3) also known as the nipple, tongue, etc. is often missing. The hook of the base (4) is even rarer. The flank of the blade (5) is called the face; the upper corner of the edge (6) is called the nose (or the corner), while the lower corner (7) is known as the heel (the black heel). In Mulk it is known as "kärk," in Võru "adsa," etc.) Known axes are divided into a number of groups, according to the shape and form of the head and/or the blade. There are axes, for instance, where the head is small, and others where it extends in size toward the rear. The blade may be with or without a "jaw"; in the former case, the blade widens downward into a long or short jaw, a narrow neck being formed between the jaw and the head. The axes in present-day use in Estonia belong to the small-headed "jawless" group.

Two main types of axe, which permitted higher efficiency than earlier axe types, became

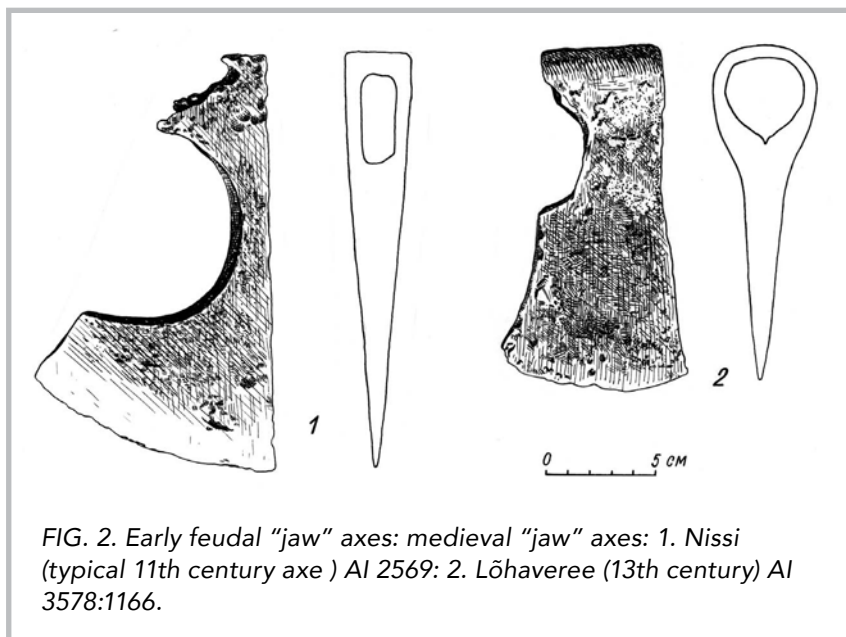


FIG. 2. Early feudal "jaw" axes: medieval "jaw" axes: 1. Nissi (typical 11th century axe) AI 2569: 2. Lõhaveree (13th century) AI 3578:1166.

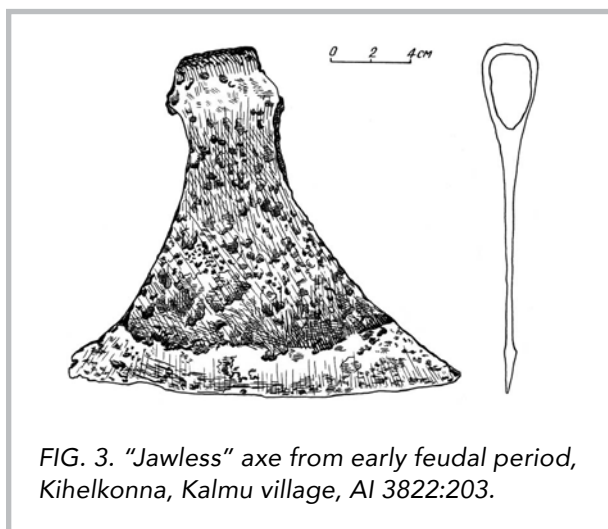


FIG. 3. "Jawless" axe from early feudal period, Kihelkonna, Kalmu village, AI 3822:203.

widely used in the 10th to 11th centuries in the Baltic countries, but also in Russia, Finland and some other areas in the 9th century. The earliest type had a wide edge which cut well.⁹ Both were of the small-headed type. One of them had a jaw blade (Fig. 2), while the other was jawless with a wide edge and curving sides (Fig. 3). The first is primarily for forest work and building, the second being a light hewing axe. Of course, both could be used as weapons; "witness the decorated axes found, dating to the feudal period. In the Middle

Ages in Russia the axe was the common weapon of the people."¹⁰ The Estonian word "tapper"¹¹ was presumably adopted from Russian ("topor"), as a result of the wars of the 9th to the 13th centuries. Nowadays, in several Estonian dialects, it means a small, light hatchet. In old folk songs, however, it still stands for the battle axe. As a weapon, also, the hatchet was always small and light. In the 17th century this type of axe was still widely used among the Estonian peasantry. As Ayrmann says in his travel book: "They always carry a knife and a small axe which

they can throw and catch skillfully at a distance of 30 steps and rarely ever miss; the axe is always as sharp as a knife, and they carry it always for purposes of defense against bears and wolves but not for work."¹² It is also interesting to note that with the adoption of the word "tapper" at the end of the 17th and beginning of the 18th centuries, the word for "small axe" comes into use."¹³

The jawed axe changed gradually during the Middle Ages into an all-purpose working axe. Its head lengthened and, in particularly western and southern Europe, it evolved into a number of specialized carpenters' axes; in Estonia, also into the type generally in use during the medi-

⁹ See, for example, Tallgren, pp. 129-130; Колчин. Черная металлургия, p. 103; Левашева, pp. 40-48; Kivikoski II, Fig. 821-826, 1115-1117.

¹⁰ About Russian battle-axes see Рабинович, Из истории оружия, p. 85-89; История культуры I, p. 433 onward; Колчин, Черная металлургия p. 103. In the light of these works the main Russian battle axe was the jawless axe.

¹¹ Kalima, Slaavil. san., p. 169. In all likelihood тапор meant the battle-axe in the then Russian language, while the working axe was called секира (Рыбаков, p. 183; История культуры I, p. 147).

¹² Ayrmann, p. 18.

¹³ Hornung. p. 59; Vestring p. 161.

eval period. The jawed axe (Fig. 4.1), a purely working axe, became known later and differed in shape from the old narrow-necked working and battle axes. It was more solid, had a wider neck, and a more or less straight front. Its cutting edge was curved and relatively narrow (3" to 4-1/2"/8-11 cm) and ran parallel or at a slight angle to the handle. The space between the neck and the jaw varied (sometimes the neck was very small, sometimes the jaw more protruding); the entire blade was fairly thin, often thickening toward the head. Such axes appeared in Estonia in the 13th century at the latest (Fig. 2.2) and were, during the Middle Ages, the most widely used type in the country. Of all the axes unearthed in the villages by archaeological expeditions, more than a third belongs to this group. Of all the axes in the collection of the Estonian National Museum, 150 belong to this type. It seems that we are dealing here with the regular household axe that is suitable both for felling trees and building but, because of its comparatively thin blade, not particularly suitable for chopping firewood.

The jawed axe disappeared from general use in Estonia in the 17th and 18th centuries. We

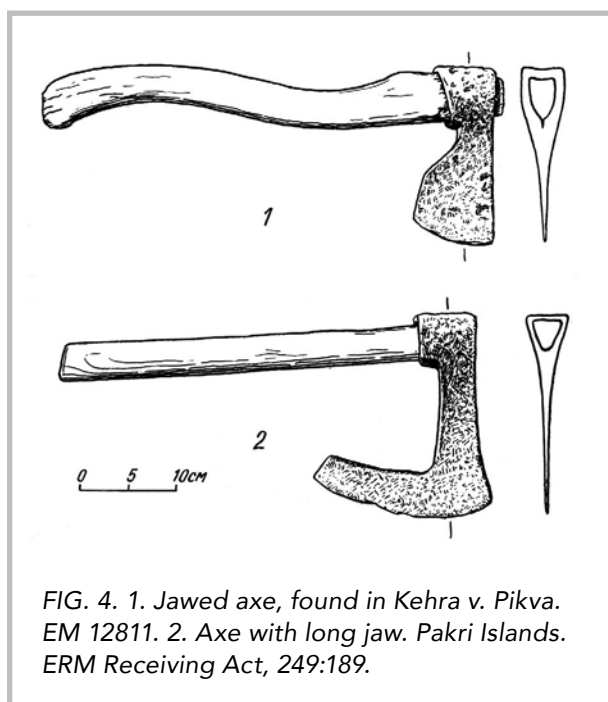


FIG. 4. 1. Jawed axe, found in Kehra v. Pikva. EM 12811. 2. Axe with long jaw. Pakri Islands. ERM Receiving Act, 249:189.

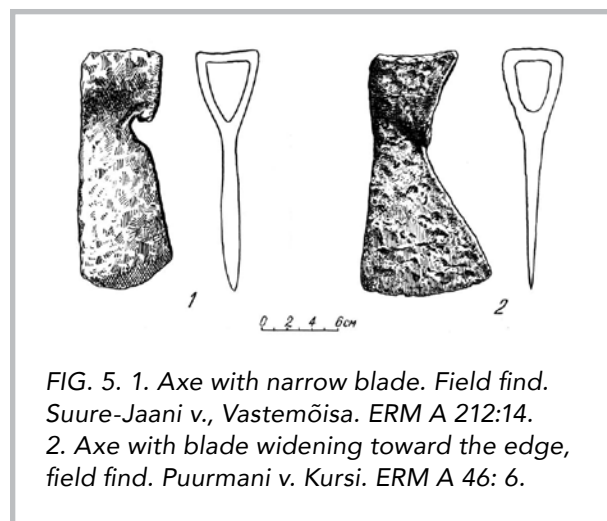


FIG. 5. 1. Axe with narrow blade. Field find. Suure-Jaani v., Vastemõisa. ERM A 212:14. 2. Axe with blade widening toward the edge, field find. Puurmani v. Kursi. ERM A 46: 6.

note that Clare, in his vocabulary of south Estonian words compiled at the beginning of the 18th century, enumerates the appropriate parts of this particular axe, including "kaal" ("kael" or neck), which disappears from later dictionaries.¹⁴ In the 19th century jawed axes have only been used in a few isolated cases (such as ERM A 55:26 Tori).

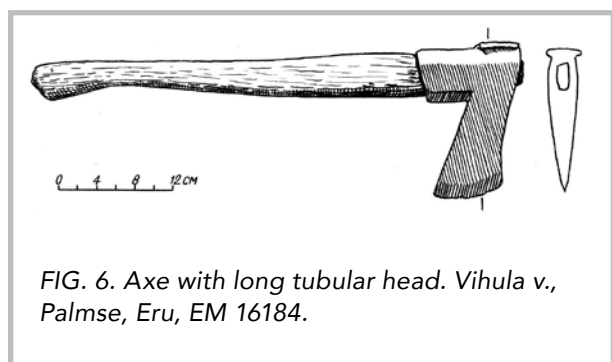
In the Middle Ages the jawed axe used in Europe had an oblong head. This was not the case in Estonia, although here, too, the head extended somewhat back from the neck. The small head was the main feature of the Estonian axe, distinguishing it from the Russian product in the 9th to 15th centuries. The old Russian type is still in use to this day in some parts of Belarus and Poland.¹⁵

The long head, too, is not entirely unknown in Estonia. This type of head goes with a large axe, having a thin blade and a long jaw (length of the edge up to 9-3/4"/25 cm). Odd specimens of this type came from field finds (ERM: 9943 Rapla, A 265: 20 Ambla, D 30:70 and D 32:229; HM

¹⁴Clare, p. 57. Hupel has later erroneously identified the word with the heel of the axe (Hupel, Sprachlehre 1818, p. 86).

¹⁵Examples of old Russian axes - Левашева, Fig. 11 (p. 43); Колчин, Черная металлургия, Figs. 65-67 (p. 103 onward); From Belarus - Сержпутовский, Fig. 7а; Лебедева, Жилище, Fig. 81 (p. 76); Никифоровский, p. 345; from Poland - Moszyński, Fig. 247:3 (p. 283).

3335, Haapsalu). This is a specialized type of axe, used by carpenters in Western Europe for hewing. It was more widely used in Sweden. In Estonia it remained unknown to the ordinary peasant and, as far as it was used at all, it was only done by select carpenters. The axe with a long jaw used by Estonian peasants (Fig. 4. 2 and ERM 5555 Reigi) does not have that shape of eye. Its origin is Swedish or Finnish and it was known on the islands (North Hiiumaa, "Pakri").¹⁶ "Axes used for chopping and felling have a narrow blade and resemble a cross-cut ridge (Fig. 5.1). Their edge is slightly convex, about as wide as the head (approximately 2-1/2"-3"/6.5-7.5 cm). Below the head there is a small groove in the body of



the blade which gives the axe the character of a jawed axe. Altogether there are 14 such axes at ERM collection, most of them found in the countryside, but unfortunately without any possibility of correctly dating them. Due to rather frequent field finds the age of such axes could be dated at least to two to three centuries old, perhaps even older. The nearest axes of this type described in ethnographic publications outside Estonia are found from Germany and Poland."¹⁷

As regards jawless axes, here again the western long axe was unknown in Estonia. On the other hand, among the Finnish peasantry (especially western Finland) the jawless axe with a narrow blade and a long tubular head had become established as the axe of everyday use.¹⁸ A few such axes have been found in Estonia, mainly in the countryside, but some have also been found in towns (ERM A 464: 3 Tartu) and others on the

north Estonian coast.¹⁹ They undeniably prove that we are dealing with a Finnish axe (Fig. 6). The same kind of tools found in the vicinity of St. Petersburg are also known as Finnish axes.

Among the field finds we have come across a jawless, short-headed axe (Fig. 5.2), which closely resembles our present-day working axe. Its characteristics are a slight widening in the direction of the heel and a comparatively thin blade, the edge forming an angle of more or less 90° with the handle. The neck part of the blade narrows to such a degree that it was necessary to shape the head rearward so it would gain firmness. In the worn specimens displayed at ERM the width of the convex edge is between 3-1/4" and 5-1/4" (8 and 13.5 cm). It seems that we have here a type that falls between the jawed and the jawless axes used in the 10th to the 13th centuries. This type of axe is the best known among Slavic peoples, and in Russian finds dating to the 10th to the 13th centuries or among small-sized 14th century models this axe is predominant.²⁰ In Poland they are still used to this day (particularly in Silesia).²¹

On the whole, development of the Russian working axe diverged at an early stage from its western European prototype. It has emerged here with a short head and triangular widening blade, and as such it was also the dominant type in Estonia at least during the last two cen-

¹⁶The dialectal word "piilukirves" registered from the north coast of the mainland, Jõelähtme (piilukirvega tahuti valmis tehtud seina palkeid, teise kirvega ei saa - "Ready wall beams were trimmed with a piilukirves, it was not possible to do it with another axe" - EKI) is also an apparent loan from Finland (< sm "piilu").

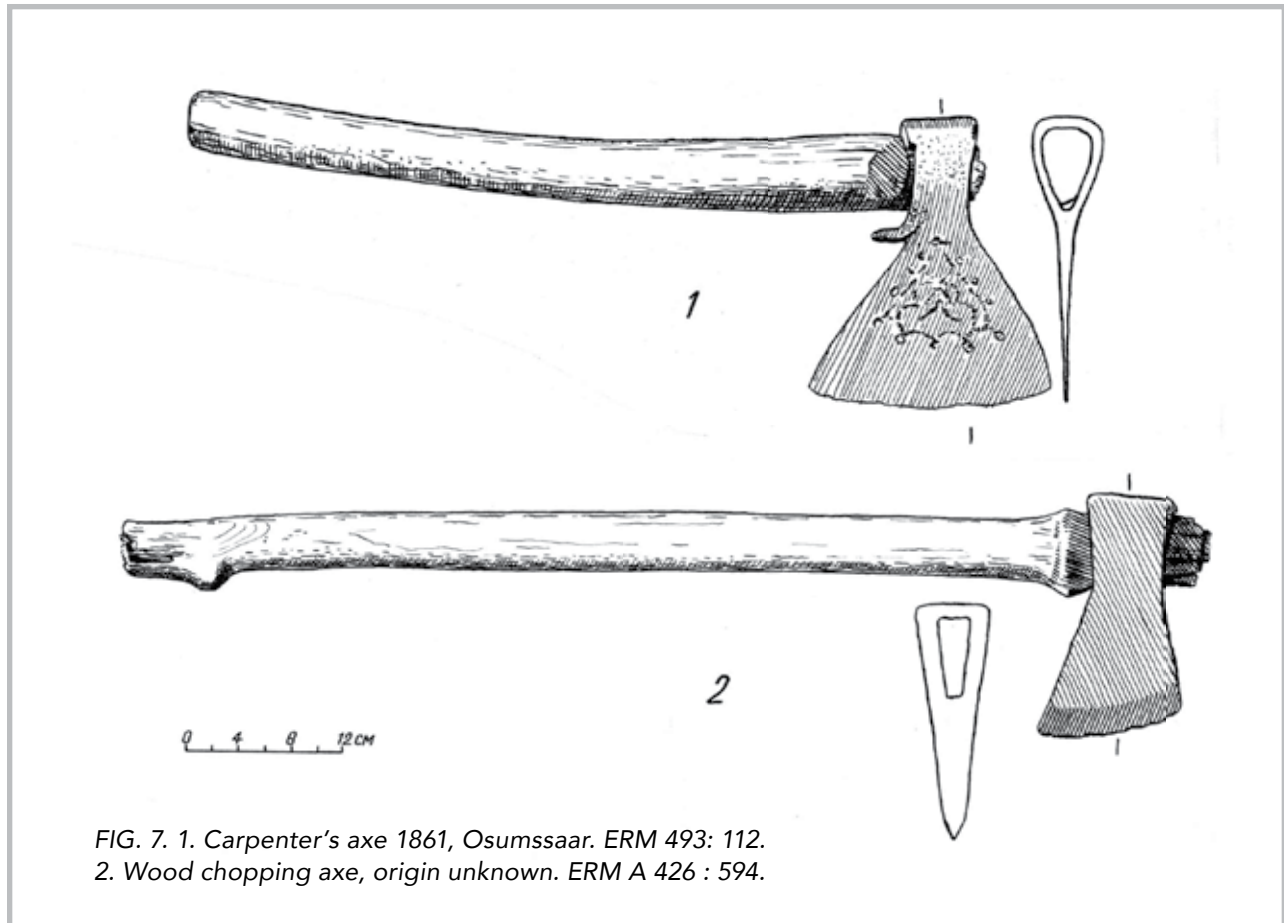
¹⁷Siuts, plate 124:4: Gładysz, Zdobnictwo metalowe, a series of examples plates XXVI-XXXIII; Moszyński, Fig. 247:6 (p. 283), according to p. 281 German factories have started to produce them on a wide scale.

¹⁸Sirelius, SKK II, p. 16; Karrakoski, p. 149 onward.

¹⁹Katalog der Ausstellung in Riga, plate 22:11 Lügenuse; HM 204 and 205 Noarrootsi.

²⁰Левашева, Fig. 10:4, 8, 9, Fig. 11:1,2,9, 16; Колчин, Черная металлургия, Fig. 65-67 (p. 103 onward); (Арциховский, Миниатюры, p. 82, 184 onward).

²¹Gładysz, Zdobnictwo metalowe, plates XXVI-XXX.



turies (Fig. 7). According to A. V. Artsichovskii, the jawed axe was unknown in Russia in the 15th to the 17th century,²² as may be deduced from its absence in field finds. The hook first appears in Russian axes in the 17th century and became much more popular later on.²³

Such axes, with a symmetrically widening blade and short head, are extremely rare among finds in Estonia. Consequently it may be assumed that they were in use for no more than two centuries. Their extensive use must be ascribed to the wandering of laborers of the Russian Empire at the beginning of the 18th century. Already in the 17th century, during the period of Swedish rule, Russian axes were on sale in Estonia. According to the City of Tartu trade regulations for 1641 the Russian traders' ("Russische Krämer") wares included "simple Russian and Lithuanian shoes and boots (as well as axes)."²⁴

The Russian peasants' home industry centers nearest to the Baltic countries were situated in the Tver Gubernia, in the Ostashkov and Rzhev districts; in the middle of the 19th century, some 85,000 axes were produced annually.²⁵

The Ostashkov peasants, in particular, were in close contact with the Estonians, undertaking yearly trips to Estonia in connection with fishing.

²² Арциховский, Миниатюры, pp. 23, 82 onward, 184 onward, 199 onward. Левашева, p. 42 maintains that the jawed axe occurred in Russia until the XV-XVI centuries. In the Novgorod materials published by B. A. Kolchin the axe with the jaw disappears already during the XII century (Колчин, Ремесло Новгорода, p. 25).

²³ Арциховский, Миниатюры, p. 199 onward. Cf. also Арциховский, Находки, pp. 134-135.

²⁴ Seeberg-Elverfeldt, p. 117.

Also the itinerant Russian carpenter-builders, who often acted as instructors and middlemen, were important. It is interesting to note that similar axes, often equipped with the original Russian blade on which the Russian stamp or lettering could be seen, were often used in east Finland.²⁶

Estonian work axes falling into this category may be divided into two basic types, with transitional types between them. The hewing or chopping axe (Fig. 7.2) has a narrow edge, 4" to 4-3/4" (10-12 cm) with a wedge-shaped blade, and a plain, hookless head. In the eastern parts of Estonia these axes were called "kalun" (Lutsi) or "kolon" (in Vaivara) (~ Votyak "kalipa," Izhorian "kalip" < Russian "kolun" - wood-chopping axe - "sekira," narrow and heavy, on a long handle).²⁷ The hewing axe, or carpenter's axe (Fig. 7.1) has a

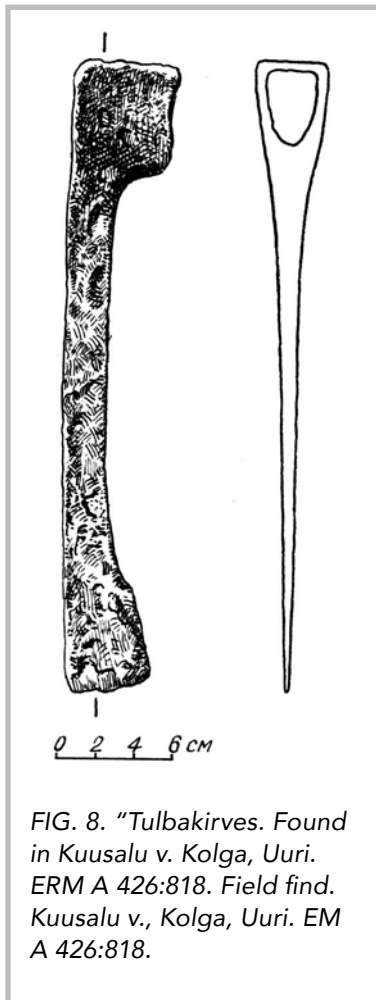


FIG. 8. "Tulbakirves. Found in Kuusalu v. Kolga, Uuri. ERM A 426:818. Field find. Kuusalu v., Kolga, Uuri. EM A 426:818.

wide thin blade, an edge 6"-7-3/4" (15-20 cm) wide, the head usually having a hook, and frequently also a heeled base. This axe, especially the one with a wide sharp edge, was generally known as a "Russian axe," sometimes also "plotniku kirves" - carpenter's axe.²⁸ These were, actually, the typical Russian builders' axes. Such axes are often found with decorated handles, whilst all other Estonian axes have plain handles.

Several types, originating from specific parts of the country, have either identical designs or the imprint of a maker. Thus, we find on the Osmussaar axes, shown in Fig. 7.1 a design from Jõelähtme, Harju County (ERM 426:814) and on the Laiuse axe (Jõgeva County), (ERM A 476:37) one from Rapla (ERM 9643).²⁹ Because the Estonian axes were not usually decorated, it is to be assumed that either the axes were imported from Russia or the designs branded there, copying Russian models.

The various types of axes, which in shape fall somewhere between the above-mentioned classifications, were used in Estonia for chopping, hewing and cutting; the heavier types for forest work, the lighter for handicraft and home industry. Small-sized axes for chopping twigs, etc., are, as already pointed out, known all over the country as "tapper, taprik" (hatchet). In western Estonia they are also known as "äks" (middle German "Axt") and are often referred to as "kirveäks" (kirves-axe),³⁰ popularly also called "näks." Such small hatchets were often used for whittling, although some of the whittling axes were of a larger size.

Further we will dwell on a few other special axes. The ERM collection has two more specimens of specialized axes. They have a narrow and excessively long blade and both came from field finds. The shape of the blade is the same in both exhibits, except that one has a short neck (ERM A 265; 19 Ambla), the other (Fig. 8) a long one. The first axe is 13" (33.5 cm) long with a

²⁵ Мещерский-Модзалевский, р. 544 onward, Корсак, р. 189 (70,000 axes a year in the Ostashkov uyezd alone).

²⁶ Sirelius, SKK II, p. 14. Incidentally, such axes called with their Russian name, topor, are also used in Hungary, while axes with the jaw and with a long tubular eye are known by the German name "bard" (Bátky, Fig 825-837, p. 313).

²⁷ Must, p. 71. Даль II, р. 142.

²⁸ At some locations the wide carpenter's axe is also called "laidukirves" (Kuusalu, Juuru) or laedus (Helme).

²⁹ Cf. e.g. Gładysz, Zdobnictwo metalowe, tableaus XXVI-XXXIII.

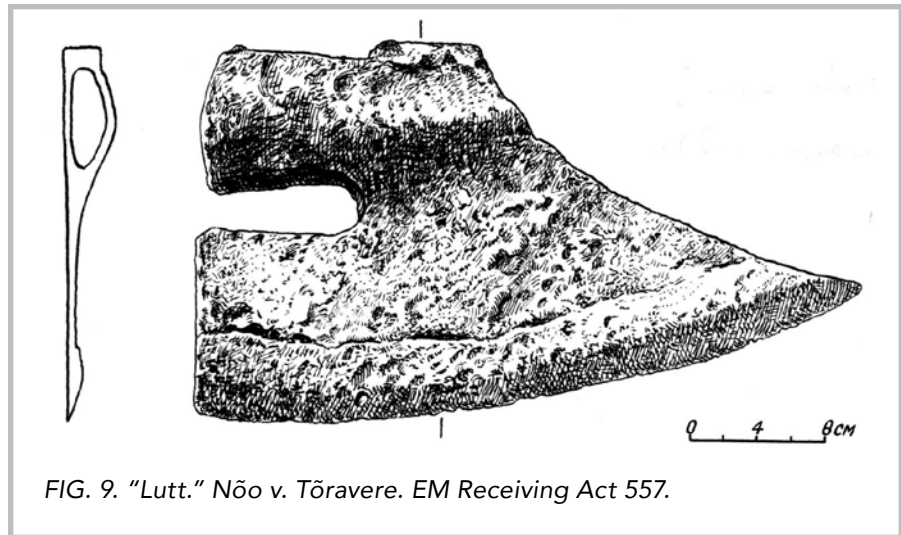
³⁰ Ariste, Asks loanwords, p. 139.

2-1/2" (6.5 cm) edge, while the corresponding sizes in the other axe are 13-1/4" and 1-3/4" (34 and 4.5 cm). These measurements indicate that they must have been implemented for chopping holes in large-sized trees. Hupel and Wiedemann refer to them as "tulbakirves" - "a narrow axe for chopping holes in posts." Similar axes are used to this day in Karjala for chopping holes in gate-posts.³¹

The axe of the jaw type that has a tubular head and is known as "lutt" apparently became known in Estonia in the second half of the 19th century. Its characteristics were a very short and wide neck and an extruding, pointed nose (Fig. 9). The edge was 11-3/4" to 15-3/4" (30-40 cm) long, and was honed to one side (to the right). The butt was very heavy, weighing on the average about 12 pounds. In Estonia these axes were used mainly in making sleepers. Their importance, therefore, begins with the development of railways. Here is a description from Märjamaa concerning the appearance of the sleeper-cutting axe and its use:

"One opportunity of earning money for country folk in winter was the transport of sleepers. Manors permitted railway sleepers from their forests; later farmers, who had thick trees on their farms, also allowed them to be cut up into railway sleepers. The first sleeper makers were Latvians; later our own men, too, learned the trade. There were special axes for the job. They had a large wide edge, which made it possible to cut the right width of plank in one go. The axe was called the 'plutt.' Those who couldn't use the plutt were not able to finish the sleeper - with it the sides of the sleepers could be hewn smooth as if by a saw."³²

Both the implement and its name, "lutt, slutt, plutt," were introduced in Estonia from Latvia (Latvian, "šļute;" German "das Plattbeil").³³ The



name also has a wider background further south in the Lithuanian and Belarus areas (Lithuanian, "skliutas;"³⁴ Belarus, "шклюд"). The name also has Lithuanian and Belarus origins, noted particularly in the south (Lithuanian, "skliutas;" White Russian, "shklyud").³⁵ In Belarus this axe was used for interior walls of the house (VME 795-79), and in Europe generally it was the accepted type of axe for plank and board cutting for example in Germany, Hungary and Norway.³⁶

The nearest axe to the lutt, although more primitive in design, is a long-nosed carpenter's

³¹ The author's notes from the Medvezhyegorsk District of the Karelian ASSR in 1956. Similar narrow axes have also been used in building work in Scandinavia (G. Boëthius, *Studier i den nordiska timmerbyggnadskonsten från vikingatiden till 1800-talet*. Stockholm 1927, fig. 39 D. The height of the axe illustrated is 9-1/2" (24 cm), that of width of the blade, just under 2" (5 cm).

³² *Endis-eesti*, p. 111. Before the plutt a hewing axe with a narrow blade was used for cutting a large chip in trimming the sleeper. It was called "lutipoiss" (Varbla), "kaba" (Varbla), "eeslahkja" (Hargla), "ausleendri" (Rõuge).

³³ Vaba, p. 202. Cf. also LVM 13632 - lutt from former Liepāja county.

³⁴ Gimtasai Kraštas 1938, p. 190, Fig. 1.7 (A. Vitauskas); DM E 778.

³⁵ ГМЭ 795-79; 2107-125; 5632-55, 56 (Belarus axes).

axe, the blade of which protrudes practically in its entirety forward from the head. In Estonia there is only one such tool from Pärnu (Fig. 10), where it could have been used as a ship carpenter's tool. At least its exact matches have been used by old shipbuilders, for example on the Hungarian shoals.³⁷

As for axe handles, ash, birch and mountain ash were used for that purpose. The handles of chopping axes are straight and long (23-1/2" to 31-1/2"/60-80 cm) (Fig. 7.2). The handles of axes used in carpentry generally have a shorter handle (about 17-3/4" to 23-1/2"/45-60 cm) depending on the size of the head. However, in

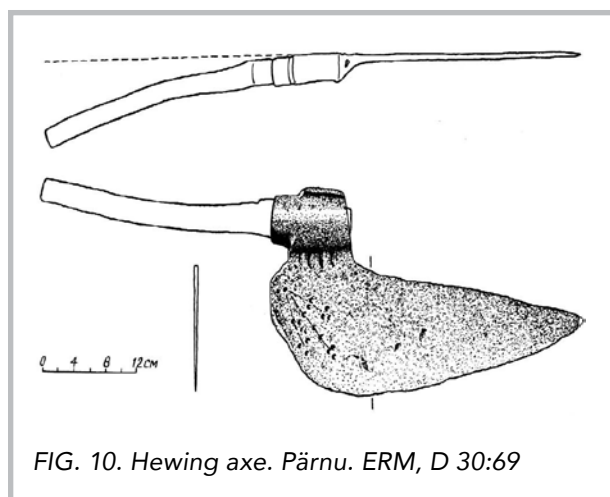


FIG. 10. Hewing axe. Pärnu. ERM, D 30:69

addition to straight handles, we also sometimes find a curved type (Fig 4.1). Such a curved handle still goes with what is known as the large Russian axe. It should be noted, however, that according to Zheligovsky and other researchers, the handle of the old Russian axe (6-3/4" or 17 cm) had always been straight, and certainly still was in the 17th century.³⁸ It would appear, therefore, that the curved handle became an adjunct of the axe in the course of the last two centuries only. There are some hewing axes with the handle only slightly curved (Fig. 10). This was intended for a better finger grip, and the axe was suitable for cutting boards for walls and other purposes. So the use of the bent handle has apparently spread during the past two centuries. But the charac-

teristic handle that turns slightly away from the surface being trimmed (see Fig. 10), which is necessary to save fingers in trimming wall beams and other wider surfaces must be regarded as an older phenomenon.

In our treatment we have not so far touched on the cross-axe (the adze), which is the type where the handle is attached perpendicularly to the blade. It is a very ancient type of implement. In the wood industry of the Stone Age, people mainly used cross-axes similar to the hoe. Many primitive peoples in various corners of the world mainly use the cross-axe even today, and also in more developed regions they have long occupied an important place after wooden tools came into use.³⁹ As long as the blade of metal axes remained narrow, the cross-axe was a more effective tool for trimming and finishing of surfaces than the long-bladed axe.⁴⁰ As may be seen from early ethnographic examples paralleling Estonian implements,⁴¹ the tubular axe known in Estonia at the beginning of the first millennium could be used also as a cross-axe. This was done by bending the tip of the handle in the required direction.

Only when the wider blade made its appearance, the cross blade lost its universal importance and remained in use only as a specialized instru-

³⁶ Cf. Siuts, plate 124:3 and Hansen, tableau 150:3 (Westfaal); Bátky, Fig. 845, p. 315 (Hungary); Plankehugging, Fig. 9c, p. 12 (Norway).

³⁷ Bátky, Fig. 836 (p. 314). Axes of types between this and the wide-blade kind were used in Norway for making masts and boards (Plankehugging, Fig. 9a, b and footnote on p. 10).

³⁸ Желиговский, pp. 141-142; Левашева, pp. 44-46; Арциховский, Находки, pp. 135-136; Арциховский, Миниатюры, p. 83; Колчин, Ремесло Новгорода, p. 27, Fig. 11.

³⁹ Тан-Богораз, p. 89, Pälssi, Puutekniikasta, p. 96 onward. The Chuktchi, who have used metal axes for centuries, could not well handle the usual work axe at the beginning of the 19th century, preferring cross-axes in their woodwork (Bogoras, p. 210).

⁴⁰ See closer: Семенов, p. 208 onward.

⁴¹ Pälssi, quoted place; Moszyński, p. 285; Sirelius, Handarbeiten, p. 58.

ment for purposes of hollowing. It was applied in hollowing trunks into troughs, boats, beehives, etc. As such, it remained an essential instrument until the beginning of capitalist industry, which introduced the saw. Using cheap boards and nails, the peasant was able to produce the same article easier, faster and cheaper; as a result the cross-axe has today practically disappeared from use.

In the 19th century, the cross-axe was used by the peasants mainly for trough making, hence its popular name - trough axe. The Estonian trough axes of that period are fairly uniform in shape:

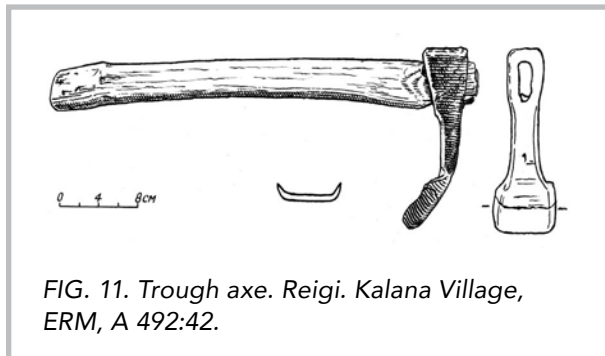


FIG. 11. Trough axe. Reigi. Kalana Village, ERM, A 492:42.

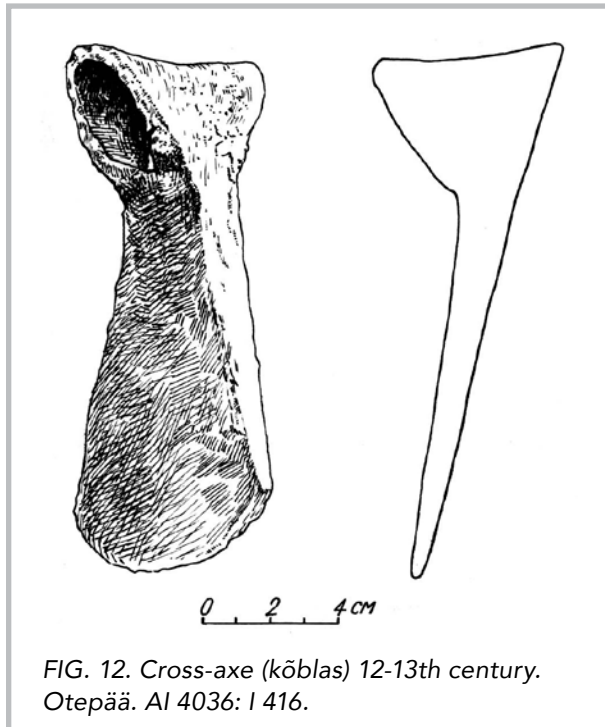


FIG. 12. Cross-axe (kõblas) 12-13th century. Otepää. AI 4036: I 416.

a concave blade about 2-1/8" to 3-1/4" (5.5-8.5 cm) wide, with a short thick neck, and frequently with an arched base (Fig. 11). The edge of this axe is at an acute angle to the handle, which facilitates deep and long hewing.

Cross-axes with concave blades were widely used in forestry all over Europe, and in particular in northern Europe during the Middle Ages. Their appearance must be placed at about the first centuries of the second mil-

lennium, at which time they were already known in Russian territories.⁴² Among cross-axes, the dominant type at that time was still the non-concave one, with a slightly downward-turned edge. In appearance it was not unlike the land axe, or mattock, which was used for clearing virgin lands and for uprooting trees.

Similar mattocks were used for land clearing in Latvia as early as the 3rd century, whereas in Estonia they were unknown in the first millennium.⁴³ They were probably introduced to Estonia from Latvia on the basis of the assumption that the terms "kõblas, kõbli and kabli," denoting that implement in the south Estonian dialect, is similar to the same term in the other Baltic languages



FIG. 13. Hollowing instrument (axe or cross-axe), 13th century. Muhu AI J 30:51

⁴² Рыбаков, р. 183; Колчин, Черная металлургия, р. 111; История культуры I, Fig. 101.1 (р. 146).

⁴³ Moora, Eisenzeit I, plate XXXVI:2, 4; II. p. 529 onward.

(Latvian "kaplis;" Lithuanian, "kaplys, skaplis").⁴⁴ The same terms are often used in the Tartu and Võru dialects for the trough axe (see Fig. 23), which places the two implements in a common group. Some of the oldest known mattock-like trough axes have been found from Novgorod in a layer of the 70s and 80s of the 10th century (Fig. 12).⁴⁵ In Estonia one such axe originates from Otepää and has been dated to the 12th or 13th centuries according to O. Saadre.

It is not known when exactly the concave blade became the accepted one for the cross-axe. But we know that at the beginning of the second millennium a trough axe with a concave blade was used. It had a handle which fitted into its tubular eye. In old Russian finds that type of axe is relatively frequent, and in east Slavic lands, as well as in Finland and Lithuania, it is rather frequent side by side with the cross-axe until very

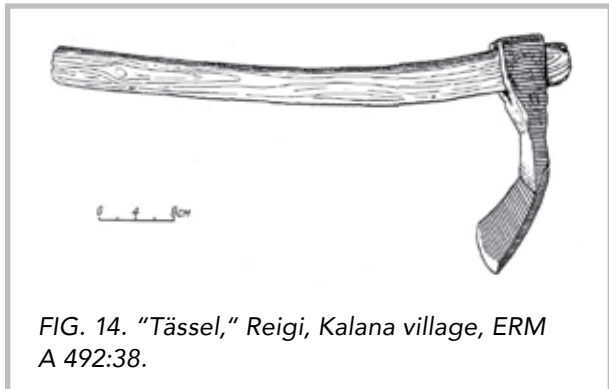


FIG. 14. "Tässel," Reigi, Kalana village, ERM A 492:38.

recently.⁴⁶

Another type of trough axe found in Estonia is the one from Muhu, believed to be from the 13th century and used as a hollowing tool (Fig. 13), or, alternatively, as a hewing implement.⁴⁷

The convex-bladed trough axe came into use in Eastern Europe early in the Middle Ages. Linguistic roots indicate that contacts with Slavic and Baltic peoples were responsible for the introduction of this implement to the Baltic Finns.⁴⁸ Thus, for instance, the Finnish word "telso,"⁴⁹ denoting a trough axe, has its origin in the Russian "teslo." The similarity of the terms "köblas, köbli, kabli," as used in the Tartu and Võru dialects with

corresponding Latvian and Lithuanian connotations, have already been mentioned. Nevertheless, there are a number of original terms for the trough axe in the western Baltic and Finnish languages. The word "vessim" (gen. "vesime") is a very common term for the trough axe in the Võru dialect, with corresponding terms in the East Finnish dialect ("vesu, vaesun" and others)⁵⁰ and ("vezü, vözü") in Votyak. According to P. Ariste, we have to do with an old derivative from the word "vestma" (to carve or to whittle). But the term "künakirves" or "mollikirves" that is generally used in the north Estonian dialect and "ruhvekirves" in the Mulk dialect are apparently of relatively late origin.

It appears that straight-edged cross-axes are older than the concave types. In Estonia, however, the concave type was the common one, at least in the 19th century. Only shipbuilders on the west coast used the straight-edged axe as a special tool (Fig. 14). That implement was known in Saaremaa and Hiiumaa, and in the west coast dialect (Varbla, Häädemeeste), as "tessel, tassel" (Low German "dessel, Dechsel, Queraxt").⁵¹ This is apparently an import of later origin by German craftsmen. That tool was used mainly for

⁴⁴ Kalima, *Balttil. Iainasanat* p. 120, cf. also *Eesti Keel* 1936, p. 185 (J. Mägiste) ja *Virittäjä* 1940, p. 379 (E. Nieminen).

⁴⁵ Колчин, *Топография*, Fig. 49.3 (p. 121), cf. Монгайт, Fig. 72.5-6 (p. 107). Also Finnish cross-axes of the XII-XIII century are of the same kind (Kivikoski II, Fig. 1173).

⁴⁶ Колчин, *Черная металлургия*, Fig. 73 (p. 111); Колчин, *Ремесло Новгорода*, p. 29, Figs. 16, 17; Сержпутовский, Fig. 7b; *Промыслы Вятской губ. I*, p. 120 and Fig. 6 (pp. 132/133); Moszyński, p. 284 onward,; Sirelius, SKK II, Fig. 23e; IEM 2742 (Lithuania).

⁴⁷ Linnus, p. 358-359. Сержпутовский, Fig. 7. In spite of its schematic representation resemblance of the Belarus axe in the figure to the cross-axe is obvious.

⁴⁸ It is interesting to note that neither Karelians nor the Veps people know the trough axe, and they use the ordinary axe and chisel in hollowing work. (Ruoppila, p. 332, as well as the author's observations in the Medvezhyegorsk district in Karelia in 1956).

⁴⁹ Kalima, *Slaavil, san.*, pp. 170-171. Recently there have been weighty contradictions to this point of view (Ruoppila, pp. 326-330).

⁵⁰ Ruoppila, pp. 331-333.

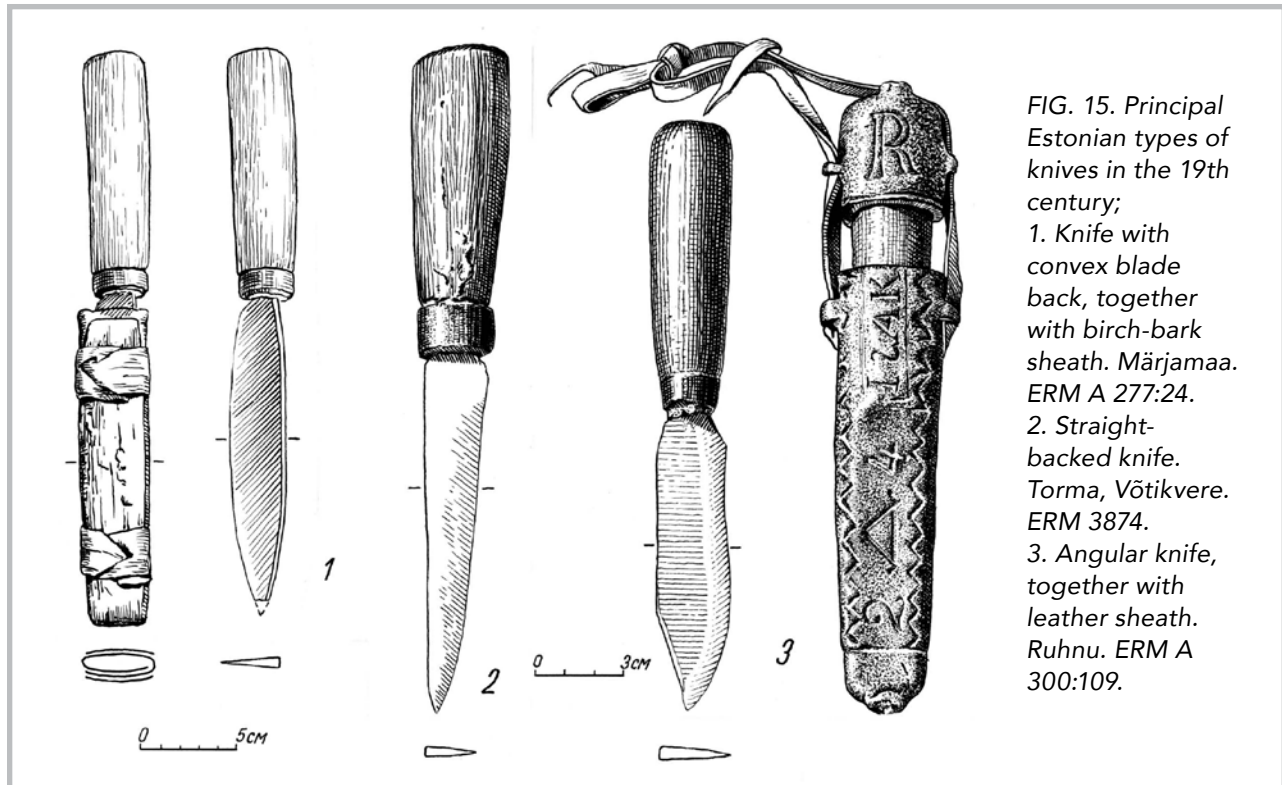


FIG. 15. Principal Estonian types of knives in the 19th century;
 1. Knife with convex blade back, together with birch-bark sheath. Märjamaa. ERM A 277:24.
 2. Straight-backed knife. Torma, Vötikvere. ERM 3874.
 3. Angular knife, together with leather sheath. Ruhnu. ERM A 300:109.

cutting and smoothing the curves before securing boards to each other. For hollowing work the concave-bladed trough axe was more suitable.

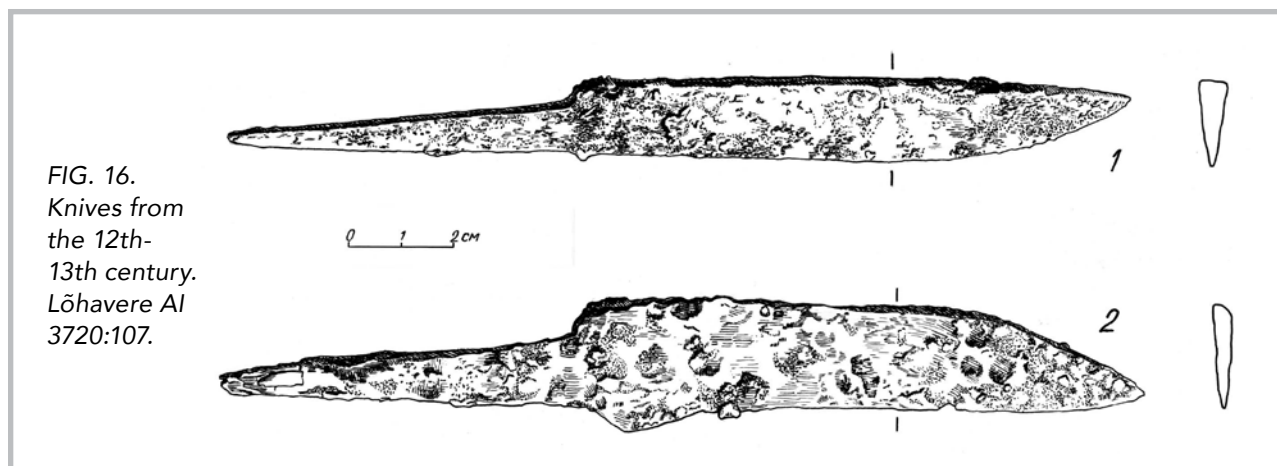
*

As we could see from above, a major step ahead, which considerably increased the productivity of work, was made in Estonia and in the neighboring territories at the beginning of the second millennium. Narrow-bladed axes began to be replaced just at that time by the wide type, with a substantial jaw. Similarly, the convex trough axe came into use. To what extent this progress is due to contacts with Old Russia and the other Baltic peoples is a subject for further research. It is clear that there was a definite influence not only from the similarity in types, but also from the origin of the words such as "tapper, köblas" and "kabli."

Until the 17th century, the common axe in use in Estonia remained the jawed axe, which was based on the Slavic type. In the course of the last

two centuries, another axe became dominant in the country. Forerunners of this type were in use in Estonia to some extent already before that period. Here again, its introduction was largely due to its Russian prototype, especially at the beginning of the 18th century. These axes were partly imported directly from Tver, being mainly products of the Tver home industry; on the whole, though, the axes used by the peasants were made in the local smithy. With the penetration of the capitalist industrial goods into the Estonian village, this axe became finally established as a common household implement. The building trade, too, began to use the Russian axe with the wide thin blade, popularly known as the "Russian axe." Eventually, however, all types of axes were replaced by the industrial product, which was a trapezoidal-shaped jawless type. In the present century this is the common axe of the country.

⁵¹ Ariste, Etüm. märkm., p. 21. Cf also Iv tessil 'Dexel' (Kettunen, p. 413).



It is interesting to note that the West European type of axe, which penetrated as far east as Sweden and Finland, remained alien to the other Baltic peoples in spite of the continuous eastward flow of German workmen with their tools. These specialized western tools, such as the long-bladed hewing axes, were found locally only among foreign craftsmen.

The specifically German type of axe, with the tubular head and jaw, made its appearance in the second half of the 19th century and was not directly from Germany but via Latvia and Lithuania. The general influence of German workmen on the types of axes used in the country remained very slight.

b. Knives and Their Particular Shapes

While the axe is the essential tool for coarse timberwork, the knife is the necessary implement for cutting, carving and whittling. Below we will consider the knife only as far as concerns woodwork in Estonia, omitting specialized knives used in other crafts (leather, tobacco or pig slaughtering) as well as small household knives.

Some of the terms applied to knives are very old indeed. Several of them were quite common in the early Finno-Ugric languages, more particularly in the Balto-Finnic languages. Among examples we could quote the term "kurask,"⁵² which appears in early Estonian folk songs, or the word "väits," known in southern Estonian dialects. The latter is related to the Old Estonian verb "vest-

ma, vestama," which meant to cut or hew. The north Estonian term "nuga" (knife) remained in general use. The etymological origin of the term for sheath knife, "puss" (also "pussnuga, pussak, pusu"), is not clear, although it must be assumed to have a purely Estonian origin. Finally, there is the wooden-handle knife, known in southern Estonia and western Saaremaa (Jämaja, Kihelkonna) as "tuuts, tunts," from the Latvian loanword "ducis, duncis." Most frequently that knife was denoted as a large pig-slaughtering tool.

In Saaremaa and Hiiumaa, as well as in northwestern Estonia, knives used for woodwork were referred to as "puunuga" (wood knife). On the mainland, however, this particularization has not been observed.

The universal knife (Fig. 15), which is also suitable for woodwork, had to have a sharp point, indispensable both for stabbing and for carving. Because of the marked wear and rusting of the blade, it is difficult to obtain exact measurements of its original size in ancient times. The blade of the common carving knife is from 3-1/8"-6" (8 to 15 cm). Almost all old knives used in woodwork had a blade with a wedge-like cross-section essential for carving, in which the chips have to be loosened and cut away. A thin-bladed knife tends to stick inside the wood and often cuts too deep.

⁵² Treatment of this and the next knife names see Saareste, p. 209 onward.

4. BOARD CONTAINERS

a. Classification of Containers

The use of board containers (the phrase “board containers” used throughout the book almost always refers to staved containers; in other words, cooperage) in the normal village household was very widespread. An excellent review of wooden containers used in the village household (from Pärnu County) is given by A. Holter (1818).¹

“Here...we have barrels containing grain - oats, peas, groats - and flour. Thus there are vats and quarter boxes for wheat and rye and other kinds.... The bread container the villager keeps in the back corner of his hut.... For brewing beer the farmer needs a good number of well-shaped casks and for this the peasant always has ready six or seven barrels of various sizes, two or three kegs are also always in readiness in the farmyards.

“Every well run village household has tubs for feeding the cows and for many other purposes. Of these every farmer has two or three, or even more; pails and buckets he has as many as he needs.

“There are plenty of vessels for the farmer’s own use, for his kitchen and table, and first and foremost for making sour milk. When the milk thickens the cream is removed and the milk poured into the churn. The container for the cream is a high and narrow one and there are many kinds of these....”

We see, then, that at the beginning of the 19th century the village had a large variety of wooden containers in his household. We shall here dwell upon some of them, and particularly on those that help to throw light on the ability of the old Estonian to make board containers.²

The terms used for containers differed in various parts of the country: 1) in the western island dialects it was “nõu, puunõu;” 2) in northern Estonia, but also in many other parts, “riist, puuriist” [vessel]; 3) in the southern Estonian dialect it was

“anum, annom.” The latter was already known to Gutsclaff in 1648, and he considered it an ancient term, although the etymological origin is unclear. The words “nõu” and “riist” are well known to be old genuine terms, which denote also tools and instruments. As such they were already mentioned in 17th-century dictionaries. They were first used at the beginning of the 19th century for wooden vessels.³ The word “riist” has its parallel in other Baltic languages, such as Votyak, Livonian and Izhorian. The term “nõu” in the sense of container is, however, unknown there. It is possible that we have here a later development, possibly connected with the rises of home industry in the last few centuries. This is particularly evident concerning the term “riist,” which is connected with Avinurme (see Fig. 233). Its appearance in other parts of the country may also originate with the craft emanating from Avinurme.

In earlier times the term “astja” (“asti, astjas, asten”) was generally used in the northern dialect to denote a board container, and had similar meanings in other Baltic countries. Göseken quotes it (1660) as generally meaning “container” (p. 210 wooden/tin vessel “puh/tinna/astiat”). Similarly, Hornung, 1693 (p. 47: “asti” - a vessel). In the 19th century this word came to denote mainly a large-sized household container.

¹ Beiträge XI, 1818, pp. 30-33.

² Cf. A. Viies, Eesti püttsepise terminoloogiast. Emakeele Seltsi Aasta-raamat II, 1956, Tallinn 1956, pp. 182-192. The above article gives a description of the etymological origin of words, including those for containers.

³ Vestring, p. 154 (Pu-noud “höltzern Gerähte;” “Pu-noud ja Kersta teeb” “Er macht hölzern Gerähte und Kisten” - the composite structure of the word and the context do not leave the doubt that they have to do with wooden containers in today’s meaning, although the German Gerät does not directly point at it. Helle (riist “das instrument Gefäss, Waffen”).

By the nature of their construction, board containers fall into two categories: those with one base and those with two bases. Let us now examine each specific group of containers.

CONTAINERS WITH ONE BASE. The wash tub (or piggin). A small container with a circular base, widening toward the top, with one board longer than the rest and serving as a handle (Fig. 86). Tubs holding 3 to 5 "shtoffs" [an old Russian measure] of water were called "kapp," the smaller ones (1/2 to 1 shtoffs) were called "kipp" (mainly in Saaremaa and southern Estonian dialects) and "kibu" (in northern Estonia and Hiiumaa). "The kapp was used for bringing drinks to the table, and the kipp, to drink from."⁴

Generally tubs were used for washing (both clothes and face; the piggin is used in public baths to this day). Both the above terms are of ancient origin (Karelian). They appear to be borrowed from Old German.⁵ The word "kapp" also found its way back into the Baltic German ("kap"). Equivalent terms to "kip" and are known in Latvian and Lithuanian. In southeastern Estonia, as well as in Kihnu and Hiiumaa, the word "kasik" ("käsik, käsk") is used instead of "kapp," originating from the Estonian word "käsi" [hand] with the addition of the Estonian suffix -ik. The Hiiumaa "käsik" was larger than the "kap" (7 to 9 shtoffs), and was a two-handled tub used for beer, both for brewing and for serving. Finally we might mention that in some southeastern localities (e.g. Põlva), the term "korets," borrowed from Russian, is used to denote the piggin.

THE TANKARD. This is a vessel carved out of one piece, narrowing toward the top, with a board attached to one side and/or carved or attached at the to one side and/or carved or attached at the other. It has a lid and holds 2 to 3 shtoffs of liquid (See Fig. 227). With its rich designs and artistically carved sides, it had its place in popular Estonian art in the 19th century and earlier. The tankard is of later origin than the tub and was used as a drinking vessel, mainly on festive occasions. The word "kann" [tankard] seems to be borrowed from Swedish, much the same applies to the Li-

vonian "kõna," Latvian "kanna" (< Middle German "kanne"). In the islands and in northwestern Estonia tankards were particularly decorated and were considered a traditional vessel. The further inland one went, the rarer the tankard became and the simpler its design. In the Petseri region there were no tankards at all.⁶ In Latvia they were either without any design whatsoever or covered with primitive shapes. Here, too, they were less known inland (e.g., in Latgalia and often had no lid).⁷ In Lithuania they were practically non-existent as a popular vessel.⁸

From the Lower German comes the term "piipkann," Livonian "pipkona," Latvian "pipkanna" (Middle German "pipkanne"). This refers to a container two to three times the size of the tankard, without embellishments (Fig. 83). It was used for bringing beer to the house, the beer being poured then into a smaller tankard. The lid had a specially constructed handle, which was useful in making the lid fit tightly on the container (Fig. 84). The "piipkann" played a part in an old custom during the wedding procession; it was customary for someone to run toward the procession when it left the church, stop the horses and pour beer over them. In northern Estonia it was known as "piir(e)kann."⁹

⁴ KT 49, 21 Keila.

⁵ Newer treatments about the word "kipp" see Virittäjä 1947, p. 150-151 (Y.H. Toivonen).

⁶ About Estonian containers see close I. Manninen, *Etnograafilised monograafiad I. Kannud*. Tartu 1926; T. Vöti, *Öllekannud*. (Eesti rahvakunst V) Tallinn, 1986.

⁷ According to LVM materials.

⁸ In a wider perspective such somewhat cone-shaped vessels were common drinking vessels in Northern and Central Europe, as far as the East Slav countries (Moszyński, p. 294; Haberlandt pp. 490-492). They were found to some extent even in Russia, as evidenced by the number of exhibits at the St. Petersburg State Ethnographic Museum. The above vessels are of simple design and are known in Russian as "zhban." They are also extant in Novgorod, Tver, Vologda, Moscow and Tambov, and were often used in the coastal areas (Крюкова, p. 103, Fig. 63). According to B. A. Kolchin, beer tankards were also found at excavations in Old Novgorod. Also wooden watering cans are known in Russia.

⁹ EK1: Juuru, Järva-Jaani, Väike-Maarja, Jõelähtme, Kadrina, Haljala.



FIG. 83. Board vessels from ERM collection. In the foreground, milk tub, A 492:25, Pühalepa. In the background from the left: keg (for milk) A 39:24, Otepää; milk churn 16545, Kihelkonna; beer container dated 1785, A 426:2330, Halliste; milking tub. 13358, Türi; tub, A 319: 11, Otepää.

THE BUCKET. The wooden bucket, which is still used in some parts alongside the tin plate bucket, was always of a standard shape in Estonia - narrowing from the top and with small ears. The latter had holes made by burning, through which the handle was secured. This was made of either iron, arched wood or a strong switch. The bucket is one of the oldest board vessels in Europe. In Estonia, metal handles of buckets were found dated to the 12th to the 13th centuries (e.g. in Lõhavere).¹⁰ Words denoting bucket are also of ancient origin, such as "pang" (used today generally in southern and southeastern Estonia) and "raand" (known in the islands and in western Estonia) to refer to the old wooden bucket. Another old word common in both Estonian and Finnish languages, is "sang" (gen. "sangu"), or "sangu," which is still remembered in places such as Kihnu. Common to both Estonian and Livonian is the word "rakk" (gen. "raku"), which is used in the islands and on the coast (Karuse, Tõstamaa) to denote an animal feeding bucket. The northern

Estonian word "ämber" is a later term borrowed from the Swedish "ambar," or middle German "ember," and was known in western Estonia in the 17th century (Göseken). In the Czarist period the word "vedru" (Russian "vedro") was used as standard measure (10 shtoffs).

THE WASHTUB OR BATH (see Fig. 108). Both are water containers to this day. The tub ("toober") is also used for animal feeding and the like. The terms in both Estonia and Latvian (Latvian "tiveris," "vanna") are of later origin (< middle German "töver," "wanne"), but in Latvian it was already accepted in 1638.¹¹ The tub became a popular container in Estonia only in the second half of the 19th century, although the small tub, known as an "eyewashing bath" for washing the faces, was popular much earlier, both among Estonian and

¹⁰ Linnused, p. 169, Fig. 117.

¹¹ Sehwers, p. 146, 151. 277.

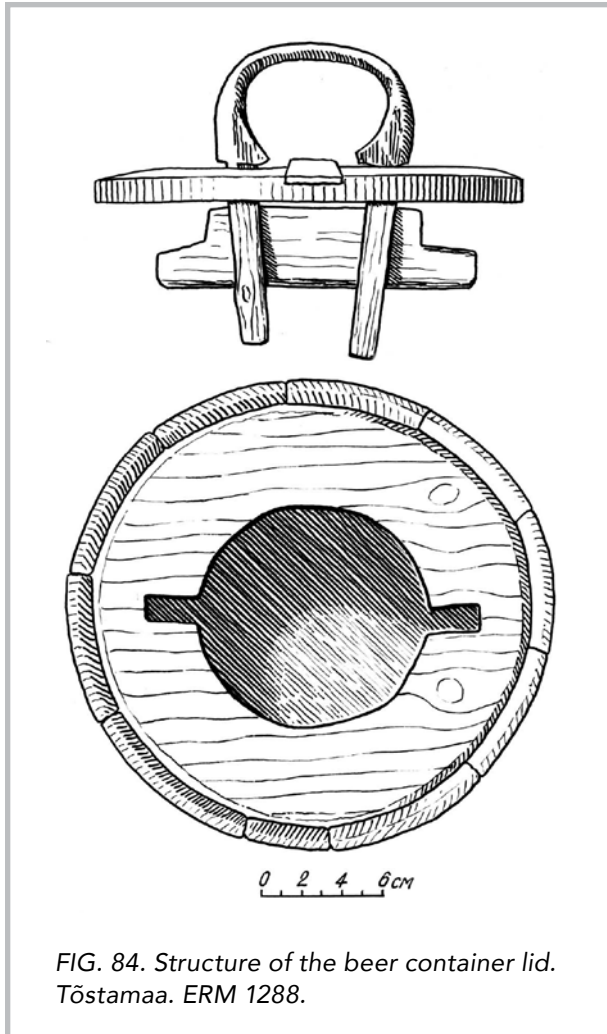


FIG. 84. Structure of the beer container lid. Tõstamaa. ERM 1288.

Latvian villagers.

THE TRIPOD. This is the three-legged oval wash-tub which, together with the bath, has replaced the old trough and washing bench. The descriptive term of the tub was already known in the 17th century (Göseken, p. 161, "dreyfus/kolmjalgk"). The word "kolmjalg" [or tripod] is widely used in southern Estonia and is known in northern Estonia, but there the term "(pesu)pali" (~ Livonian "bõla," Latvian "balla," < Middle German "balge") is more popular. Sometimes the word "pali" also means a legless tub of the same shape. In eastern Estonia the word "laahanka" is used, its origin being in the Russian "лохань, лоханка" ("lochan, lochanka"). A similar container (a somewhat smaller tripod) for kneading bread, which replaced the

ancient trough used for that purpose, is known as "leivaastja" [bread tub]. In western and southern Estonia the old names for trough ("leivamõhk, -lõime") are still used. In the Petseri dialect the term "vašna" is used, borrowed from the Russian "kvashnya."

THE MILKING PAIL. This was a wooden pail widening at the top with the usual handle, generally fitted with a spout (see Fig. 83). The Estonian word "lüpsik" is derived from the verb "lüpsma" (to milk) and we first come across it in Hornung, 1693 ("lüpsik").¹² In southeastern Estonia the milking pail was generally referred to by the ordinary term for a pail "sang" (handle).

MILK TUB. The general term "piimapütt" (in the Võru dialect "tsoorik," in Tartu "ummik"). This container was about 9-3/4" (25 cm) in diameter and about 7" (18 cm) high, coverless, and could hold 3 to 5 shtoffs of milk (Fig. 83). Until the introduction of cream separators and the appearance of more modern dairies at the end of the 19th century, it was widely used for leaving milk to sour, or for bringing it to the table. In southeastern Estonia it was used at the table in instead of a bowl. The northern Estonian "pütt" is borrowed from the German (Middle German "butte"). Because the word "tub" was applied to all sorts of containers, it was natural for descriptive additions indicating the specific use. Hence "piimapütt" (milk tub), sometimes called "nudipütt" (Kursi, Kodavere). The southern Estonian terms "tsõõrik" and "ummik" are derived from the words "tsõõr" [circular] and "umb," respectively. As previously pointed out, the word "ummik" has the general meaning of "hollow wooden container," and that denotation is certainly of older origin.

CHURN. Estonian "kirn" (in the islands "putk, putku"). Before the development of the daily industry the churn (see Fig. 83) was the generally accepted container for butter making. It nar-

¹² Hornung, p. 8. A similar derivation is that of the Latvian milk pail, "slaucene" (Bielenstein, p. 325.)

rowed toward the top, was rather tall and had a lid. The butter churn was a well-known object all over Europe and, although the Russians did not use it much themselves, they were instrumental in spreading it further afield, popularizing it with such people as the Mari, Bashkirs, Kazakhs and Buryats.¹³ Similar in appearance but somewhat larger in size were milk churns (for sour milk) and candle churns (for making candles from animal fat) usually with an oval base. The island term "putk" for churn is obviously inspired from the "tubular" meaning of this term. However, the word "kirn" is now also used in the islands, replacing the old words for churn. There are other variations of the same origin (northern Estonia, "kern;" Võru dialects, "karn"), all deriving from the German (<Middle German "Kerne"), which was known in Estonia and other Baltic countries in the first half of the 18th century (Livonian, "kärna," Latvian "kerne," Lithuanian "kerna").¹⁴ The actual use of butter churns, however, goes back to the 13th to the 15th centuries, as is proved by the Riga finds of that period.¹⁵

"Lännik" was another kind of tub (Fig. 83). It could hold up to 10 shtoffs, was wider at the top, and had two small handles and a lid, as well as a curved carrier handle. It was generally used for sour milk or curds, sometimes for herring, Baltic herring or brisling. This tub had a variety of names in the different localities (see Fig. 85). Of these "lännik" ("lanik") was best known in southern Estonia, less so in the north, and quite unknown in the islands. It generally meant any container, similar to the one described above of a capacity of 4 to 5 shtoffs or more. "Lännik" is an old Baltic-Finnic word, known also in the Votyak and Vepsian languages. Its etymological origin in Votyak explains the term "läntü" [sour milk] in that language, hence "lännikö," a vessel for storing sour milk. It also entered some Russian dialects ("lyanik" a bucket), probably through the medium of Avinurme craftsmen. In Northern Estonia, as well as in the islands, the term "pütt" was applied to such a container, and the necessary descriptive terms were added depending on the purposes for which it was intended, e.g. butter tub, fish tub, etc. In southern Estonia we find the word "nur-

mik" (sometimes "nurik") denoting a tub of 2 to 4 shtoffs capacity for milk, soup, etc., used as a lunch pail. The term "metsik" ("mötsik") also appears, but more rarely. Both words have their etymological origin in nature - "nurme" [meadow] and "mets" [forest]. Smaller tubs were known in southern Estonia as "vakkene" or "kippe," and in northern Estonia as "vitsik." The latter was a small tub held together by switches, hence the name "vits" (switch), which was mainly used for conveying butter to the market. The Baltic German language also accepted that term "Witsik." In the Petseri dialect a small tub was a "pütik," and on the west coast and in Hiiumaa, "napp." The latter was also applied to bowls and baskets. Finally, the word "pang" was often used in western Saaremaa and in Kihnu, obviously associated with the Latvian "spannis" (<Livonian "pan," < Middle Low German "span"), which was used for either pail or tub.

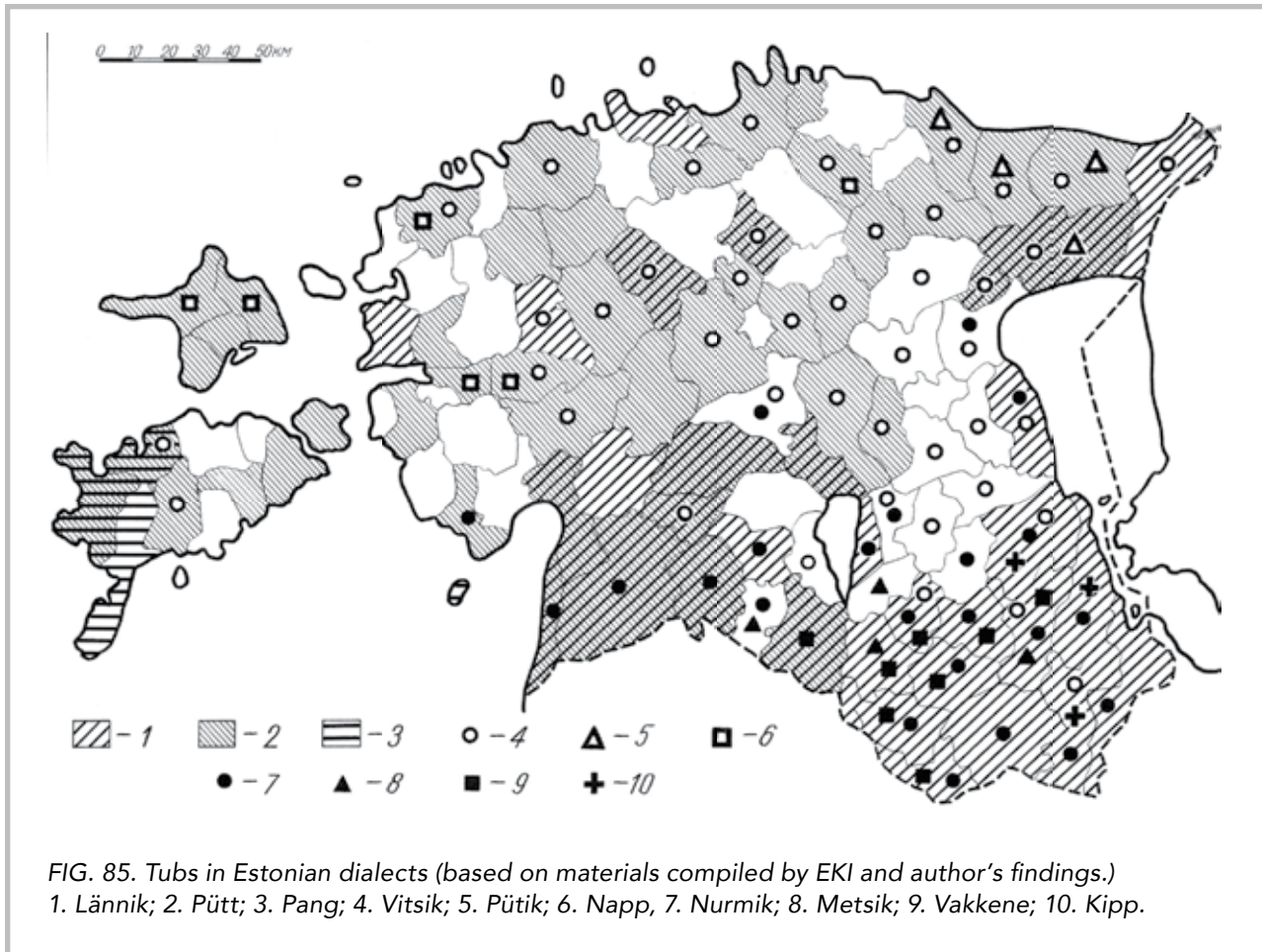
ASTJA. The "astja" - meat and fish container - is a large container sometimes shaped like a tub, frequently narrowing at the top and resting on three short legs. This type is known as "tiin" in south Estonia, and the term may have reached that part of the country from Latvia (Middle German "tine," > Latvian "tine," Lithuanian "tyne," Livonian "tin").¹⁶ The Avinurme home industry workers called it "jänn-i." This connotation is meant to be jocular, and is of fairly late origin and etymologically obscure. The container or small beer vat known as "kalja" (Fig. 86) was also three-legged, and in southern Estonia was referred to as "targas," gen.

¹³ Cf. Zelenin, p. 129, Крюкова. p. 95; Руденко, Башкиры, p. 130; Потапов, p. 60; Народы Сибири p. 235, Fig. 1.

¹⁴ Stahl 1637, p. 77; Sehwers, pp. 64, 278. Finnish kirnu < rts.

¹⁵ Šnore, plate III, 7. Šnore pp. 112-113 considers a wooden disc of 5-1/8" (13 cm) in diameter, which has five holes bored into it, a kind of sieve, but by both its appearance and its size it is apparently a twirling stick, the central hole of which had probably been used for fastening of its handle.

¹⁶ Cf Hornung 1693: Tiin 'ein längliches Kufen'. The word "tiin" is known on the northern coast (Risti, Kuusalu) where it could have become known from either from Swedish or Finnish ("tiinu," Swedish "tina" < Ger).



"taarga."

The vat is one of the larger types of containers. It narrows toward the top, is sometimes supported by legs and covered with a lid, but is more often without either, in which case it is placed on a vat stand (Fig. 87). It was used for storing meat, cabbage, grain (especially in the islands) and such, as well as for treating cloth, hides, etc., and for brewing beer. It was one of the most important household containers on the farm. In size the large vats might be about 39" (1 m) in height and diameter. The diameter at the wider bottom part usually exceeded the height by 7-3/4" to 11-3/4" (20 to 30 cm). As noted above, the word "tõrs" [vat] was first used to denote a large hollowed container, and was known as such in southern Estonia almost until our own time. In western Estonia, especially in the islands, the large vat

was known as "tann,-i." According to P. Ariste, the word was derived from the Lower German "tonne."¹⁷

CONTAINER WITH BASE AT BOTH ENDS. The keg (Fig. 83) was the smallest of all two-based containers. It was drum-shaped, 12" or more in height and approximately 7-3/4" to 15-3/4" (20-40 cm) in diameter. It had a small aperture at the side and was used for carrying milk, beer, etc. to work, being suspended on a string. It was popular in Estonia (at least) in the 15th century, as may be seen from the Helme list of craftsmen regis-

¹⁷ Cf also very close Latvian term "standa" (Middle Low German "stande"); 'Kübel von Holz oder Metall, unten breit und oben Schmal, Stellfass' (Sehwers, pp. 110, 275).

tered in southern Estonia at the time ("Leccermerker" - maker of kegs).¹⁸ The word "lähker" [keg] was borrowed from the Lower German "Lecher," and later returned to Baltic German from the Estonian ("Leker, Lehker"). In the Võru and Tartu dialects, the now familiar term "pütt" was used for the keg (appears in Gutsclaff, 1648: "lechel/pütikene"). North of the River Emajõgi river basin the diminutive term "putik" was popular. In Pärnu and Viljandi counties it was often referred to a small container with curved sides that was also known as "punts" ("punsu, puntrik"). The Petseri term "laaga," or, as in some places (e.g. Vaivara), "lässiko" derives from the Russian ("flyaga, flyashka")¹⁹

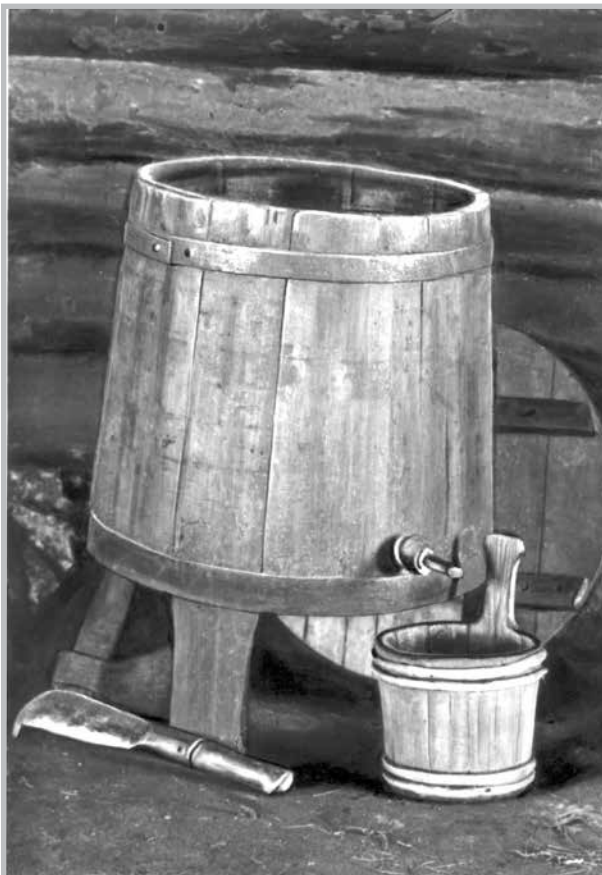


FIG. 86. Food container, with piggin and chopping knife in the foreground. Northern Estonia. Photograph by Tiidermann, 1890 Photo library 3.1.

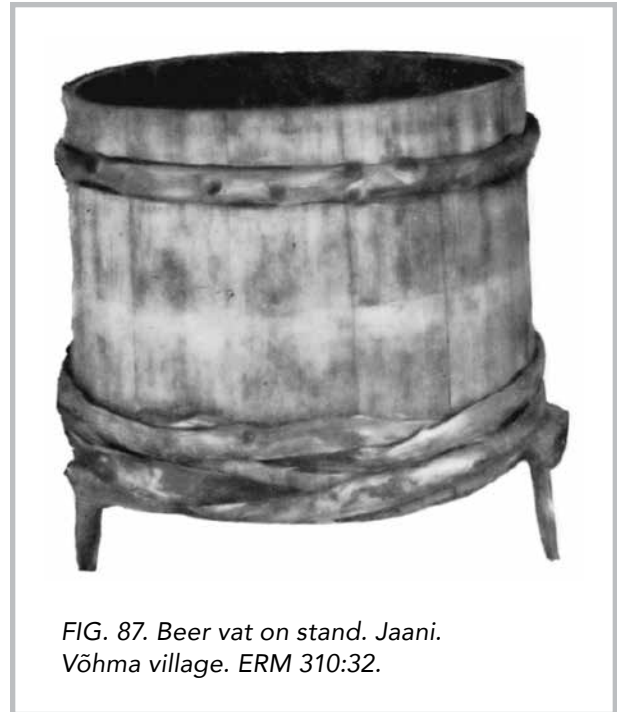


FIG. 87. Beer vat on stand. Jaani. Võhma village. ERM 310:32.

The cask is a strong container with curved sides, made mostly of oak, for storing beer. The Estonian term "vaat" (~ Livonian "võt," Latvian "vāte"), has its origin in Lower German (< Middle German "vat").²⁰ In Saaremaa a word of purely Estonian origin is used - "keha." The cask was often employed as a measure, the small size of (30 shtoffs) then being called "ankur" (~ Latvian "ankurs"), "aam" (Latvian ~ "āma, āms," < Middle German "ame"). The word "potska" ("pootsik") is fairly well-known throughout the Estonian mainland, obviously borrowed from the Russian "bochka" via the fishing trade; in the fishing areas (Kuusalu, Jõelähtme, Muhu, Torma) it is used to this day for making fishing nets stretched across the "potska" ("pootsik"). Butter was made in the farm's own dairies and kept in the cask, the container then being referred to as "võivatti." The

¹⁸ Johansen, pp. 54, 58.

¹⁹ Cf. Must, p. 263 ("plasku" 3), 269 ("plääga").

²⁰ It was usual both in Estonia and Latvia already from the 18th century. (Cf. Sehwers pp. 152, 275.) Also the parts of the beer cask, "haan, vikk, tapp," are in Low German.

cask was in use in Livonia in the 18th century, as may be seen in the corresponding figure in Brodze.²¹

The barrel was also known in a variety of sizes, from the small fish barrels to the large grain containers. The barrel in Estonia is known as "tünn," and differed from the cask by being lighter in construction and having one removable lid covering all or half the top. Apart from being used in its normal capacity, that of storage, it was also a standard measure for fish, grain, etc. The largest measuring barrel, known as "tünder" in northern Estonia (~ Finnish "tynnyri," < Swedish), was the equivalent of two Riga or three Tallinn bushels. After the "tünder" came the "poolik" (half a "tünder"), "veerandik" (quarter), "kaheksandik" (one-eighth), and so on.²² In southern Estonia, the familiar "pütt" (in Pärnu - "püta") was employed to denote the barrel as a unit of measure. In northern Estonia the corresponding measuring containers for grain had a capacity of 45 shtoffs. The word "tünn" as well as the various other names, such as "tonn, tönn," etc. are of Lower German origin (< Middle German "tunne, tonne"). In western Estonia large barrels used for storing grain (Fig. 88) were often called "viljavaat" or "viljavaam." For instance we have this from Hiiumaa: "The vats are containers for storing grain. Every farm used to have no less than two to three of them. Each could hold at least three or four tünders." (Käina). Finally, the term "muts" was popularly used in the Latvian border area to describe (mainly) small barrels, and was apparently borrowed from the Latvian, which in turn was borrowed from Russian.

The terms for board containers in the Estonian language may be classified into three groups: 1) the old widely used Balto-Finnic terms, some of which go back to the 13th century - "astja, kapp, kipp (kibu), pang, raand, sang, lännik, tõrdu (tõrs);" specifically Estonian words that are mostly of later origin, although some were known even before the 13th century - "anum, riist, nõu, rakk, putk, keha, jänn, taargas," and a number of terms ending in -ik: "käsik, lüpsik, nüssik, tsöörik, ummik, nurmik, metsik, vitsik, poolik," etc.; 3) words borrowed from other languages, mostly Lower

German, such as "kann, piipkann, ämber, vedru, pütt, kirn, tiin, tann, toober, vann, pali, lahanka," and the terms for almost all containers with bases at both ends, such as "lähker, lass, vaat, ankur, aam, potska, tunder, tünn, tonn, muts" (including the special containers "punts" and "vinku"). The appearance in the Estonian language of words classified in the last two groups occurred mainly during the disintegration of the feudal system (13th to 15th centuries). However, some are more recent additions, or of very limited local use (e.g. "jänn, vedru, lahanka, vasma, muts," etc.). A development parallel and similar to the above may be noted in the Latvian language, most of the same terms having been taken from the German during the feudal period. Of the Lower German terms, the Estonian "pütt" is probably the oldest borrowed word and is the only such term with multiple connotations (milk tub, small covered tub, keg, cask, etc.; see Fig. 89); it has further served as a basis for describing the craftsmen of the entire group - "pütsepp" [cooper].

Analysis of the terms used for containers leads us to the conclusion that many board containers, including those with two bases, were known in Estonia (as well as in Latvia) in the 13th century (i.e., in the Feudal Age). The older terms refer to smaller containers as piggins, buckets and tubs, which were known as old Estonian names or old borrowed terms.

The terms for larger containers of earlier origin may be associated with the hollowed container ("astja, tõrs"). The terms for piffin and the small covered tub have also found their way into Baltic German ("Kap, Witsik").

Archaeological discoveries have included several buckets, proving the existence of these vessels in feudal times. Particularly rich remains

²¹ See История Латвийской ССР I, Fig 82. p. 376. Brand has described a similar receptacle from Courland already in the 17th century (ibid, p. 375). Erixon, Skultuna, p. 450 onward. The butter vat was known in Europe at the latest in the 17th century, but it was taken into use only in the 1870s.

²² Cf. Hornung 1683: Tünder "eine Tonne" (p. 59). Werandik "ein Viertel" (p. 35).

were found in 1953 in Tallinn; among the finds were many parts of wooden bowls made of planks; similar samples were also found in Tartu (Fig. 90). Further we note among the finds the lug boards of several small containers, and the sides of low milk tubs (Fig. 81), as well as boards from the bases of various kegs and tubs, marked with the owner's name. These finds date to the 10th to the 13th and the 12th to the 14th centuries.²³ It is of course, impossible to say where they were in use in Estonia prior to the period stated. At any rate the finds definitely confirm the use of board containers in Estonia during the above-mentioned period. A similar situation prevails in Latvia where finds cover the 13th to the 15th century (Riga excavations). Among the remains are items similar to those found in Estonia, in addition to remains of pails, baths, barrels, vats, etc. Most of these must have been produced by urban craftsmen.²⁴

Other archaeological material available shows that one of the oldest board containers is a small pail often held together with a metal hoop. Such items appeared in Switzerland at the end of the Bronze Age, in Rome in the 1st century, in Scandinavian countries, as well as in Silesia early in the first millennium. In eastern Slavic countries and those bordering on Estonia (Krivichia, Kurgania), similar objects date to the 9th to 11th centuries.²⁵ A number of objects, all with one base (buckets, tubs, etc.), were found

²³ Cf. Tarakanova-Saadre and Mäll-Russow.

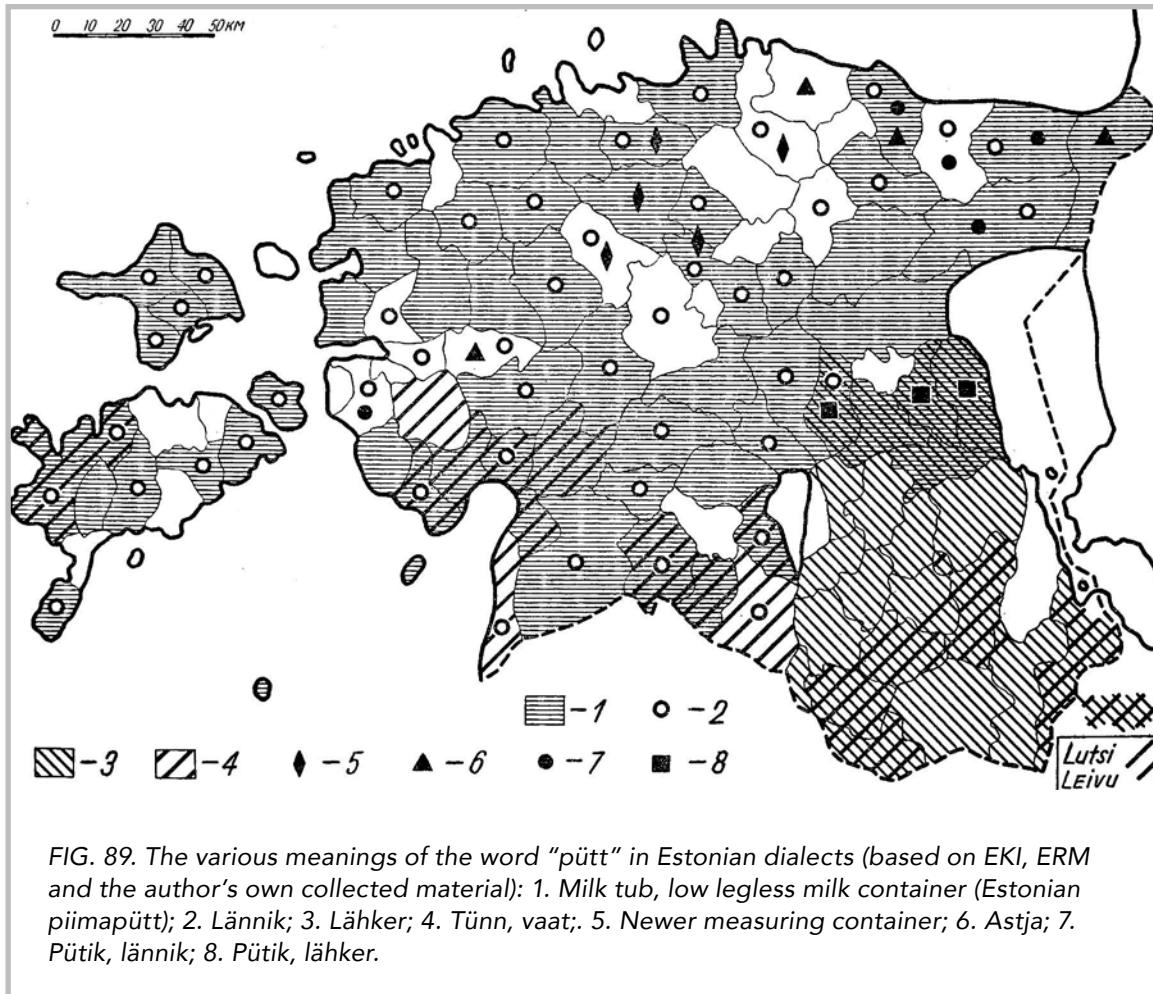
²⁴ Šnore, pp. 112-13 and plate III.

²⁵ Кларк, p. 216; Haberlandt, pp. 489-490; Hołubowicz, p. 180; Engelhardt, plate XIV: 24, p. Ржига, 33-43; Нидерле, p. 343, Fig. 97; Рыбаков, p. 185; История культуры I, pp. 110 and 112. (Fig. 73).

²⁶ Osebergfundet II, pp. 71, 151-162, 192-196.



FIG. 88. Grain barrels in the yards, Käina. Selja village. Photograph by F. Leinbock, 1925. Photo library 452:55.



in salvaged Scandinavian ships.²⁶ Many Slavonic terms, both of ancient origin and those still in use, such as "vedro, kad ~ kadka, bochka," etc., found their way into Lithuanian and Latvian (Latvian "buca, tünn" <Pskov dialect "besa" ~ Russian "bochka"), Latvian "kubuls, tōrs" (<Old Russian "kebels, tōrs").²⁷ Remains dating to the 12th century were also found in Novgorod.²⁸

As regards the Riga and Tallinn finds, we know that this kind of small bowl (Fig. 90) was in use in Central and Northern Europe at the beginning of the second millennium. It may frequently be found in paintings and miniatures of the period, and numerous traces are available from archaeological excavations. The oldest known example is the Würtemberg bowl (6th to 7th centuries). Many other finds from German towns may be list-

ed, and quite a few of them come from the Baltic German area, from Lübeck eastward (12th to 15th centuries). No complete bowls were found in the latter town.²⁹ Other known specimens come from eastern Slavic areas (Opole, 10th to 12th centuries),³⁰ Sweden (Nyköping) and Finland (Turku, in the oldest layer of civilization).³¹ All these data prove that these bowls were a common feature

²⁷ Нидерле, р. 343; Ржига, pp. 25-29, 32; Рыбаков, р. 185; Sehwers, р. 278 onward.

²⁸ Арциховский, Миниатюры, р. 191, Арциховский, Новгород, р. 54.

²⁹ Neugebauer, pp. 177-181.

³⁰ Hołubowicz, p. 175, Fig. 175, Figs. 69 and 113.

³¹ Sahlberg, p. 37 and Fig. 5.

of urban tableware. There is also very little doubt that they must have been used in the villages to some extent, although for obvious reasons the preserved examples available are from towns. The bowls apparently started going out of use about the year 1500.³²

Taking all the above into consideration no doubt is left that several types of board containers (at least those with one base) existed in Estonia in feudal times (10th to 12th centuries). The technique of making these containers must be assumed to be at least as old. Let us now con-

above the ground, wood quality was indicated and meant that the tree would cut easily and in a straight line. Often a branch would be cut from the side and tried for the way it would chop. If it went in a straight line, it generally followed that the trunk would do the same. If the branches hung down at a very acute angle, you could be certain that the tree would divide properly when cut."³⁴

In addition to spruce, juniper and alder were often used, especially for small household containers such as milk and butter dishes. Timber

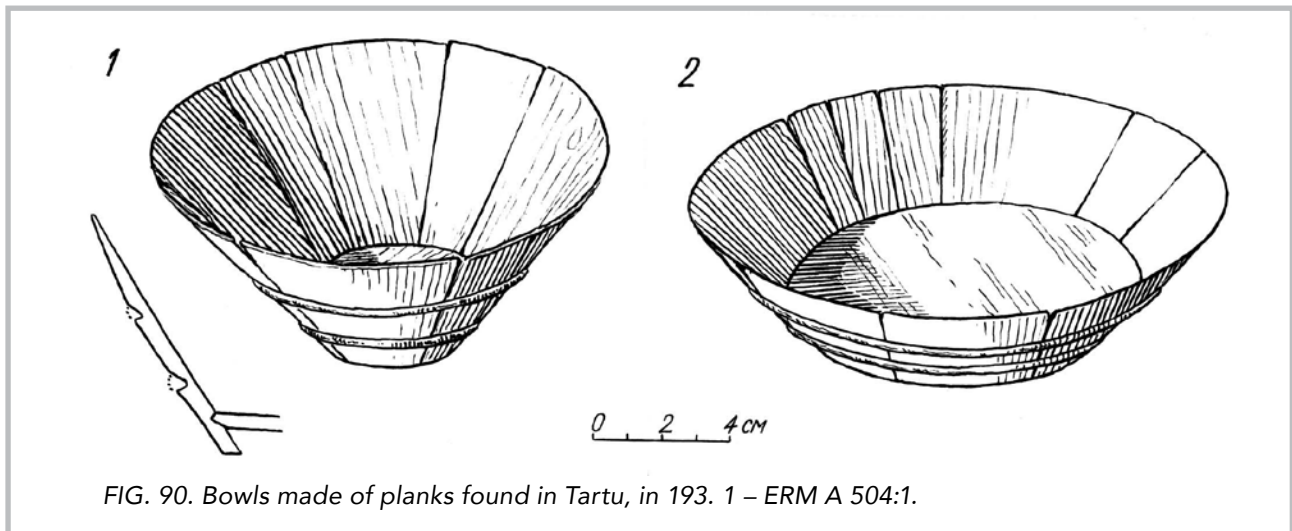


FIG. 90. Bowls made of planks found in Tartu, in 193. 1 – ERM A 504:1.

sider the process.

b) Production of Board Containers³³

MATERIAL USED. The most commonly used timber for making containers in Estonia was the even-ringed spruce. Some containers, especially large ones, were frequently made of pine that is known for its durability due its high tar content. The container-makers of Avinurme employed various means for evaluating the quality of the timber prior to the tree being cut. "A tree intended for the production of containers was viewed from many angles. The distance between paired and long branches was important. Tall, marsh-grown firs with even rings were preferred. When the roots were thick and protruded fairly high

³² Neugebauer, pp. 178, 181. According to evidence from various sources, it may be assumed that the bowls continued to be used in some localities in some out-of-the-way areas for a longer period. Thus in Arkhangelsk, northern Russia, such bowls were used for grain as late as the previous century. (VEM photo library, photocopy 2638-45: лагун, taken in 1910 in the Arkhangelsk Region.)

³³ Data on the making of board containers in other nations were mainly taken from the following sources: from Russia Филиппов, pp. 191-207 (Kazan province); Промыслы Вятской губ. V, pp. 1-10; from Latvia Bielen-steil, pp. 319-331; from Lithuania Vitauskas; from Finland Karrakoski, pp. 130-153; Vilkuina, Träkärindustri; Vilkuina, Vars.-suomi., 185-192; Ryt-könen, pp. 187-212; from Sweden Trotzic; concerning West European city handicraft Bandaroy and Legros. The sources indicated will not be referred to in separate cases.

³⁴ Eesti Mets 1922, p. 204 (A.B., from Avinurme timber works).

from these trees was preferred because they did not affect the taste of the food. In northwestern Estonia and in the islands it was the practice to make "striped" cupboards, jugs and milk tubs by alternating alder and black oak boards, or spruce with juniper. The lug boards and handles of beer mugs were always carved out of birch, while the branches from which the spout of the milking pail or milk jug was made were usually pine or (in Saaremaa) oak, because these were suitably shaped. Pump handles for wells were made of oak (especially in Saaremaa) because oak does not easily absorb moisture, nor does it decay. Oak was also the timber often used for beer casks, although ash was sometimes preferred. The aspen served for grain barrels; generally, though, barrels were made of spruce.

Spruce was equally popular in the other Baltic countries as well as in Finland and northern Russia for making containers.³⁵ On the other hand, in the far eastern parts of Russia, as well as in Sweden, pine (which in Estonia was considered unsuitable for the purpose) was used for making

containers, while spruce was thought to be of doubtful value in the craft.

In eastern Russia spruce was nevertheless used for smaller and cheaper containers, but in Sweden only milk and butter dishes were made of spruce, pine being too resinous for that purpose. In Germany, too, of all the coniferous trees pine was the most popular,³⁶ but on the whole south of the Baltic, oak was considered the most valuable container material. Due to the comparative scarcity of oak in more northern lands, its use for container making was limited to beer barrels.

SINGLE-BASE CONTAINERS. To this day several ancient features are retained in the production of single-base containers (known in Avinurme as "engraved vessels"). The description below is based mainly on methods prevailing in Avinurme.

Boards for containers are usually cut during the winter felling season. The felled spruce is cut up into logs to the required length, and these are further split into halves (Avinurme, "lõhandik"), or, if the trunk is very thick, into four segments. The bark is then removed and the wood stacked to dry. In spring the wood is split to its final size and the points of the branches are usually removed. A curved froe is then employed to split out container boards (Fig. 92), called "riista" ("nõu-, anuma-") "lauad."³⁷ There are usually two curved froes, one with a more pronounced curve for smaller containers, and one with a less pronounced curve for large containers. The boards are usually split across the tree rings; with thinner trees the cutting is calculated so as to leave the tree center on the most curved point of the outside. The board must never be split along the tree rings, because it would warp and decay.

The curved froe is a common tool in cooper-

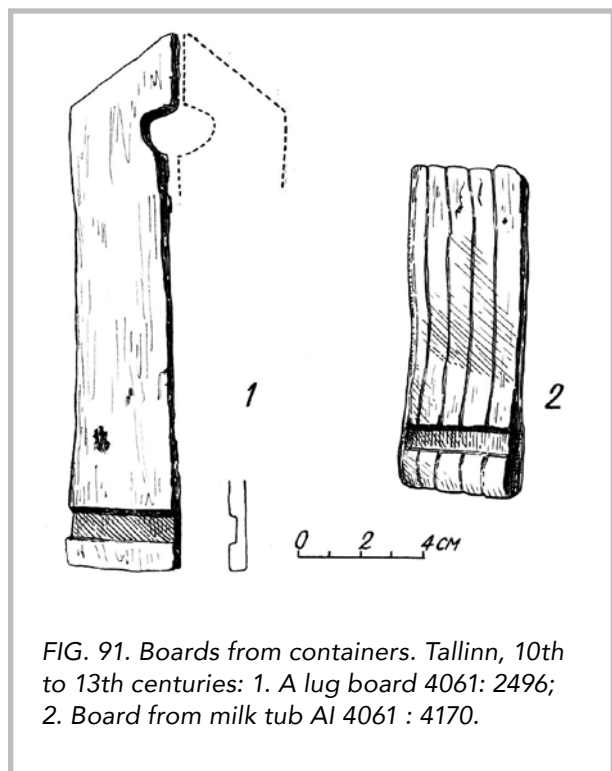


FIG. 91. Boards from containers. Tallinn, 10th to 13th centuries: 1. A lug board 4061: 2496; 2. Board from milk tub AI 4061 : 4170.

³⁵ About the latter see Дроздов, p. 192 (St. Petersburg Province); Промыслы Псковского уезда, p. 50.

³⁶ Krünitz VI, 1775, p. 86.

³⁷ In the northeast Estonian coastal dialect also "kimm, kimmes" (cf. also, "kimpi" id, < Swedish).

age throughout Europe, in Estonia, however, it was hardly known outside Avinurme. Only the Nõva craftsmen in northwestern Estonia accepted this tool, and then only in the present century, obviously following the example of Avinurme. Elsewhere the work was done with the axe.

When ready, the boards were again stacked up for the summer to dry, known as "kesanema"³⁸ [to lie fallow] (Fig. 93). In autumn before using them, the boards were further dried in an oven or at room temperature until they were dry.

Use of sawn, not riven or split, boards in container making was introduced early in the 20th century. They are considerably easier to work, but have a number of drawbacks as regards quality. It is impossible to follow the direction of the rings, so the containers are less durable. Furthermore, when making small containers it is not possible to obtain the necessary curve in the wood. That is why sawn boards were not used earlier for this purpose. On the other hand, by the 19th century the base was commonly made of sawn boards.

The first stage in processing the board is hewing, done with a small axe with a curved blade (Fig. 107); the shape of the blade and the curved handle enabled the craftsman to achieve the arched shape of the board. This method of hewing was commonly used in Avinurme, but in other parts the work was mostly done with a plane, an ordinary plane being used to work outside surfaces and a jack plane to the inside. The requisite curve was not measured because skilled craftsmen worked by the eye, although in northwestern Estonia they often used special templates or gauges known as "sablons"³⁹ (Fig. 98.6). Such gauges were also used in southwestern Finland and in Sweden, but in Russia they were apparently unknown. The base ("põhi," in southern Estonian "perä") was usually made of several boards connected by a plank ("salapulk"; in northwestern Estonia "üdi-pulk, üdimepulk"; in Saaremaa "naki"), and was smoothed over with a plane - in Avinurme on a low stool, elsewhere on a carpenter's bench. The circle was drawn with a compass on the planed base board and then cut out with a narrow frame saw. In the second half of the 19th century some woodworkers still



FIG. 92. The trunk being split with a curved froe, Avinurme Enniksaare village, photograph by G. Ränk, 1939. Photo library 836:14.

used the axe to chop the base out of the boards. The bases of oval baths were measured by the eye: Two circles were drawn with a compass and freely joined by hand. The well-known method of drawing an ellipse, i.e. using two nails and a string, was applied on rare occasions.

Now it was the time to join the boards. First

³⁸ The word "kesanema" ("kesama, kessäümä") also "kesapuu," timber that has dried through the summer is known only in Eastern Estonia. The word "kesähalot," timber cut for home use in the spring occurs also in southeast Estonia (Virittäjä, 1933, p. 455 - V. Kyröla. Cf. Finnish "kesä" summer).

³⁹ In Keila also Kopka (< Rus. bracket) - Must, pp. 122-123.



FIG. 93. Boards for container making drying next to the sauna wall. Avinurme, Jõemetsa village. Photograph by author, 1947. Photo library 1089:11.

the edges were planed so as to give the right slant (Fig. 94), after which they fitted properly into each other. The lines for the grooves were then drawn (Fig. 95), the grooves themselves being made with a grooving knife (Fig. 96).

The special stool used for grooving (Fig. 97. 1) was known only in Avinurme. This is an ordinary workbench with an attachment for grooving – an ordinary piece of wood 4" to 7-3/4" (10-20 cm) high, a slightly curved surface, with two planks jutting out and holding the board to prevent it from moving. The board is further held down with foot pressure in a loop of string running through the bench, leaving both hands free for grooving.

The grooving knife ("uurinuga," in the southeast "uurdeväits, uuldeväits") is a knife consisting of a blade of 1" to 1-1/2" (3-4 cm) long and a handle of about 20" (.5 m) (Fig. 98.1, 2). When working, the end of the handle rests against the shoulder, lending it additional pressure. The edge of the blade is at such an angle to the handle as to enable the cooper to apply the full

length of the blade at once, which also makes for a straight and clean groove. The operation is carried out in three stages: first cutting into the wood at an angle along two marked lines; the center is then cut out right to the bottom of the groove; the triangular ridge that is left along the groove is now cut away with the grooving chisel (Fig. 98.4). The depth of the groove is about a third of the thickness of the board. Such grooves are known in Saaremaa as "tapp-uure" (Mustjala) or "suuruure" (Kihelkonna).

Nowadays the grooving knife is only used in Avinurme, although even there the younger generation of craftsmen seems to prefer the handsaw or the sheath knife. Previously, the grooving knife was in general use; in the western part of Estonia, however, it began to disappear some time ago. The long-

handled grooving knives seen in museums originate mostly from southern Estonia, while in the northwest and in the islands some odd grooving knives may still be found. Within the life span of the present generation, most grooving work was done by a small frame saw or pad saw. For the middle of the board, which was sometimes difficult to reach with the saw, the aid of a knife was required. The croze saw (Fig. 98.3), with which it was possible to cut evenly right across the board, was also known in the islands and in parts of northwestern Estonia. In conjunction with this saw, a knife and a grooving chisel had to be used for clearing out the groove. The croze saw is thought to be a fairly new tool in Estonia; the exact date of its appearance is not known, but it is certainly of later origin than either the frame saw or pad saw.

Outside Estonia, we know that in Finland and in Scandinavia the grooving knife and the grooving chisel were in common use. On the other hand, the grooving bench used in southeastern Finland was quite different from the type used

in Avinurme. On the Finnish bench work was done with one hand only, the other being required for holding down the board.⁴⁰ As regards to Latvia, we are aware of the use of the grooving knife in Vidzeme,⁴¹ while in the rest of Latvia, as well as in Lithuania, grooves were made after assembly by a croze. We also hear from the Livonians on the northern Courland coast that their methods differed from those of Saaremaa craftsmen. The Saaremaa coopers made the base first and built the container around it, whereas the Hiiumaa method is to first assemble the sides, cut the groove with a croze and only then cut the base to size.⁴²

East of Estonia, among Russians and in Karelia, the grooving knife seems to be entirely unknown. Among Votyak and Izhorian craftsmen, the procedures have been taken over by Russians in the Valgovitsa coopers' village, where the grooving knife is known by the name of "pezak" ("rezak"). But in the adjoining villages (Volossovo, Sosnitsy, Osmino and Usli) the croze saw is more popular. Finally we might mention the knife used among Pskov coopers at the end of the 19th century, with which the assembled container was grooved.⁴³ From information gathered in the Pskov area, only Estonian coopers working there used this method, while the Russians made the groove first and only then assembled the container and inserted the base. Very little information is available concerning methods of inserting the base and grooving in Germany.⁴⁴

On the strength of material at hand, we may thus say that the single-cut groove methods, effected with the grooving knife, were known only in the Scandinavian countries, in Finland, Estonia, in the Votyak and Izhorian regions and in northern Latvia.

Once the first boards were grooved, they were hammered onto the edge of the base (Fig. 99). Before that, however, the grooved part of the board was usually immersed in water, or water poured alongside the groove to prevent the



FIG. 94. Cutting the edge with a plane. Avinurme, Vadi village. Photograph by G. Ränk, 1939. Photo library 836:25.

board from moving when the boards alongside it were fitted. Smaller containers were assembled on one's lap, but for larger barrels, etc., the boards were placed on one or more stumps of wood on the floor, and fixed in positions or other means of joining. Often the boards were further joined to each other with pegs to keep them together while assembling. In Avinurme the latter method was not used, nor is it used today by any of the coopers in the districts where it was previously practiced.

The container thus assembled had to be

⁴⁰ Karrakoski, pp. 136–137.

⁴¹ LVM : 17334 (grooving knife Limbaži parish, Valmiera County), folder 2428 p. 74 (Jumurda parish, Cēsis County), p. 81 (Dzērbene parish, Cēsis County, folder 2483), p. 25 (Rāmuli parish, Cēsis County).

⁴² LE, p. 109.

⁴³ Промыслы Псковского уезда, p. 50 onward. Apparently the author is quite unfamiliar with the use of the grooving knife, as a result of which he confused the methods of grooving applied elsewhere in Russia with the actual use of the grooving knife.

⁴⁴ Neugebauer, Fig. 7 (p. 189) does, in fact, mention a 6" (15 cm) container from Lübeck with a grooved-in base, but this was obviously attained by another method.

temporarily tied together either with switches (“valevits,” in western Estonia “hädavits,” also “vangivits, aevits”), or simply with string. When the barrels were joined by pegs, tying was not essential. The container was then smoothed down with a planing knife, for the purpose of which it was placed on a bench and secured with string. The edges at both ends were finally adzed and topped by hoops, after which the sides were also smoothed. Only in the 1930s did the Avinurme coopers discontinue the practice of temporarily tying the container, and instead began to use metal strips for joining the boards while assembling (see Fig. 95), which made it possible to plane the surface without hindrance.⁴⁵ The latter method is one known in parts of eastern Estonia, and among Votyak coopers (in the Russian village of Valgovitsa). Outside Avinurme boards were often planed before assembly.

Now came the hooping of the container, switches being used. The switches were known as “vits” all over the country, except for northeastern Estonia⁴⁶ where the word “varu” [meaning ring, hoop] was used (in Nigula, “Lüganuse, Vaivara”; see the Votyak term “varo” meaning “container-switch”).

The most suitable hoops for small containers were considered to be juniper or hazel switches. Other switches used were bird cherry, mountain ash, willow and, in the islands, also oak and ash. Spruce, however, remains the most commonly used in Estonia and in Northern Europe; from it were chosen long, smooth and flexible shoots for use as hoops for all containers, and in particular, large ones. In the absence of good spruce shoots birch was used in Avinurme and Nõva, but in other parts of the country it was not considered suitable. All coopers usually gathered suitable switches and shoots through the winter, in which case they had to be immersed in hot water for two to three hours before use. Freshly cut shoots could be used in their untreated natural condition. Shoots from deciduous trees are gathered in summer when their bark is loose, because deciduous switches have to be barked to prevent the wood from softening. Birch shoots, however, can be gathered in early spring; in later months



FIG. 95. Marking groove lines on boards. Avinurme. Photograph by J. Triefeldt. Photo library 1116:82.

the birch “softens” and is no longer suitable for hoops, the wood becoming brittle and cracking easily. Osier switches were also gathered in winter. “They were pushed in the oven and split open. The bark split in the oven as easily as a pie. You worked near the oven with gloves, cut them to the right size, and threw them into a heap in the yard. You got lovely white switches” (Käina). In the present century the practice was introduced

⁴⁵ Use of small sheets of iron appeared in Avinurme as early as in 1921; Adamson, p. 190. The changeover from the planing knife to the plane is explained in Avinurme by the fact that it had become difficult to find straight, close-ringed timber.

⁴⁶ KV 79, 84 Ambla; EA 35, 765 Sangaste.



FIG. 96. Grooving on a grooving stool. Avinurme, Vadi village. Photo by author, 1947. Photo library 1089:68.

of placing osier switches in what was called "aurutoru" (steam pipe) - a wooden box connected to a boiler and known as the steam box.

Spruce shoots could be gathered the year round, although winter months were preferred. Spruce switches were often used complete with bark because they often cracked at the branch joints when barked. If they were preferred barked they had to be treated in the oven in order to make them more pliable.

Each switch was usually cut in two lengthwise to serve as two hoops. Cutting was from the top down with a knife (for a thin switch) or with an axe (for a thicker shoot). The inside surfaces were then smoothed with a knife (for thin switches) or with a planing knife (if the shoot was thicker). In Avinurme and in other large cooperage centers the cutting was done on a special cooper's bench.

The shaving horse, or cooper's bench, is widely used in cooperage and other woodworking centers all over Europe. It has an adjustable "swingletree" (head) placed in a frame, which holds fast the hoop or any other object being

worked, and leaving both hands free to hold the planing knife. The type used in Estonia, Latvia and Lithuania is popular also in other countries, and is also of the simplest kind. Benches based on the same principle appeared already in the 2nd century, as may be seen from a stone relief from Gaul (Rheims).⁴⁷

The cut hoops were now bent - the thinner ones over the knee, the thicker ones round the post head of the cooper's bench. The hoop was then placed in a round band with the ends crossed. Staves often remain in the hoop for years before being used. For tougher hoops some old-

time coopers have a primitive type of bending implement (Estonian "vitsapainik" [hoop bender],⁴⁸ with which the whole of the hoop was bent through, inch by inch (Figs. 98.5, 101). Such a tool was used in Estonia by mainland cooperages (Avinurme, Nõva, Rõuge). It was in general used in Russian and Belarus cooperages,⁴⁹ it appears in Lithuania⁵⁰ and in eastern Finland,⁵¹ but no evidence is available of its presence in other areas.

Heartwood spruce shoots, which were used as hoops for very large containers, were differently grown and processed. These were very

⁴⁷ K. Mautner - V. Geramb, *Steirisches Trachtenbuch I*. Graz 1932 -1935, pp. 184-186 (Fig. 98) (used in making wooden shoes, and in connection such work it is used in Western Europe until today).

⁴⁸ In accordance of one report called also "kulgu" (EA 15, 131).

⁴⁹ Филиппов, p. 197, Fig. 74; VEM 795-77 (former Minsk Gubernia, former Mogilyov Gubernia).

⁵⁰ VEM 1546-117 (former Vilno Gubernia).

⁵¹ Sirelius, SKK II, plate III:5c (Southern Savo); Rytkönen, p. 192 (Northern Savo).

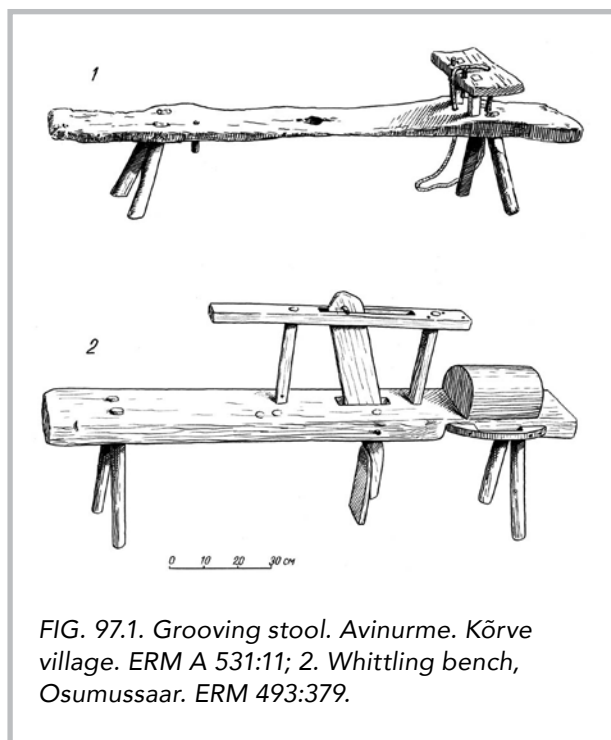


FIG. 97.1. Grooving stool. Avinurme. Kõrve village. ERM A 531:11; 2. Whittling bench, Osumussaar. ERM 493:379.

thick switches (Fig. 87), considered stronger and more durable than metal. They were used until about the end of the 19th century. Heartwood switches are especially strong, resinous shoots, reddish in color, which grow out of spruce roots or sides. Because there were not many of them available, the coopers used to specially grow them. "Young spruces were grown for their shoots. Young spruces at the edge of the forest were cut down and then they were allowed to grow for another couple of years. Then they grew sideways and the shoots became stronger than iron."⁵² In order to obtain a good strong shoot, it had to grow from the root for two or three years and one could easily get one good stave from each shoot. Such a method of growing shoots for hoops was known and practiced all over Estonia and in southwestern Finland.⁵³ This type of hoop could not be used without first being treated by heat: "When heated it was as soft as a strap. You had to finish the job quickly, while it was hot, otherwise it would crack in your hand."⁵⁴ The hoops were heated in the oven, but sometimes a fire was made outside and the switch was heated in

the ashes. It then curved by itself round the container.

Before drawing the hoops together they were measured for length - "three times the diameter of the container, and an ell to spare." The ends of the hoops were joined by cutting notches into them, in which case they were joined by an extra layer. Such methods of fixing the hoops were accepted all over Europe. The practice of joining the hoops of larger containers with pegs, accepted by some of the urban coopers in the Middle Ages and even later, remained unknown in Estonia.

The hoop is set in position with the aid of a mallet and hoop-driver (Fig. 102). The latter is known in the northern Estonian dialect as "kostipulk," in the islands and in the southwest as "aepulk" or "aepuu" (from the verb "ajama" [to drive]), in some localities the verbs "kostima, kostitama" [treat] are used "to drive the hoop onto the container with a mallet." The term "kostipulk" used for wedges in this case, also mean a pin, employed for knocking another pin or piece of wood out of a hole.

The origin of this term is probably the Baltic-Finnic "kostitama" - to resist, to obstruct.⁵⁵ The fact that containers were usually wider at one end (either top or bottom) and narrower at the other was obviously dictated by the use of hoops because this shape facilitated the process of hooping. The hoops were easily driven onto the container from the narrower end, and only in the case of very large containers did the edge hoops have to be drawn with the aid of a hooping hook (Fig. 103).

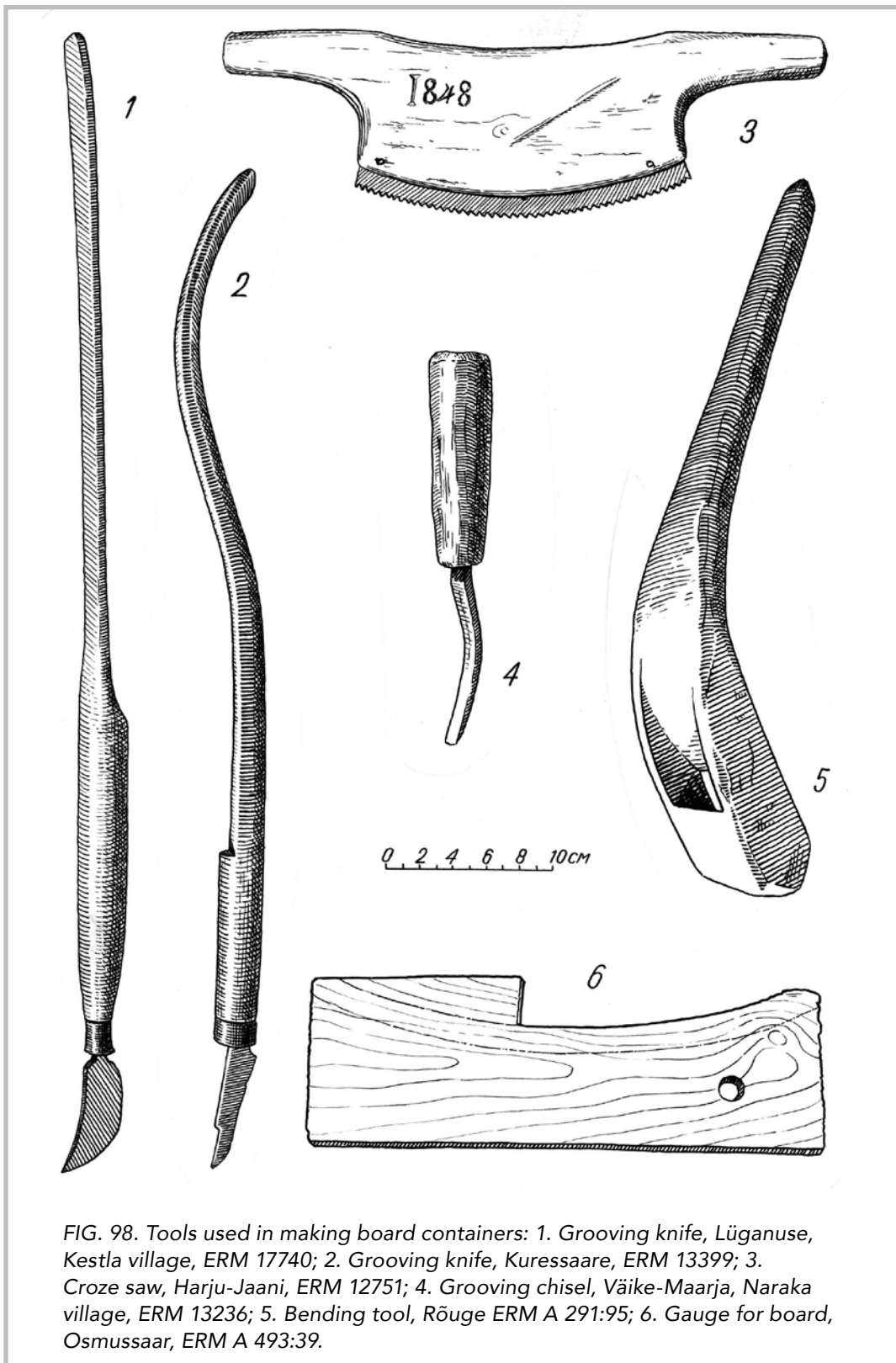
In Estonia and elsewhere, the hooping hook

⁵² KV 79, 139 Kaarma.

⁵³ Here, too, the same term is in use: "lyly" (Karrakoski, p. 133.) The age-old meaning of that Finno-Ugric word has been "hard coniferous timber which develops on the convex outer side or the northern side of the trunk" (Virittäjä 1945, p. 195 - T. E. Uotila).

⁵⁴ KV 79, 139 Kaarma.

⁵⁵ The word "postipulk" is used in eastern Estonia (Avinurme, Kodavere, Lügänuuse) although it is etymologically a later development of the original term.



was a tool constructed with an adjustable iron hook (Fig. 104.1). In Saaremaa and in some coastal areas the hook was made of wood (Fig. 104.2). Different varieties of hooks were found (Fig. 104.3). The most primitive type of hooping hook was made of a naturally shaped branch (Fig. 105). Such primitive tools were very rare in Estonia in the 19th century.⁵⁶ In Europe adjustable hooping hooks were used in towns already in the 17th century.⁵⁷ In the Baltic countries we have evidence from Latvia, Kurzeme (19th century), but not from Lithuania, where they were



FIG. 100. Cutting hoops on cooper's bench, Avinurme, Piilsii village. Photograph by E. Vittoff, 1921. Photo library 439:313.



FIG. 99. Assembly of bath, Avinurme, Photograph by J. Triefeldt, 1939. Photo library, 1116:85.

rare.⁵⁸ In Belarus and in western Finland, wooden hooping hooks were also known.⁵⁹ As for hooping hooks made of a single piece of wood, they were best known in Finland and Sweden.

In the western dialect and in Saaremaa the hooping hook is known as "vitsa(h)ammas," while in the north and east (also in Avinurme) it is often called "ammaspuu." In Hiiumaa it is commonly known as "vitsaak" (~ Swedish "bandhake"), an expression also sometimes heard on the mainland (in Lügänuse-Koppelaak). In southern Estonia a number of terms were known such as "konks" (Mihkli, Tori, Suure-Jaani), "näpits" (Kambja, Võnnu), "küüneraud" (Halliste), "päss" (Kark-

⁵⁶ Museum collections only have one drawing from Tori. In Avinurme it was possible to see such one such specimen in use only in 1947 (see photo library 1089:83 Enniksaare village).

⁵⁷ Amman, Fig. p. 94.

⁵⁸ Latvia: LVM 17467 (Kuldīga county, Planica village); LE, p. 770 (Livonian coast). Lithuania: DM E 47 (Seda district); "Aušra" 4891 and 6844 (Pakruois district), 6042 (Radviliškis district); VEM 1546-116 (former Vilno Gubernia).

⁵⁹ VEM 1292-18 (former Mogilyov Gubernia); Sirelius, SKK II, plate III:5b.

⁶⁰ EA 47, 483.

si) "aepuu" (Helme), etc. The word "vedemed,"⁶⁰ used in Kihnu, comes from the verb "vedama" (to draw, to pull). Another term is "ämmolõug,"⁶¹ used occasionally in Avinurme and in northern Estonia.

Hitherto we have not touched upon the hoop made of a thin (about 2" (5 cm) wide) layer of wood, usually ash, oak or aspen. Such hoops are very nice in appearance, but are suitable only for cylindrical containers and were therefore used mainly for casks (see Figs. 83, 121). This kind of hoop was known all over Europe.⁶²

In the second half of the 19th century, the estates began to use metal for their containers. On the whole, villagers did not begin to use metal hoops until well into the present century (their use became widespread after World War II), although here and there they were used earlier.



FIG. 101. Bending hoop with windlass, Avinurme, Kõrve village. Photograph by author, 1947. Photo library 1089:91.

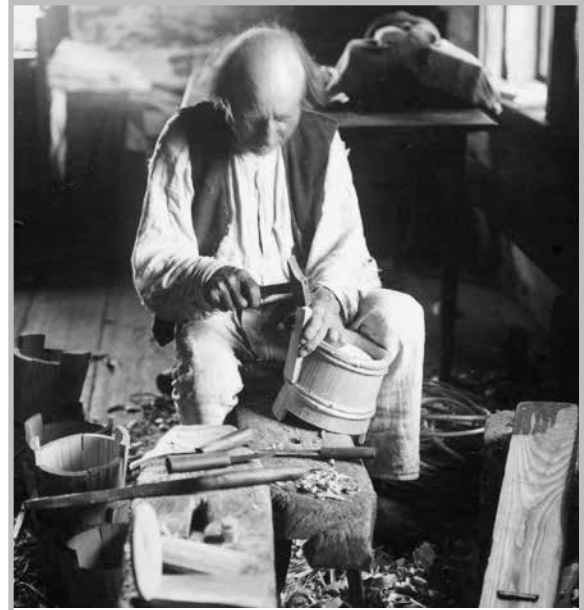


FIG. 102. Working with a hoop driver. Avinurme, Kodassaare village. Photograph by E. Vittoff, 1921. Photo library 439:183.

Containers for holding liquids with a high salt content are to this day hooped with wood, because metal hoops tend to rust or are affected by other chemical processes. In the years of World War II wooden hoops came back into use due to the shortage of iron.

After hooping, "a general clean-up" follows. The bottom edge is cleaned with a planing knife and so is the entire internal space between the base and the edge. The inside has then to be dealt with, and that is done on the cooper's bench. The container is held down with the foot and string, the front edge resting against the center peg of the bench (Fig. 106). Cleaning is done with a draw knife and, round the base where it is difficult to reach with a draw knife, cleaning is done with the point of a knife. In Avinurme they

⁶¹ Cf. Vakk-Finnish "ämmänleuka" (Karrakoski, p. 140) and "koiranleuka" that is widely used in Finland (Sirelius, SKK II p. 29). The latter also occurs in Karelia ("koiraleug").

⁶² Haberlandt, p. 490.

⁶³ Vilberg, p. 43.



FIG. 103. Hooping a tub. Avinurme, Vadi village, Photograph by the author, 1947. Photo library 1089:71.

also had some specially curved iron rods for this purpose, known as "liidusrauda."⁶³ This was obviously a large curved chisel. In Europe the draw knife was generally used for cleaning the inside of the container, while the curved chisel was also known in Sweden and Finland.⁶⁴

The final job is the finishing off of the upper edge, which is done with a planing knife (Fig. 107), after which it is beveled with a knife. Evidence exists, from Karksi near the Latvian border, of a marking instrument with which a line was drawn to mark before cutting. "To get a straight edge, there was a stick with a nail or a 'tooth,' which was used to draw a line round the container, after which the odd pieces were cut away."⁶⁵ Although

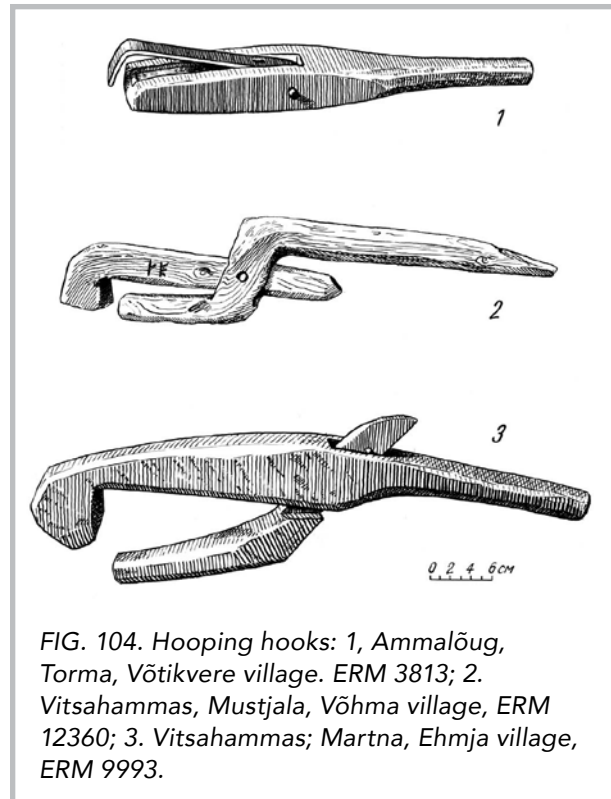


FIG. 104. Hooping hooks: 1, Ammalõug, Torma, Võtikvere village. ERM 3813; 2. Vitsahammas, Mustjala, Võhma village, ERM 12360; 3. Vitsahammas; Martna, Ehmja village, ERM 9993.

we have no evidence of such an instrument from any other source, we know that it was used in certain parts of Latvia.⁶⁶

The finished containers in Avinurme were stored on the threshing floor until they were sold. To save space they were stacked into each other, made possible by the fact that the top was wider than the bottom (Fig. 108).

CONTAINER WITH A BASE AT BOTH ENDS. These differed considerably from hollowed containers in that they formed part of home industry. They belonged exclusively in the province of the expert. Thus, the estates, requiring large beer or spirit barrels, employed their own coopers, or had the barrels made in towns. Village coopers

⁶⁴ Trotzig, p. 356 and Fig. 1:5; Karrakoski, p. 140.

⁶⁵ KV 79, 80a.

⁶⁶ Bielenstein, Fig. 280 (p. 322); LVM (Tukums county, Zebrene parish). Home industry workers in Central Sweden know the same tool and it is apparently known also elsewhere.

mostly made kegs or small casks and several types of barrels. The Estonian terms for cooper "püttsepp, tündrisepp" or "ponder" (< Russian bundar") imply particularly the making of double-based containers.

Boards for staves for barrels and casks are usually used when still green, which facilitates bending. For the same reason they are cut to a comparatively narrow and straight shape. Contrary to general use, boards for fish barrels were often cut along the tree rings. This was believed to be more advantageous for holding water with a salt content. Warping was prevented by the bases inserted at both ends.

An axe is used for narrowing the ends of boards used for staves - the narrowing being because of the bulge of the barrel. The board is planed on a bench with the planing knife, and the inner side is shaped with a hollowing knife (Figs. 109.1, 110). The latter implement is used in order to thin down the center part of the board, thus facilitating the bending process (the ends have to remain thick in order to allow for the depth of the grooves). Bending of the board comes next. In this, as in other stages of the work (set out below), practice differs considerably in the various localities.

In Avinurme, bending was done on a round footstool or any other low seat on which it was possible to apply pressure while working (Fig.

111). Thick boards up to 2" (5 cm) intended for beer barrels had to be heated in the oven before bending. The staves were then placed in a frame to dry, in such a way that they faced, alternatively, in either direction (Fig. 112). This method of drying helped in retaining the bent shape of the staves; they were left in the frames for about a week in the open and for one to two weeks at room temperature.

The edges of the dried staves are smoothed with a long plane, and then comes the assembly

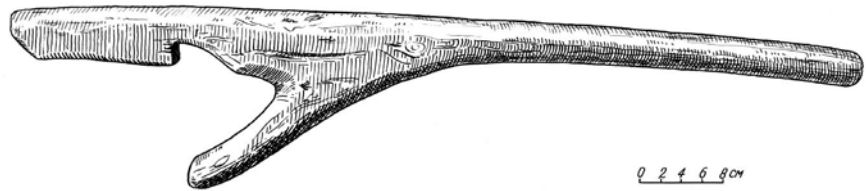


FIG. 105. Vitsahammas (hook for drawing the hoop on a barrel). Tori, Tori village. ERM 7291.



FIG. 106. Cleaning out piggin with drawknife. Avinurme, Karusoo village. Photograph by author, 1947. Photo library 1089:42.

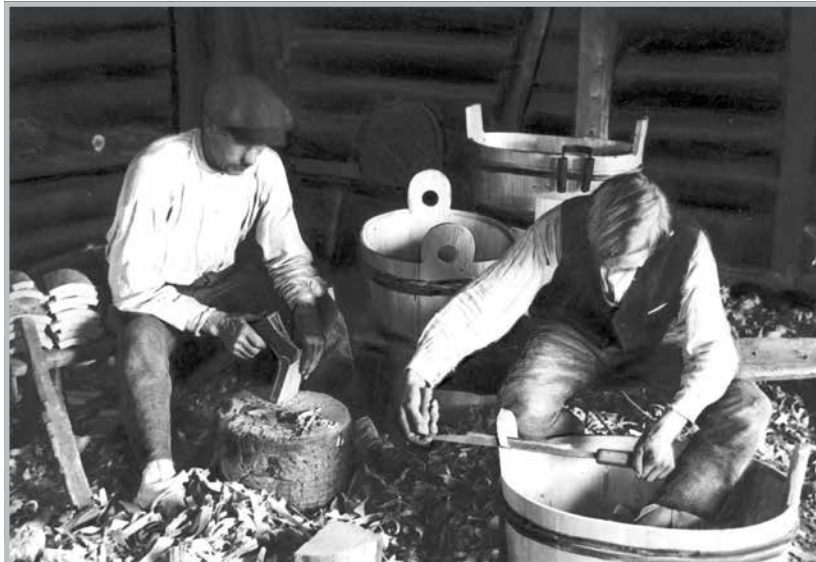


FIG. 107. Coopers at work. Whittling boards and finishing the top edge, Avinurme, Kirbu village. Photograph by E. Vittoff, 1921. Photo library 439:169.



FIG. 108. Finished containers (baths and tubs) in storage, Avinurme, Vadi village, Photo by G. Ränk, 1939. Photo library 836:19.

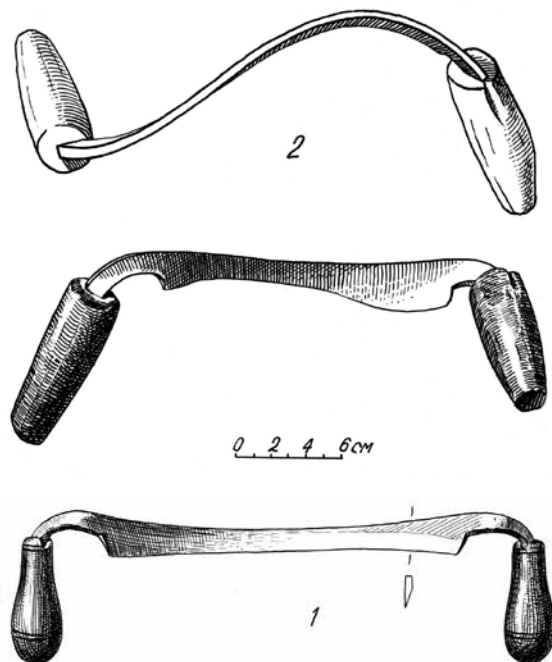


FIG. 109. Cooper's knives and hollowing knives from Avinurme; 1. Hollowing knife. ERM A 446:1; 2. Planing knife. ERM A 466:2.



FIG. 110. Thinning down the board on cooper's bench. Avinurme, Vadi village. Photograph by author. Photo library 1089:72.



FIG. 111. Bending boards for barrel staves, Avinurme, Enniksaare village. Photograph by author, 1947. Photo library 1089:82.

process (Estonian: "kokkuajamine, kerele" or "püstiajamine"). The staves are placed upright "held" by a metal (formerly wooden) hoop, and the first stave is fixed in place with either a wooden peg or a metal disk (Fig. 113), which is removed when the last stave is placed into position. Four temporary wooden hoops are now drawn round the barrel, and the edges cut straight with a frame saw. The inside is cleaned with a planing knife known as "vintrik" (Figs 114 and 109.2).⁶⁷

The latter implement is known in Estonia only in Avinurme. It is, however, quite common in south-west Finland.⁶⁸ The next stage is grooving with the croze (Fig. 115) and measuring the base from inside the grooves with a compass. (Fig. 116). For beveling the edges of the base, there was in Avinurme a corresponding block with a slot into which the base was inserted (Fig. 117). Once the base was made, the temporary hoop was removed from the barrel and the base knocked in with a hammer. Some coopers put the edge of the base in water to soften it in order to facilitate insertion. It was better if the base exceeded the exact measured size. The boards of the barrel swelled with the damp and filled out any cavity, and the base was thus tightly inserted and the

⁶⁷ In case of the name "vintrik" compare the adjectives "vintrik, vintlik, väntrik" or irregularly crooked (tree).

⁶⁸ Vilkuna, Träkärlindustri, Fig. 14; Vilkuna-Mäkinen, p. 33. In Western Europe the curve-bladed plane is used as an alternative (Legros, p. 175).

barrel made watertight. It was bad if light showed beyond the board anywhere along the groove. This could only be remedied with glue: boiled potatoes were mashed and applied along the groove from the inside. Finally the top of the barrel was smoothed and the proper hoops drawn round the body of the barrel; the usual number – eight wooden or four metal hoops.

The foregoing was a description of cooperage in Avinurme. While the methods used in other parts of the country as regards the final stages of the work were more or less the same, the practice of bending and assembly differed. In some places in western Estonia the method of placing the boards in frames was also known,⁶⁹ but this seemed to be of later origin. Bending in Saare-

maa is considered a novelty, because it was the practice there to hollow the board into shape.⁷⁰

Here is a description of the old western Estonian ways of bending boards by Kusta Sinijärv (b. 1866): "This is the way we used to do it. Cut all the boards according to the gauge, then put them in water and keep for a day or so. Then take them out and set them up and draw one hoop around them. Then knock so long and so hard until the ends of the boards begin to bend. The barrel was then absolutely tight. When iron hoops came on

⁶⁹ KV 79, 31 Märjamaa; 196 Muhu.

⁷⁰ KV 79, 73 Karja; 143 Kaarma; KT 71, 32 Kaarma.

⁷¹ KV 79, 73-74.

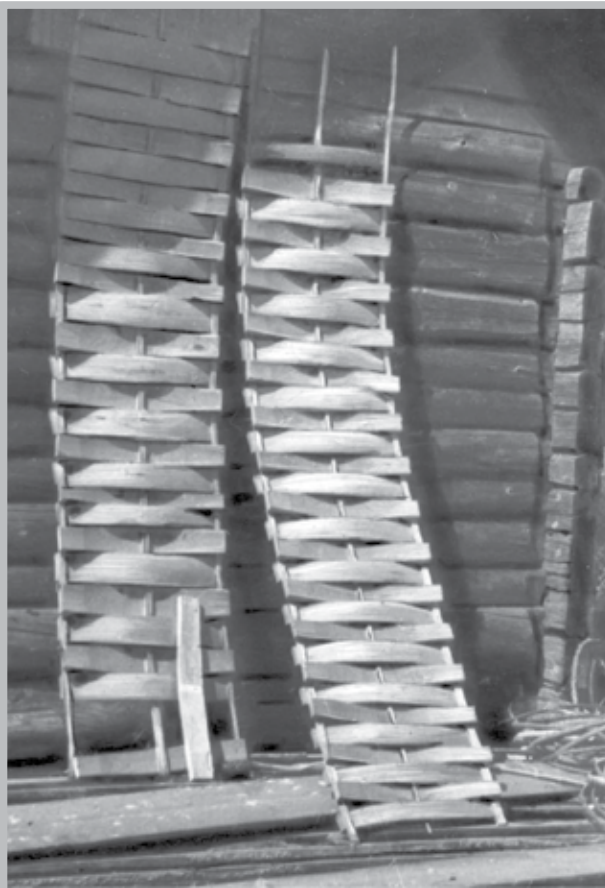


FIG. 112. Staves drying in frames, Avinurme, Enniksaare village. Photograph by author, 1947. Photo library 1089:80.



FIG. 113. Assembly of barrel, Avinurme, Vadi village, Photograph by author, 1947. Photo library 1089:74.



FIG. 114. Cleaning inside of barrel with specially shaped planing knife (*vintrik*), Avinurme, Vadi Village. Photograph by author, 1947. Photo library 1089:76.

the market things were easier, for the iron hoops were stronger than the wooden ones.”⁷¹ As we see from the above, bending followed as part of the assembly. The same system was applied in Kaarma. Here “the best way was to do it in the snow. The bottom hoop was placed in the hard snow which kept it in position. Then each stave was put into the hoop and when all the staves were in, the top hoop was forced onto them.”⁷² In Muhu “the staves were out in a tub, or some other circular container, and the hoops forced over the top end.”⁷³ Another method used in Muhu was to build the whole container inside a mold (Fig. 118).

This method of bending, by forcing the hoop

onto the staves, is widely known in western Estonia. However, bending before the insertion of hoops was also practiced in the same parts of the country. Kaarel Noor (b. 1866) of Muhu used a block with slots, which were made so that you could put two boards into each slot and bend the boards by inserting a peg between each pair of boards. (Fig. 119). Similar ways of bending were popular in Hiiu and Kihnu, seemingly, also in what was formerly Harjumaa.⁷⁴

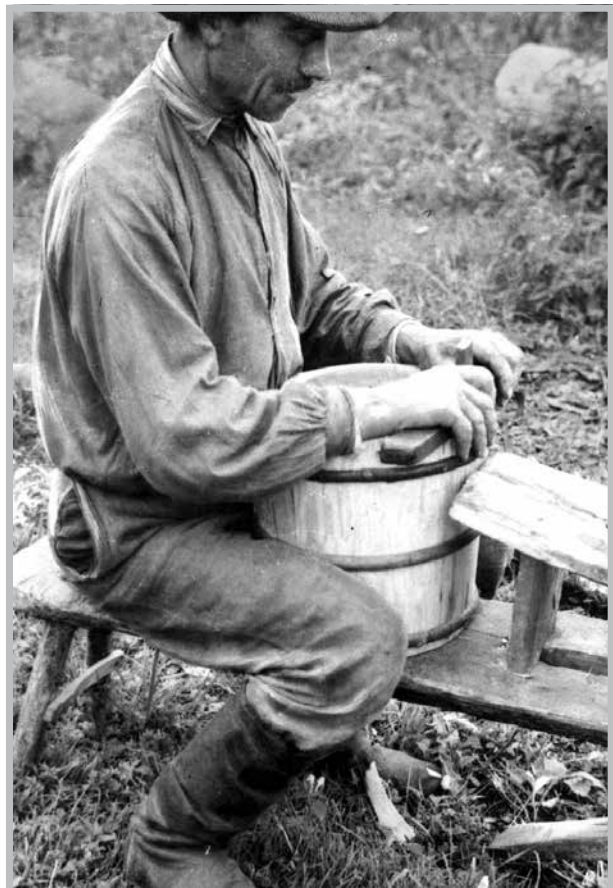


FIG. 115. Grooving, Avinurme, Vadi village. Photograph by author, 1947. Photo library 1089:73.

⁷² KT 71, 34; cf also KV 79, 144 Kaarma.

⁷³ KV 79, 196.

⁷⁴ KV 79, 104 Emmaste; EA 47, 487 Kihnu; KV 79, 98 Harju County.

On the whole, the methods of western Estonia were more primitive and more time-consuming than those of Avinurme. Bending in frames makes work considerably easier and quicker. The west-Estonian ways of barrel making do not seem to have their parallel in any other part of the country, or abroad, while the methods of Avinurme can be found as far away as the Kazan Gubernia and in parts of Western Europe.⁷⁵ On the other hand, there were various modes of working known only to urban coopers and to coopers abroad (such as the use of string instead of the temporary hoop, and drawing the staves together with a windlass), which remained unknown even in Avinurme, let alone among ordinary village coopers. The cross-bar as an aid in cooperage was known in southern Estonia. In Kuude, near Viljandi, a small cross-bar (Fig. 120) was used as an auxiliary tool in keg making. Similarly, in Kanepi the edges of the barrel were drawn with a cross-bar. The boards were first heated, a practice which was common among urban coopers of yore.⁷⁶ We observe, then, that in the various localities different methods were used.

In conclusion, the methods of grooving mentioned above in connection with single-based containers, as well as the more primitive means of inserting the base, also apply to containers with a base at both ends. This applied also to such containers where the boards remained unbent. The boards were placed round the base in a slotted block called "hammas-puu." Such a practice is still remembered in Avinurme, Märjamaa and Muhu,⁷⁷ as well as in parts of Finland.⁷⁸ Most of the casks found in Estonian museums are grooved with a grooving knife. Because small casks were made in this simple fashion, it is also easy to understand why in Ambla, e.g., "only small casks were made at home, while others were bought from qualified coopers."⁷⁹

SUMMARY. Two distinct methods of assembling board containers exist in Estonia. The most important part of the work is the grooving and insertion of the base, and it is in this stage of the work that distinctions appear: on the one hand, the grooving of each board separately with the

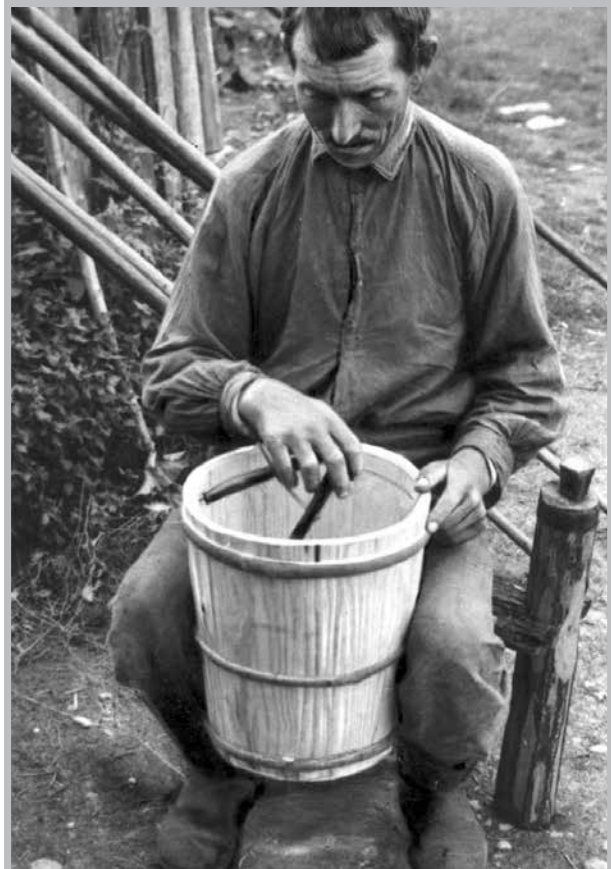


FIG. 116. Measuring inside grooves for base, Avinurme, Vadi village. Photograph by author, 1947. Photo library 1089:77.

grooving knife, on the other hand, making the groove with the croze in the assembled container.

What is there to be said about the antiquity of each of these methods in Estonia? Both required their own tools, and no such tools are available

⁷⁵ Филиппов, p. 204 (Figs. 72-73); Bandaroy, p. 23; Legros, p. 165-166.

⁷⁶ KV 79, 53. Cf Bandaroy, pp. 23-26; Legros, p. 168 and the following. The tool is also known from Lithuanian village handicraft (Aušra 6779 region).

⁷⁷ KV 79 Märjamaa; 196 Muhu.

⁷⁸ Rytkönen, p. 208 (hammaspuu helping there as well).

⁷⁹ KV 79,85.



FIG. 117. Beveling the base, Avinurme, Jaaguvälja village, Photograph by G. Rank, 1939. Photo library 836:21.

among archaeological material in the country. On the other hand, we do have a number of containers in Tallinn dating from the 13th century. Before drawing conclusions, we should bear in mind that such old containers may easily have been the work of foreign coopers working in Tallinn or elsewhere. One thing is certain: such con-

tainers do exist, and they date back to the 13th century and they display both methods.

We may say, on the whole, that the beveled base and the narrow groove were made by the croze, whereas the straight-edged board and the wider groove were made with a grooving knife. Among the Tallinn collection we find boards from milk tubs and other containers with straight-edged boards (Fig. 91). Beveled-edged bases are characteristic in containers of about 19-1/2" (0.5 m) diameter, and in thickness the base boards do not exceed 4" (10 cm). The groove here is very narrow and shallow.⁸⁰ Although it is possible to cut such grooves with the point of knife, it is unlikely that anything but a croze saw was used.

A few remarks on the origin of terms connected with containers. As pointed out above, the words for containers were mostly of foreign origin.

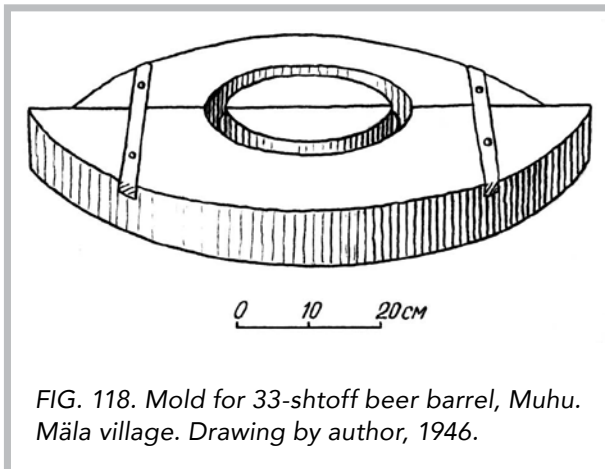


FIG. 118. Mold for 33-shtoff beer barrel, Muhu, Mäla village. Drawing by author, 1946.

⁸⁰ See Tarakanova-Saadre, Fig. 8:11 (p. 25).

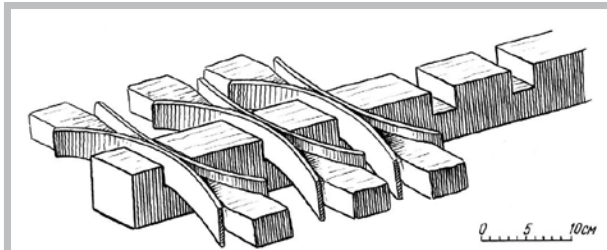


FIG. 119. Bending boards in a mold for barrel staves. Muhu, Mäla village, after description by K. Noor.

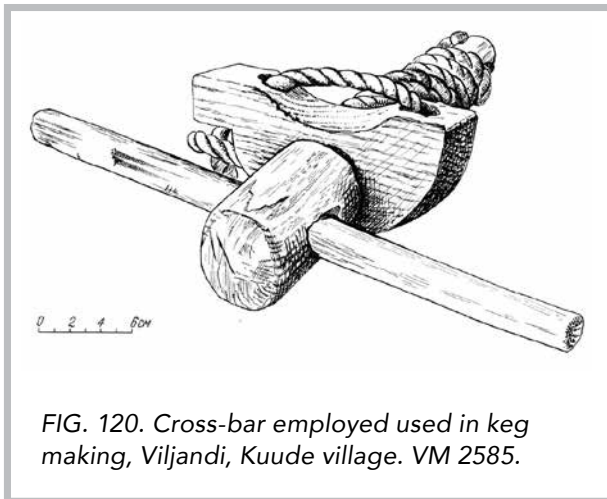


FIG. 120. Cross-bar employed used in keg making, Viljandi, Kuude village. VM 2585.

However, the terms for tools used in the trade, as well as the denotation of specific container parts, are mostly purely Estonian, e.g. "uure, (nõu)- laud, kere, vits, lülivits, vitsaküüs, lüke, uurama, urdenuga, urde-, puhiraud, uuri-järg, valemits, vitsutama, vitsahammas ~ hammaspuu, kostipulk ~ aepulk, voolmed," etc. Of later origin are the terms for special tools, such as "uurdesaag" and "sirkel," as well as for barrel parts ("haan, vikk, tapp").⁸¹ Actually, scribing the circle with a compass for grooving was not absolutely essential. This may be seen in the dustpan, which has a base made of one triangular board, especially wide (1-3/8" x 7-1/2"/3.5 x 19 cm) (Fig. 121). Because the terms for some of the smaller (single-board) containers ("pang, kapp, lännik") are of purely of Estonian origin, there can be no doubt that grooving with a knife is a method of

long standing in the country. As regards northern Europe, we know several grooving knives dating to the 6th and 7th centuries found in southwestern Finland and Norway. From Gotland and Norway we also have some grooving chisels from the Viking period.⁸² Remains from Denmark place grooving even farther back into history (probably 4th century). Evidence of boards from buckets displays traces of typical wide grooves for a non-beveled edge.⁸³

It should be noted that archaeological finds in Europe pertaining to grooved containers all seem to be of more or less from the same period. This leads us to the conclusion that there is some connection between them.⁸⁴ As mentioned before, hollowed containers were often cut at the side in order to facilitate insertion of the base. In such a case grooving was also easier. This must have been part of the transition from the hollowed to the board container. In Northern Europe this occurred in the middle of the first millennium, and grooving was the practice in all the neighboring countries - Finland, Izhoria, northern Latvia (Vidzeme). The methods were so deeply rooted that they remain extant to this day in the making of board containers. We do not have sufficient data concerning other parts of Europe, but as far as can be judged from various printed materials, however, in Europe the method was to do the grooving with the croze on the assembled container. According to material discovered in Opole, the beveled base was commonly used in Central Europe in the 12th to 19th centuries.⁸⁵ Similar conclusions may be reached concerning Latvia and Lithuania on the basis of ethnographic material, as well as of the container from Vidzeme grooved with a grooving knife.⁸⁶ According to B.A. Kolchin, 80 percent of 10th to 15th century

⁸¹ Cf. p. 101, reference 20.

⁸² Cleve, p. 146; Vilkuna. Vars-suomi., p. 192; Trotzig, p. 349.

⁸³ Engelhardt, plate XIV:24.

⁸⁴ Кларк, p. 215.

⁸⁵ Hołubowicz, Figs. 70-71 (p. 176 onward).

⁸⁶ LVM ethnography collections.

material from Novgorod, forming the bulk of the containers, have a bevel-edged base, and it can hardly be assumed that the grooves were cut with a knife. At the same time, a number of knives found in Novgorod are considered by Kolchin to be grooving knives. It should be born in mind, however, that a considerable percentage of the Novgorod population were Baltic Finns, among whom the use of the grooving knife was popular and remains so to this day.

In Estonia application of the croze is associated with the introduction of the two-based container. Production of these containers was within the province of the qualified cooper; judging by the names used, they were first seen in the country in the 13th century. Because the croze was introduced into Estonia via the medium of German craftsmen in the 13th century, it follows that the grooved containers here mentioned do not belong to the distant past.

It has often been asserted in Estonian ethnography that the making of board containers in Estonia is of late origin and was introduced into the country by German coopers.⁸⁷ These contentions were based on the fact that many terms applied to containers originated from German. Bielenstein categorically maintained this point of view with regard to Latvia,⁸⁸ and it was later adopted by other authors on the subject. From what has been said above it may be seen how baseless this point of view was. The Germans may have introduced a number of new types of containers, in particular the two-based board container, but the old traditional methods were so deeply rooted in the country that the new methods of grooving applied by immigrant German coopers did not affect the ways of the country's craftsmen. At the same time we notice that the use of the croze was no novelty among woodworkers of the Estonian home industry.⁸⁹

Finally, we shall quote several historical sources which lend further proof of the antiquity of container making in Estonia and in the other Baltic countries. A contract concluded on Suur-Pakri Island in 1345 between the Padise Monastery and some local farmers includes a clause forbidding the cutting of switches from trees.

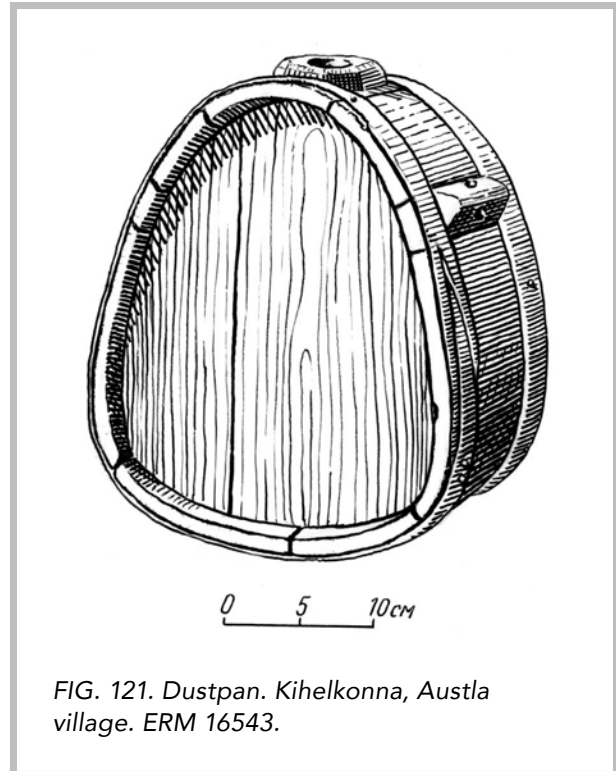


FIG. 121. Dustpan. Kihelkonna, Austla village. ERM 16543.

From this, Russwurm rightly concluded that the inhabitants of the island at that time practiced the trade of container making.⁹⁰ In 1649 Einhorn praises Latvian peasants for their cooperage as German craftsmen.⁹¹ Another significant fact is that the board containers were often included among payments in kind made by the peasants to estate owners. Thus we find in the account books for 1804 of the Putka estate in Käina that, in addition to the 77-four-day work tax to be collected from the peasants, one milk tub had to be handed over to the estate by each leaseholder.⁹² As late as 1859 we find such clauses in the leases

⁸⁷ Leinbock, p. 44; Ränk, Vanha Viro, p. 115.

⁸⁸ Bielenstein, pp. 319, 324.

⁸⁹ EA 31, 159, 161.

⁹⁰ Russwurm I, pp. 190-191; II, p. 48.

⁹¹ P. Einhorn, *Historia Lettica. - Scriptorum rerum Livonicarum. Zweiter Band.* Riga und Leipzig 1853, p. 590 (30).

⁹² Koit, Käina, pp. 148-149. In Kassari according to popular memory "In earlier times, when the order came, a ram, three tubs of milk and a scythe were taken to the manor." (EA 18,47).

by each leaseholder as "concerning vessel tax:" "The tax will be considered paid when the estate was satisfied that, instead of the milk tubs called for, piggins, tubs or any other of the said containers are delivered. The value of one tub is five firkins, one bucket or piggin - 1-1/2 firkins." The annual tax could be substituted as follows: seven day's work equaled three milk tubs, four day's work two tubs; and three day's work one tub.⁹³

According to reports from home industry areas, the production of smaller containers by the peasants themselves was still widespread in the 19th century. This is further proof of the ancient origin of the occupation.

With the development of the capitalist era came a big change in the entire container-making craft. A large part of the container industry became obsolete at the end of the 19th and beginning of the 20th century, partly due to the appearance in the shops of metal, glass and earthenware goods (buckets, milk buckets, jugs, etc.) and partly due to a change in the economy (e.g., milking cans, churning tubs, grain containers, etc.). A number of larger containers remained in general use (laundry baths, larger tubs, piggins, etc.). The process was described by Filippov in

1913 as particularly affecting the Baltic States and other western areas, while in the east the industry remained active for some time.⁹⁴

At the same time, the methods of production also underwent big changes. Barrels and casks began to be made by factories. In Estonia, as elsewhere, saws and planes became commonplace, wooden hoops gave way to metal ones, and sawmill boards took the place of hand-cut planks.⁹⁵ In northwestern Estonia where progress was slower, some of the old features were retained for a somewhat longer period. But they held on longest of all in Avinurme where the work was widespread and traditional, skills being passed on from generation to generation. Only in the 1920s did metal hoops and planed edges become accepted there. On the whole, feudal ways of work were carried on in Avinurme through the centuries, and are practiced there to this day.

⁹³ Müller, p. 265.

⁹⁴ SM. archival unit 239 (Land Register of the Sagadi Estate), pp. 5, 69, 86, 97.

⁹⁵ Филиппов, p. 187.

5. OBJECTS MADE BY BENDING

We shall now deal with containers made by bending thin boards into a circular or similar shape, and sewing the ends together. Such containers were widely used not only in Europe but also in northern Asia. Their production as a craft goes back to the ancient communal society and, according to scientists who have studied the subject, they are a development of the containers made in the same way with bark. From the eastern Alps come the oldest known examples, originating in the Bronze Age. These were con-

tainers used for storing water. At the beginning of our present era the technology of making such containers was already known in Northern Europe.¹ Unfortunately, we have no archaeological evidence of these containers in the Baltic area. We have, however, a number of "bent" containers made of birch bark, found in Estonian and Latvi-

¹ Granlund, p. 34 onward.