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REMAKING OF THE LATE 19<sup>TH</sup> CENTURY PYSANKY WITH NATURAL DYES

Master's Project

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## **Abstract**

This Master's project remakes a set of late 19<sup>th</sup> century *pysanky* (Ukrainian Easter eggs) documented in 1899 ethnographic catalogue by Kulzhynskyi with the historic natural dyes listed in late 19<sup>th</sup> century publications. The project is carried out within the context of practice-based research, with a particular attention to the questions of sustainability. The practical component consists of the development of the natural dye recipes, the mordant experiment, and the remaking of *pysanky*. The written component provides the context for the practical component, summarizes research and fieldwork, documents the process of making and reflects on the outcomes of the whole project.

## **Keywords:**

**Pysanky, natural dyes, 19<sup>th</sup> century ethnography, folk art, traditional crafts**

## Table of Contents

<b>Introduction .....</b>	<b>7</b>
<b>Chapter 1: Background, research, and fieldwork.....</b>	<b>11</b>
<b>A. Background: context and research.....</b>	<b>11</b>
<b>B. Natural Dyes in 19<sup>th</sup> c. ethnographic publications .....</b>	<b>15</b>
Yellow.....	16
Red and black .....	18
Mordants .....	21
<b>C. Fieldwork in museums and archives.....</b>	<b>22</b>
<b>Chapter 2: Practical component .....</b>	<b>25</b>
<b>A. Developing natural dye recipes .....</b>	<b>25</b>
Applewood ( <i>Malus domestica</i> ) yellow .....	26
Elderflower ( <i>Sambucus nigra</i> ) yellow .....	27
Brazilwood ( <i>Caesalpinia echinata</i> ) red and black .....	27
Logwood ( <i>Haematoxylum campechianum</i> ) black .....	28
<b>B. Mordant Experiment.....</b>	<b>29</b>
Summary.....	29
Brief description of the process .....	29
Conclusions and further steps.....	31
<b>C. Remaking of <i>pysanky</i> .....</b>	<b>32</b>
My three sources.....	32
Identification of <i>pysanky</i> in the museum collection .....	33
Remaking 11 Poltava Region <i>Pysanky</i> .....	36
Remaking 12 Volyn Region <i>Pysanky</i> .....	37
<b>Chapter 3: Practice and knowledge.....</b>	<b>40</b>
<b>A. Sustainability.....</b>	<b>40</b>
<b>B. Gaps in knowledge .....</b>	<b>41</b>
<b>C. Knowledge discovered .....</b>	<b>42</b>
<b>D. Knowledge sharing.....</b>	<b>44</b>

<b>Conclusion</b> .....	<b>46</b>
<b>Resümee</b> .....	<b>49</b>
<b>Bibliography</b> .....	<b>50</b>
<b>Appendix 1. The details of developing the dye recipes</b> .....	<b>57</b>
<b>A. Decisions about the dyes to include in this project: between availability and sustainability</b> .....	<b>57</b>
<b>B. Resulting natural dyes recipes and photos</b> .....	<b>59</b>
<b>Appendix 2. The details of the mordant experiment</b> .....	<b>61</b>
<b>A. Why mordant experiment?</b> .....	<b>61</b>
<b>B. The reasons for pre-mordanting rather than simultaneous mordanting</b> .....	<b>62</b>
<b>C. Numbers, proportions</b> .....	<b>63</b>
<b>D. The process</b> .....	<b>63</b>
<b>Appendix 3: The details of remaking pysanky</b> .....	<b>66</b>
<b>A. Identified <i>pysanky</i> in the museum collection</b> .....	<b>66</b>
<b>B. Additional Illustrations</b> .....	<b>67</b>
<b>Appendix 4: The process diary</b> .....	<b>74</b>

## **Table of Figures**

Figure 1. Completed pysanky for the practical component of the Master's Project. Here and further, unless otherwise indicated, the photos are my own. ....	9
Figure 2. Oldest pysanka. Photo source: RAS, <a href="https://ras.gov.ua/news/72-u-lvovi-znaishly-500-litniu-pysanku">https://ras.gov.ua/news/72-u-lvovi-znaishly-500-litniu-pysanku</a> .....	12
Figure 3. Ukraine in Russian and Austro-Hungarian Empires, 1913. The map was provided to me by Dmytro Vortman. ....	15
Figure 4. Some of the common pysanky divisions, the “saddlebag” is the third from the left. (Manko, <i>The Ukrainian Folk Pysanka</i> 36). ....	34
Figure 5. Apple wood yellow. On the right: soaking for 48 hours, on the left: soaking 12 hours. ....	59

Figure 6. Elderflower yellow. Two eggs on the left: fresh dye. The rest of the eggs: a dye that is a few days old.....	59
Figure 7. Comparison of two yellows. Left: apple wood, right: elderflower. ....	60
Figure 8. Brazilwood red over yellow background. Top left: over elderflower, top right: over apple wood. Bottom: second batch of brazilwood dye from previously used sawdust over apple wood yellow. ....	60
Figure 9. Brazilwood black over red. ....	60
Figure 10. Logwood black over red.....	60
Figure 11. Mordant experiment. First attempts at brazilwood dye, insufficient color saturation. ....	61
Figure 12. Mordant experiment. Pysanky as a result of completed first attempts at brazilwood dye. ....	61
Figure 13. Mordant experiment with applewood dye. Concentration of alum is reducing from left to right. ....	64
Figure 14. Mordant experiment with brazilwood dye. Top row: fresh dye. Bottom row: aged dye. Concentration of alum is reducing from left to right. ....	64
Figure 15. Mordant experiment with elderflower dye. Concentration of alum is reducing from left to right. ....	65
Figure 16. Identification. Left: Poltava Local Lore Museum #200 from six sides, museum photos. Top right: Kulzhynskiyi #363. Bottom right: my photo of the pysanka at the museum. ....	67
Figure 17. Identification. Left: Poltava Local Lore Museum #269 from six sides, museum photos. Top right: Kulzhynskiyi #545. Bottom right: my photo of the pysanka at the museum. ....	67
Figure 18. Identification. Left: Poltava Local Lore Museum #418 from six sides, museum photos. Top right: Kulzhynskiyi #309. Bottom right: my photo of the pysanka at the museum. ....	68
Figure 19. Identification. Left: Poltava Local Lore Museum #435 from six sides, museum photos. Top right: Kulzhynskiyi #1741. Bottom right: my photo of the pysanka at the museum. ....	68
Figure 20. Identification. Left: Poltava Local Lore Museum #444 from six sides, museum photos. Top right: Kulzhynskiyi #1739. Bottom right: my photo of the pysanka at the museum. ....	69

Figure 21. Identification. Left: Poltava Local Lore Museum #445 from six sides, museum photos. Top right: Kulzhynskyi #741. Bottom right: my photo of the pysanka at the museum. ....	69
Figure 22. Remaking Poltava region pysanky. Kulzhynskyi #298-309, catalogue images with corresponding remakes, except #304. ....	70
Figure 23. Remaking Poltava region pysanky. Four attempts at "the combs"("hrebinyky") Kulzhynskyi #298 viewed from the side and from the top. Notice how the size and shape of the egg, as well as the thickness of the white lines (due to the different size of the funnel pen opening) changes the look of the design on the completed pysanka. To my eye, the middle band, which probably also gives the name to the pysanka, because it is most suggestive of a “comb”, looks best on the second from the right (third attempt), while everything else, including the shape of the rosette, and the fitting of the suns between the segments of the rosette, looks best in the first from the right (fourth attempt). ....	70
Figure 24. Remaking Volyn region pysanky. Six identified pysanky from Derman village at the Poltava Local Lore Museum, the two on the right had green on them and this I could not remake them. Museum photos.....	71
Figure 25. Remaking Volyn region pysanky. Kulzhynskyi #1661, Poltava Local Lore Museum #457, museum photos from six sides.....	71
Figure 26. Remaking Volyn region pysanky. Cards from Moshchenko papers, UHEC. Pysanky I chose to remake from 1894.....	72
Figure 27. Remaking Volyn region pysanky. Cards from Moshchenko papers, UHEC. Pysanky I chose to remake from 1895.....	73
Figure 28. Remaking Volyn region pysanky. Completed pysanky. ....	73

## Introduction

*Pysanka* is a traditional Ukrainian decorated Easter egg, plural: *pysanky*. It is a craft or folk art which the ethnographers of 19<sup>th</sup> century thought was going to become extinct (Sumtsov 101–03). It did barely survive the Soviet times, and yet currently it is a tradition which is alive and thriving, not only reproducing the past practices but also developing in new directions. In December 2024, *pysanka* tradition has been inscribed in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity, through a joint nomination by Ukraine and Estonia (UNESCO; MCSC). There are, however, major gaps in the research of this tradition, both in the lack of a focused academic or scientific involvement with the *pysanka* tradition in general, as well as in the lack of the study and understanding of the use of natural dyes, which is a specific focus of this Master's project.

At the core of this project is the remaking of a selection of 23 late 19<sup>th</sup> century *pysanky* which have been collected and documented in an ethnographic catalogue published in 1899 (Kulzhynskyi)<sup>1</sup> and some of which have survived and are currently at the Poltava Local Lore Museum. I have remade these *pysanky* with the historic natural dyes, that is, the dyes that have been listed in late 19<sup>th</sup> century publications as having been used to color *pysanky*. Until this Master's project, nobody has attempted to remake the historically recorded *pysanky* with the natural dyes that are also listed in the same 19<sup>th</sup> century sources. Partially, this is due to limited current availability and high price of historic natural dyes that were used in the past to produce red and black colors on *pysanky*. Studying the late 19<sup>th</sup> century natural dyes records to identify the dyes which have been used on *pysanky*, developing working recipes of these historic dyes, and using these dyes on *pysanky* makes this project the first of its kind.

I am approaching this project from a personal positioning that is rather unique. I have practiced this craft since childhood when my grandmother taught me both of the two

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<sup>1</sup> To transliterate into the Latin script Ukrainian names of persons and places (including in Ukrainian and Russian language publications), I have used the current, as of 2010, official transliteration guidelines of the Ukrainian government (*Transliteration*), unless a different version of the transliteration was used in the publication, by the author, or by the institution.

most common wax resist techniques used on *pysanky*. I was making (or, rather, writing, this is how we refer to the process in Ukrainian) *pysanky* from 1980s till late 1990s in Ukraine and then since the early 2000s in Canada, and I have been a part of *pysanky* communities in North America, as well as in Ukraine, both in-person and virtually. I have an acute interest in finding out how things work and how they were in the past, and I happen to be able to read Ukrainian and late 19<sup>th</sup> century Russian which gives me access to the late 19<sup>th</sup> century ethnographic sources documenting *pysanky*, as well English which gives me access to the current literature on natural dyes. Most people who are interested in this intersection of topics, unfortunately, only have one or the other, but not both, so I feel that besides having an interest, I also have a responsibility to do this work.

From the point of view of methodology, this project has been carried out within the context of practice-based research<sup>2</sup>, where “not only is practice embedded in the research process but research questions arise from the process of practice, the answers to which are directed toward enlightening and enhancing practice”. (Candy and Edmonds 63) Hence, rather than coming to the project with a specific research question in mind, I wanted to know whether, and to what degree it was possible to remake the late 19<sup>th</sup> century *pysanky* with historic natural dyes, what limitations I would experience, what kinds of problems or difficulties would come into spotlight while doing the project, and also what positive take-aways and outcomes would be achieved while doing the project<sup>3</sup>.

One of the guiding concepts which I kept in mind while doing the project, was the concept of sustainability, and I found Tim Ingold’s notion of “sustainability of everything”(11) especially inspiring and fitting for questioning how sustainable or non-sustainable was a particular aspect of my practice while working on the project, and how I would want to adjust my practice in the future to make it more in tune with this particular notion of sustainability.

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<sup>2</sup> It might appear that I have also used other more traditional methodologies, such as a typical literature review, the research of the ethnographic sources, museum and archives, and also an experiment, however, all of these started from the practice, were guided by the practice, and were carried out for the sake of the practice, in this case, the practice of a traditional heritage craft.

<sup>3</sup> This approach also works very well with my previous background and experience in phenomenological methodology. Rather than starting with theory, what we call “phenomenological reduction” (Mallin 277ff) refers to, on one hand, aiming to experience and describe direct contact with things and the world, and on the other hand to become aware and critical of one’s theoretical and analytical habits which distort that direct contact. While my method in the Master’s project is not phenomenological, my attitude is, since the priority is given to the experience of things, of the craft and the ways that it works, and the reflection has a secondary role, even though it is still an important tool.

In order to achieve the goal of remaking *pysanky* with historic natural dyes, I first researched the late 19<sup>th</sup> century publications to identify the dye sources that were used at the time and are still currently available. Then I developed working recipes for the dyes I chose to work with, because no precise recipes, and for some dyes no recipes at all have been recorded. In the process, I have conducted an experiment about the use the alum mordant, which is a necessary component in all the dye recipes I have been working with for this project. Finally, I have selected the *pysanky* based on the fieldwork in 2024 at the Poltava Local Lore Museum and in the Archives of Ukrainian History and Education Centre, Somerset, NJ, USA, and have remade them with the historic natural dyes.



Figure 1. Completed *pysanky* for the practical component of the Master's Project. Here and further, unless otherwise indicated, the photos are my own.

The practical component of this Master's project has three distinct though related parts: the development of the recipes, the mordant experiment, and the remaking of the *pysanky* (Figure 1). The written component of the Master's project provides the context for the practical component and summarizes the research and fieldwork that was done in order to carry out the practical component (Chapter 1), documents the making of all three aspects of the practical component (Chapter 2) and finally reflects on the outcomes of the whole project (Chapter 3). There are four appendices containing further details of carrying out the project which were too spacious to include in the main body of the written

component, and they should be seen as the extensions of the main text, like the footnotes that have outgrown the practical size of remaining in a footnote, or the explanations containing a lot of visual illustrative material.

This project was carried out with varied audiences in mind. First and foremost, the project is for the community (or communities), for everyone who loves and writes *pysanky*, whether recognized folk artists, contemporary artists, those for whom *pysanky* are a long-time hobby as well as those who are just learning for the first time, and also those who do not write *pysanky* themselves but care about them and support the craft. The project will be of interest those few who have researched *pysanky* in the past, and hopefully for the many who will research them in the future, no matter which specific field these researchers are from. I am especially hopeful that this project might inspire people interested in non-Ukrainian traditional Easter eggs to research those traditions as well. Heritage professionals and researchers might find it useful to see how in this project an aspect of traditional craft, which has been recently recognised as living heritage, was researched in the ethnographic records as well as heritage institutions, and then was carried out in practice. I am specifically aiming this project for the color scientists, historians, and conservation specialists that are researching natural dyes, because without their help we will not be able to identify, for example, on a very practical level, which surviving *pysanky* in museum collections have been dyed with which dyes, or on a more theoretical level, which dyes were available in a specific region at which point in time. Crafts researchers interested in practice-based research should find this whole project useful and hopefully inspiring. Researchers, curators, and other professionals in museums and archives, those who have *pysanky* related artefacts in their collections, as well as those who do not, might find it interesting to see the interplay between my three different *pysanky* sources and unique kinds of information they were contributing to the development of the project. Finally, I hope that this project interests ethnologists, cultural anthropologists, and also folklorists and brings *pysanka* as an item of material culture into their awareness and consideration with more depth and context than before.

# Chapter 1: Background, research, and fieldwork.

## A. Background: context and research

*Pysanka* craft or folk art is a Ukrainian tradition of decorating raw bird eggs mainly with wax resist method, whereby the ornamental design is drawn on the egg surface with hot bees wax and the egg is then colored in one or several successive dye baths, after which the wax is removed revealing the design underneath. Wax resist is the most common method of decorating Easter eggs in Ukraine, though other methods such as scratching out the design on the dyed surface with a sharp object, are also used (Manko, *The Ukrainian Folk Pysanka* 38). Within the wax resist method, there are two main techniques of applying wax. In the first one, wax lines are drawn with a funnel pen, which produces a uniform line, and is more common in most of the regions in Ukraine. In the other technique, a dot of hot wax is applied with a pin-head or another similar tool and then it can be “pulled” which results in a larger initial dot and a thinning out “tail”, hence in English this technique is referred to as “drop-pull”. This technique was traditionally only common in the a few Western regions of Ukraine, but it is a dominant or sometimes the only wax-resist technique in other countries, for example, in Lithuania. (Tamošaitis 23)

*Pysanky* were usually done around Easter time, hence “Easter eggs”. Decorating egg with wax resist (or otherwise) around Easter (or otherwise) is by no means an exclusively Ukrainian tradition. There have been and still are active wax resist and other traditions of decorating Easter eggs in different parts of Europe<sup>4</sup>. However, the Ukrainian *pysanka* tradition seems to be by far the most varied and ethnographically specific, probably the best documented, and likely the most thriving one at present. The number of books, workshops, active communities, and craftspeople in Ukraine, or tracing themselves to the Ukrainian *pysanka* tradition in diasporas is probably higher than the total number originating from all other non-Ukrainian Easter egg craft traditions.

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<sup>4</sup> Here I mean the techniques more elaborate than just coloring an egg in a dye without any ornament, or drawing on an egg with crayons, which might be a widespread tradition in many places worldwide, but we would probably not refer to it as craft or folk art.

The oldest *pysanka* on a real eggshell in a museum collection in Ukraine is dating back to 15-16<sup>th</sup> century (Figure 2). It was found in 2013 during an archeological excavation in the centre of Lviv in what used to be the city water collector and is currently in the collection of the *National Museum of Hutsylshchyna and Pokuttya Folk Art* (Національний музей народного мистецтва Гуцульщини та Покуття імені Йосафата Кобринського) in Kolomyia (*Oldest pysanka*). Since it is a relatively recent find, there has been no research published on this *pysanka* yet, other than the basic archeological overview in an exhibition catalogue (*Saved Treasures* 21–22). This one and only 15-16<sup>th</sup> century *pysanka*



Figure 2. Oldest *pysanka*. Photo source: RAS, <https://ras.gov.ua/news/72-u-lvovi-znaisly-500-litniu-pysanku>

that we have remains singular, it stands without context or reference that would be provided by such context and it is waiting to be further researched<sup>5</sup>.

The next oldest preserved *pysanky* we have are at least 300 years younger<sup>6</sup>, dating to 1880s and later, when the first ethnographic efforts to document the *pysanky* tradition and to collect them in museums have yielded results. The first ethnographic works about *pysanky* specifically, were published at the end of 19<sup>th</sup> century (Sumtsov; Kulzhynskyi; Korduba). These publications include the images of *pysanky* collected at the time, and some of these *pysanky* have also survived in museums. Compared to the isolated situation of the oldest *pysanka*, this already provided a much broader context with several different possibilities for me to develop, hence I have decided to focus my research on this earliest documented period of ethnographic *pysanky* collection and research.

During the 20<sup>th</sup> century, *pysanky* tradition was practiced continuously, though rather discretely during the Soviet times, either privately at home, or in the remote areas. But there was a gap in publishing *pysanky* books in Ukraine for most of the 20<sup>th</sup> century,

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<sup>5</sup> Even though I was initially very tempted to center my Master's project around this oldest *pysanka*, and I have been extremely fortunate to be able to see it in person during my fieldtrip to Ukraine in November 2024, the singularity of it and the lack of context resulted in me reluctantly postponing this particular fascination, which I hope to pick up again sometime in the future.

<sup>6</sup> Fragments of another, second oldest *pysanka* possibly from the end of 17<sup>th</sup> century have been found in Baturyn in 2008 (Petrusha), however, so far I was unable to retrieve any information about this find in official Ukrainian sources, including the original news article which appears unavailable, so this requires follow-up research.

with one exception (Biniashovskyi), until Ukraine gained independence from Soviet Union in 1991. From that point on, making *pysanky* and using them as one of the markers of national identity gradually became increasingly popular, including through workshops, books, and museum collections, where *pysanky*, also the ones collected at the end of 19<sup>th</sup> century, have become much more visible. Dozens of Ukrainian *pysanky* books have been published. Even if we leave out general overviews, how-to manuals, books published in diaspora and publications focused on contemporary and original works of individual *pysanky* artists, and only list some of the purely ethnographic publications about *pysanky* of the specific regions in Ukraine, the number is still very impressive (Manko, *The Ukrainian Folk Pysanka*; Solomchenko; Verkhova; Surudzhii; Mytsyk; Sementsov; Manko, *Pokuttia Folk Pysanky [Покутські Народні Писанки]*; Stepaniuk et al.). These publications are wonderful and inspiring, yet they remain at the level of ethnographic description and documentation, some more thorough than others, and most of the time do not engage in an analysis of the collected material.

Academic publications on *pysanky* so far have almost always been short, the size of an article or a book chapter. Most of them are focusing on one of the two main research themes, ornamentation (Shcherbakivskyi; Skoryk; Selivachov; Shcherban; Ivashkiv) or the history of particular museum collections (Hurlula; Halian; Khanko; Sobutska; Kravchenko; Suprunenko; Tesliuk; Klimashevskyi). As an exception, the only large and fundamental piece of academic research on *pysanky* I have encountered is a Master's thesis in Folkloristics about diaspora *pysanky* in the Canadian prairies (Lesiv).

There are still major gaps in knowledge and research of *pysanky* tradition. This includes the very limited understanding and experience of the use of natural dyes<sup>7</sup> to color *pysanky*, which is at the core of this project. While the tradition of writing *pysanky* has survived, the practical know-how of the use of natural dyes on eggshell, other than perhaps the onion skins dye, has been lost. Both in Ukraine, and in diaspora, the natural dyes have been replaced by aniline dyes, and even though there seems to have been some residual awareness that the natural dyes were used on *pysanky* in the past, the practice of actually making a range of natural dyes to use them on *pysanky* did not exist by the end of the 1980s. The only book about *pysanky* published during Soviet times and hence the

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<sup>7</sup> Natural dyes commonly refer to the dyes of plant, animal or mineral origin. They were in use before the invention of synthetic aniline dyes in the middle of 19<sup>th</sup> century. After the invention of aniline dyes, the use of natural dyes has reduced significantly, for some dyes, geographic regions and dyeing technologies it has stopped completely, while some other natural dyes remain in use, though mainly locally.

only source available at the time contains only a general reference that the natural dyes are made following traditional recipes from roots, bark, onion skins, etc. (Biniashkevskyi 8). Books about Easter eggs published elsewhere list some dye stuffs, usually of plant origin (Newall 380–83; Markovych 101; Tamošaitis 72–73; Haupt-Battaglia 21–25) but without recipes, and these sources were not available in Ukraine, nor were most of them known by the *pysanka* craft practitioners in diaspora. My grandmother in Ukraine (born in 1919) used to talk about which color would be achieved from which plant in the context of *pysanky*-making. However, she never made any natural dyes for her *pysanky* (other than the onion skins), and at this point it is not possible to determine whether she was describing the practices she saw in her youth, or reporting what she has heard or read somewhere, including possibly in general botanical literature which sometimes provides information about uses of plants for textile coloring, not specifically for *pysanky*.

In independent Ukraine, *pysanky* artists have started looking for the ways to replace aniline dyes in their practice with natural dyes, which eventually resulted in several publications (Manko, *The World in Pysanky of Taras Horodetskyi*; Vlenenko and Ktitorova; Mykhalevych)<sup>8</sup>. The pioneers of using natural dyes on *pysanky* in Ukraine, Horodetskyi, Vlenenko, and Ktitorova, started by adjusting textile natural dye recipes to the use on eggshell, more *pysanky* artists followed. One of the most active and visible *pysanky* artists promoting the use of natural dyes on *pysanky* currently is Iryna Mykhalevych, she is a moderator of an online community experimenting with the use of natural dyes on eggs (*Riast*).

By now we do know a fair amount about a number of natural dyes that can produce some results on eggshell, however, the extent of research or even documentation that has been conducted and published so far is insufficient. For example, there are only two publications with detailed recipes for particular dyestuffs, one of them in Ukraine, and one in the USA (Mykhalevych; McCauley). There is only one publications documenting the use of different mordants or modifiers for a limited number of dye sources (McCauley). There is no research on variations in the dyeing process and other aspects of the process, such as eggshell prep, and no proper lightfastness studies of specific dyestuffs on eggshell, so we do not know which of the colors will last and how long, when exposed to light, and which will last better than others<sup>9</sup>. There have been no studies to determine

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<sup>8</sup> I will discuss the information in these publications in Chapter 2A.

<sup>9</sup> Lightfastness might not have been very important for *pysanky* color in the past, when *pysanky* were created seasonally and were not meant to last for very long, at most a few years. However, now, when *pysanka* has

the origin and nature of the dyes of *pysanky* preserved in museums and no studies about the supply routes and imported dyes available in Ukraine historically, so other than the oldest *pysanka* and the second-oldest *pysanka* fragments mentioned before, we also usually do not know which *pysanky* in museum collections were colored with natural dyes, and with which dyes.

## B. Natural Dyes in 19<sup>th</sup> c. ethnographic publications

Towards the end of the 19<sup>th</sup> century, Ukraine was divided between two empires, the Russian and the Austro-Hungarian (Figure 3). In both of them, active ethnographic explorations resulted in the collection of Ukrainian folk traditions and artefacts, including the collection and documentation of the aspects of the traditional Ukrainian craft of



Figure 3. Ukraine in Russian and Austro-Hungarian Empires, 1913. The map was provided to me by Dmytro Vortman.

*pysanky*. The first reports about this craft were made, the first exhibits took place, the collections of the actual *pysanky* also started growing in museums, and the first results of these efforts were published. These ethnographic publications and collections are, presently, our oldest available sources of both, the detailed documentation of the *pysanky* tradition in Ukraine and significant material evidence.

One of the first people to bring attention to the Ukrainian folk craft of *pysanky* in the part of Ukraine that was under Russia was an anthropologist and archaeologist Fedir Vovk who had made an appeal about the need of collecting folk *pysanky* in 1874 speech at the Archaeological Congress in Kyiv. Ethnographers Olha Kosach (1876 publication “*Ukrainian Folk Ornament*”) and Pelageya Lytvynova (1978 publication “*Southern-Russian Folk Ornament*”) have included some *pysanky* images in their books about Ukrainian folk art. By 1891 we have a first substantial text dedicated exclusively to

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become both a museum object that is meant to last and retain its original look as much as possible, as well as an artistic commodity that is being sold and bought, lightfastness of the dyes has become important. In fact, the lightfastness of natural dyes (both specific and in general) is one of the most frequently asked questions I receive when I present about natural dyes on *pysanky*.

*pysanky* by Mykola Sumtsov, and in 1899 there are two albums with considerable numbers of *pysanky* images, by Serhiy Kulzhynskyi and Myron Korduba.<sup>10</sup>

The latter three publications have been the main sources informing this project on the use of natural dyes on *pysanky* at the end of 19<sup>th</sup> century in what is now Ukraine. Sumtsov's article "Pysanky" was originally published 1891, and here I use the English translation published in 2019. It contains the first overview of ethnographic material about *pysanky* gathered from several different mainly Ukrainian regions within the Russian empire. Kulzhynskyi's "The Description of a Collection of Folk Pysanky", which is sometimes colloquially referred to as "Kulzhynskyi's catalogue" is the main focus of my project. It was originally published in 1899 (reprinted in 2011) and was meant to be the record of the *pysanky* collection of the first and largest private museum that was initiated by Mrs. Skarzhynska in her estate in Kruhlyk near Lubny, Poltava governorate. This publication contains over 500 color and over 1500 black-and white images of folk *pysanky* with descriptions, as well as about 80 pages of an introduction, which was, and perhaps still is, the fullest ethnographic description of *pysanky* tradition of that time. It also includes the most detailed list of the natural dyes that have been reported to be used to achieve different colors on *pysanky*. Geographically, it covers most of Ukrainian and some neighboring regions within the Russian empire. Korduba's album "Pysanky in Halytska Volyn", also originally published in 1899 (reprinted in 2018) covers a small area in Western Ukraine just north of Lviv, which at that time was in the Austro-Hungarian empire. It also contains an ethnographic overview and full-size color images of 154 *pysanky*.

In this section, I give an overview of the information about yellow, red, and black dyes, as well as the mordants in these three ethnographic texts on *pysanky*.

## Yellow

There are many plants that can produce a yellow dye, and so there is always quite a choice as to which dye source to use. Both Kulzhynskyi and Korduba mention that yellow was usually "made at home" compared to the other dyes, like red, blue, or black, that were usually "purchased". It was interesting to observe and compare, which seemed to be the "favorite" sources of the yellow dye for eggs in the ethnographic records. Here

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<sup>10</sup> Multiple publications on *pysanky* provide a similar historic overview. (Manko, *The Ukrainian Folk Pysanka* 10–11; Mykhailyshyn 191; Vlenenko and Ktitorova 10)

we also find a bit more of a detail about the preparation of the dye, though one would not quite call it a recipe.

Sumtsov focuses on the three main sources of yellow, wild apple tree bark, onion skin, and elderberry flower (58), though he also mentions several other plant sources of yellow as used regionally. About the preparation he says: “The yellow dye is obtained in the following way: apple tree bark or onion skin is put in a pot and cold water is poured over it and then boiled.” (58)

Kulzhynskiy provides a bit more detail about the preparation, and the use of a mordant:

Yellow dye is used for pysanky in large quantity and is prepared still now almost always at home. Most often it is made from the wild apple tree bark in the following way: the bark is stripped from the young shoots of wild apple tree and dried in advance, it is placed in a pot filled with river water and is kept in a hot oven for several hours. Then the liquid is strained, and the dye is ready. To impart a better tone and lasting, mordant/alum is added to the liquid in the quantity like salt to hot food. ... In exactly the same way the dye is prepared from onion skins. (55 here and further my translation)

Kulzhynskiy also provides an additional list of thirteen more plants that are used for yellow<sup>11</sup>, including elderflower, for some of them he provides Latin names, for other only local names.

Korduba’s list is much shorter, but, interestingly, he mentions the bark composition, though without any reference to why it matters<sup>12</sup>:

Yellow dye is obtained in the following way: from the wild apple the bark with inner bark is peeled, soaked for some time in room temperature and

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<sup>11</sup> Buckwheat hulls, *Anthemis tinctoria*, *Genista tinctoria*, *Euphorbia* [?], *Carthamus tinctorius*, *Crocus sativus*, Poplar (young shoots), Elderflower, *Populus tremula* (female catkins), *Serratula tinctoria* or *Serratula coronata*, *Caltha palustris*, *Matricaria chamomilla*, *Hypericum perforatum* (Kulzhynskiy 55–56)

<sup>12</sup> Dean and Casselman provide an interesting comment about the apple tree bark dye for textiles, including about using different parts of the bark: “Apple tree bark needs soaking in water for a week or so, before being gently simmered to make the dyebath. Brighter colors often result if you strip off the outer bark and use only the inner bark for the dye bath.”(107)

then hot water, and the dye is ready. ... Because of that yellow dye is everywhere called as “apple dye”. Besides that, in all villages it is told that earlier, and in some places even today, the yellow dye is obtained from onion skins by boiling them with water. But that dye looks more orangish and never looks as nice as the apple dye. (6 here and further my translation)

It is interesting to note here the importance of the apple bark yellow color, and also the “aesthetic” evaluation in the comparison between the apple and the onion dye, though it is not quite clear whether Korduba is expressing his own aesthetic preference, that of the people who collected the ethnographic data which he has used, or of the craft practitioners themselves.

### Red and black

When it comes to red and black dyes, the situation with the availability and the identification of dye sources is much more complicated, especially since most historic red dyes that have been recorded in the ethnographic sources as having been used on eggs are not readily available at this time.

Sumtsov is very brief, he reports what he has received from his informers about the black dye: “The black dye with a bluish tint, like a raven wing, is achieved from the alder bark and young tatar maple leaves (*Acer tataticum*).”(59) About the red, he does not seem to have his own information, hence he only refers to an earlier publication by Levchenko, mentioning that in one of the regions the red dye is made from “local cochineal or chervets”.(59) It is, however, unclear, whether this refers to the use of dyes on eggs or textiles, nor what were the processes of achieving the color.

Korduba provides a bit more information:

The girls obtain the dyes in various ways, that is, they either buy them in stores, or prepare themselves. Black, red, and blue are everywhere bought and in no locality do people know how to produce them by themselves. To dye black, the reddish color chips of pernambuco wood (*Caesalpinia brasiliensis* v. *echinata*) are used, which are purchased in the stores. This dye is called “*brazeliya* or *brazoliya*”. The chips are soaked in the water, and the egg is placed therein.

To dye red *mana* (aniline dye) is used, but it quickly fades, also *chervets* (the dried insets of *chervets* *Coccus cacti* [sic]), and woodchips.(175)

The use of pernambuco (another name of brazilwood) to achieve black is interesting, and I will discuss it shortly. For the red, the use of insect dye from *chervets*, also mentioned by Sumtsov, but identifying it as *Coccus cacti* calls for some questions<sup>13</sup>. It is also unclear, which woodchips Korduba is referring to as the source of the red dye in the last sentence. Based on what I have seen in the archival documents from Western Ukraine around that time (*Samples*), the woodchips used for red color on eggs are likely to be brazilwood, or something perceived as brazilwood, however, it is not clear why Korduba would not say so if he were aware of it, perhaps what was confusing him was that he already had reported that brazilwood was giving black color, not red<sup>14</sup>.

Let us now look at Kulzhynskyi's passage about the natural red dyes:

Red dye, as opposed to yellow, is very rarely made by home means: from *deer antler* and from *Polish cochineal* (an insect from the family of *chervets* – *Porphyrophora polonica*). Mostly though for dyeing red purchased dyes are used. Some of them are of plant origin: *Pernambuco* or *red wood* (its origin is Brazil, and likely therefore in Poltava and Podillya governorates it is called “*brazoliya*”), *sandalwood* or *red sandal*

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<sup>13</sup> The local Ukrainian insect, referred to as *chervets*, from which the red dye has been historically made, is not the same insect as *Coccus cacti*, and this naming or identification confusion gives rise so some interesting questions. The current Latin name of this European insect is *Porphyrophora polonica*, Linnaeus called it *coccus polonicus* (1758) (Cardon 637), and this is probably why one of the common ways it was referred to internationally was “Polish cochineal”. This naming was unhelpful, due to the potential confusion that appears to be happening in Korduba's passage above, and continues in Ukrainian discussions till this day, since *Coccus cacti* (1835) was the Latin name of domestic cochineal of Mexican origin, now classified as *Dactylopius coccus* (Cardon 620–21). The whole naming confusion is even more interesting, since the name cochineal was derived through Spanish from Latin *coccum* (still reflected in the Latin name of domestic cochineal), and this is how Pliny, the ancient historian, called kermes, the third red insect dye of Mediterranean origin (Cardon 619). What is unclear in this naming confusion in Korduba's passage is whether the insect dye used was *Porphyrophora* of local origin, and then it was mistakenly identifies by Korduba (or his sources) as *Coccus cacti* (the cochineal proper from the Americas), or the dye used was actually the cochineal imported from the Americas, and was out of habit or mistakenly referred to by the Ukrainian name *chervets* that normally refers to *Porphyrophora polonica*. What further complicates the possibility to even lean towards one or the other interpretation is that Korduba says the dye was purchased, not prepared at home. We do not know whether local *chervets* at that time was still being sold at all, or it was only used locally where it was harvested, we also do not know whether the cochineal from the Americas was sold in shops in Western Ukraine at the end of 19<sup>th</sup> century when Korduba did his study.

<sup>14</sup> Brazilwood with alum mordant can give red, while the same brazilwood with iron mordant can give black. This is something that would be known to the craft practitioner but might not be obvious to the ethnographer.

(in Malorossiya it's called *kyrka*). These dyes, it appears, have been used by the folk on par with self-made dyes for a long time.(56)

Here we have several interesting moments. First of all, the first dye mentioned as made from “deer antler” is not a dye that appears in any of the other dye literature, so we do not know what it could possibly refer to, whether it was actually made from the antlers of a deer or is was a reference to a local name of a plant, a mushroom, or a lichen, this is a mystery. Local Ukrainian *chervets* is identified correctly by Kulzhynskyi as *Porphyrophora polonica*. Then we have imported brazilwood, which we know has been used extensively, but also a reference to red sandalwood, which is peculiar, because the red color from sandalwood is difficult to extract. (Cardon 296)

The black dyes in Kulzhynskyi are the following:

Black dye – “*chernylo*” – is very widespread, but is rarely prepared as an independent dye: from the bark of alder (*Alnus glutinosa* Willd.), moreover the bark is soaked in *kvass* with rusty iron for 12 days, ... from the young leaves of tatar maple (*Acer tataricum* L); from ink nuts; from blue sandal (campeche wood) with the addition of iron copperas.(57)

What is interesting here is a description of the process of achieving black dye from a local plant with the addition of a home-made iron mordant, probably ferrous acetate that would result when soaking rusty iron with *kvass*<sup>15</sup>. It is quite unusual to observe a colloquial name “blue sandal” for campeche wood or logwood (*Haematoxylum campechianum*)<sup>16</sup>. Also, another point of interest is the mentioning of the second iron mordant, iron copperas which is ferrous sulphate (Cardon 40). The comment about the black dye being “rarely prepared as an independent dye” probably attests to the practice of dark background being achieved instead by overdyeing contrasting strong colors, for example, overdyeing the red background with a dark chemical blue or purple, or of bringing the brown to “almost black”. It is not quite clear though, how the effect of combining other non-black dyes would be achieved by means of purely natural dyes, and hence the sophistication of

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<sup>15</sup> Ferrous acetate can be made of rusty iron nails or other source of iron soaked in vinegar (Boutrup and Ellis 54).

<sup>16</sup> It is not surprising that logwood dye would be available in the Russian empire around that time, since around 1900 the French had a logwood extract producing factory in Riga (Neevel 9). I'm grateful to the author for pointing out this information to me during the 2023 Dyes in History and Archaeology conference.

naturally achieved blacks or almost blacks with the help of iron mordants makes sense. This takes us to a short but important discussion of mordants.

## Mordants

Most natural dyes do not readily bond with the dye material, be it textile or eggshell. Mordants are the substances, mostly the metallic salts, that assist the bonding between the color in the dye and the material that is being dyed. (Cardon 4–6) There have been several different mordants used throughout history, however, for the purpose of this project, the discussion can be limited to aluminium and iron mordants, for these are most common and appear to be the only ones referred to in the ethnographic literature on *pysanky*.

The topic of mordants, unlike any other, brings to light the problem that the ethnographers who collected the information about the traditional craft were not practitioners themselves, and hence did not have a clear understanding of the processes involved. Based on how much or how little they knew about the mordants, or how correct was the information they published about them, one could also extrapolate about the reliability of their records in general. Sumtsov, for example, does not appear to know the main function of the mordants and only gives an account of their possible secondary function: “To make *pysanky*, in addition to dyes, one needs decolorizing liquid. Most often it happens to be beetroot kvass or a solution of alums.” (29) “Alum” here is probably the name for aluminium mordant, or it could be a generic reference to any mordant.

Korduba knows the main function and provides a proportion of how much mordant to add:

To each dye during cooking the mordant/alum is added, usually in the amount of a pea to the quart of water, that is so that the dye attaches better to the egg. The mordant must be finely crushed, because when it is not fine enough, where a grain of it falls on an egg, the dye will be darker. (6)

However, Korduba does not seem to be aware of different mordants and the different effect a dyer can achieve when using different kinds of mordants with the same dye. For example, he does not report, and hence probably does not know, that to achieve black color from brazilwood (which he mentions), one would have to add an iron mordant.

Brazilwood with aluminium rather than iron mordant would provide red color, but Korduba does not seem to be aware that red color can also be achieved from brazilwood.

Kulzhynskyi provides the most detailed account of mordants. He gives the following directions about the amount of mordant: “To impart a better tone and lasting, mordant/alum is added to the liquid in the quantity like salt to hot food.”(55) He also interestingly reports that the eggs can either be pre-soaked in the mordant solution, or the mordant can be added directly into the dye bath<sup>17</sup>.(58) Kulzhynskyi is aware of the aluminium mordant, and also refers to two different iron mordants in his black dye recipes, though it is not quite clear whether he knows that they are also mordants, or what their function is. Unlike Korduba, however, he does not know that brazilwood can provide black color (with an iron mordant), and only reports about the red, which is produced with aluminium mordant. This kind of practical know-how was either not reported, or not fully reported, or misunderstood and misreported during the ethnographic collection, and it results in one of the main difficulties in interpreting the information that was collected and trying to produce working recipes based on this information. Conducting the mordant experiment as a part of this project, and hopefully developing the second phase of the experiment in the future, could shed some light on the complexity of the practical issues in the process of dyeing eggshell in the tradition, which, unlike the textile dyeing tradition, does not have historic documentation predating late 19<sup>th</sup> century, and oldest records that we have are ethnographic records rather than practitioners’ documentation, and are notes rather than precise recipes.

This overview of the information about yellow, red, and black dyes, and mordants, has allowed me to make the decisions about which dye recipes to attempt to develop in this project, which I will take from here in the next chapter.

### C. Fieldwork in museums and archives

Initially, the goals of this project were twofold: firstly, I wanted to develop and test natural dye recipes for some of the key dyes that have been listed in late 19<sup>th</sup> century sources as having been used on *pysanky*; secondly, I wanted to choose a few *pysanky* from

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<sup>17</sup> This distinction is important in textile dyeing, where pre-mordanting (soaking in mordant solution before placing in the dye) or post-mordanting (putting into the mordant solution after the dye-bath) are much more common than adding the mordant directly into the dye bath (see more details in Appendix 2). However, to my knowledge, when *pysanky* are currently dyed with natural dyes, only the “directly in the dyebath” method is used, I have not heard of anyone other than myself trying to pre-mordant or post-mordant eggshell.

the late 19<sup>th</sup> century catalogue of images (Kulzhynskyi) and recreate them with these natural dyes. I was interested in *pysanky* collections in museums, but because of Russia's full-scale invasion of Ukraine, most museums do not operate at full scale, they do not exhibit their valuable collections and must keep them in storage. Hence, I was not sure whether I would be able to see any of the collections, and designed a project which would not have to depend on the access to museum collections.

I did plan three fieldtrips, hoping I would be able to see something, or at least access the literature which is not available online. I ended up being extremely lucky, without much effort from my side, I saw everything that I hoped to see and much more, and established relationships which will hopefully enable further collaboration with the institutions I have visited. All three field-trips were funded by Erasmus traineeship fund.

The first month-long trip to Ukraine in May-June 2024 started in Lviv with a visit to several academic libraries, and then Andrei Sheptytsky National Museum (*Національний музей у Львові імені Андрія Шептицького*). This museum has a collection of *pysanky* starting from the 1880s. An extremely knowledgeable caretaker of this collection showed me some of the oldest *pysanky* they have and shared very interesting and relevant information about *pysanky* maintenance, the challenges of preserving the artefacts, and also the information about the history of the collection (Sobutska). I then traveled via Kyiv to Poltava, where I spent 10 days mainly at the Poltava Local Lore Museum. Their *pysanky* collection contains the remaining late 19<sup>th</sup> century *pysanky* documented in Kulzhynskyi's catalogue. Since the *pysanky* in this museum collection have not been compared to the printed catalogue, and, according to the museum staff, the details about individual *pysanky* in the collection have been lost, I ended up being the first person to identify a number of them, thus linking these *pysanky* to their provenance provided in the catalogue (Kulzhynskyi). Being able to find some of the *pysanky* documented in the catalogue still present in the museum collection was extremely exciting and humbling, and has influenced my decisions about which *pysanky* to remake as part of this project. I discuss this museum collection, the process of identification and the take-aways from it in detail in the section on remaking *pysanky*. After Poltava I have returned to Lviv and spent the remaining time mainly working through the *pysanky*-related folders in the personal archive of ethnographer and museologist L. Sukha at the Manuscript Department of Vasyl Stefanyk National Scientific Library of Ukraine in Lviv (*Відділ рукописів Львівської національної наукової бібліотеки України ім. В. Стефаника*). This provided me with additional

understanding about the research that was done on *pysanky* in Lviv during the Soviet times and remained unpublished<sup>18</sup>, as well as with additional information about the use of natural dyes in Western Ukraine at the beginning of 20<sup>th</sup> century (*Samples*).

My second fieldwork trip in July 2024 was a two-week research visit at the Archives of Ukrainian History and Education Centre, Somerset, NJ, USA. There, the personal archive of Konstantyn Moschenko<sup>19</sup>, who was an artist, collector, and museum employee in Poltava in the first half of 20<sup>th</sup> century, contains a collection of images with some additional information of original *pysanky* documented in Kulzhynskyi's catalogue, including the full size color images of the *pysanky* which in the printed catalogue are only present as small black-and-white prints that are often impossible to decipher even with textual description provided in the catalogue. Since this personal archive was not described and thus could not be used, I spend the first week, under the guidance of the archivist, compiling a general file-level description of this archive, and then, after the description was complete, I spent the second week working with the *pysanky* images cards, more details about this are in the remaking *pysanky* section.

The third month-long fieldwork trip, again in Ukraine in October-November 2024, I spent almost entirely in Lviv, other than a short visit to see the oldest *pysanka* and the rest of the *pysanky* collection at the National Museum of Hutsylshchyna and Pokuttya Folk Art (*Національний музей народного мистецтва Гуцульщини та Покуття імені Йосафата Кобринського*) in Kolomyia. During this visit I had a chance to see the *pysanky* collection of the Museum of Ethnography and Crafts of the Ethnology Institute of National Academy of Sciences of Ukraine (*Музей етнографії та художнього промислу Інституту народознавства НАН України*), which is probably the largest *pysanky* collection in Ukraine with around 16 000 *pysanky*, the oldest being from the 1880s like elsewhere in Ukraine. I also had a chance to see the original museum catalogues and was asked to give a presentation about the Poltava *pysanky* collection, which provided a useful comparison to the local Lviv collections.

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<sup>18</sup> Ukrainian ethnographers working at the museums in Lviv during Soviet times and researching Ukrainian folk crafts and vernacular living had to come to terms with major ideological adjustments and were largely silenced. (ex. Tsurkan)

<sup>19</sup> Konstantyn Moshchenko papers, Ukrainian History and Education Center Archives. Somerset, NJ, USA

## Chapter 2: Practical component

### A. Developing natural dye recipes

Based on the records of natural dyes that have been used on *pysanky*, and taking into account the frequency of being mentioned in the late 19<sup>th</sup> c. sources, availability, the ease of making, and sustainability of the current and future use, I have decided to work with the following dyes: apple tree (*Malus domestica*) wood or bark and elderflower (*Sambucus nigra*) for yellow, brazilwood (*Caesalpinia echinata*) for red and black, and logwood (*Haematoxylum campechianum*) for black. For a detailed discussion of these choices, see Appendix 1A.

To create the recipes, I first consulted the contemporary publications that discuss the process of dyeing eggshell with natural dyes, starting with the book about Horodetskyi which lists some dye plants and provides a basic recipe (Manko, *The World in Pysanky of Taras Horodetskyi* 103–05), and includes some photos of *pysanky* dyed with natural dyes. Secondly, the book by Vlenenko and Ktitorova has about a hundred pages of superb color photos of *pysanky* dyed with natural dyes, without, however, specifying which dyes in each case; it includes a chart specifying which colors could be achieved with which mordants for 20 dye sources (14–15) and three basic recipes, for dry dye stuff, fresh dyestuff, and berries (18–19). McCauley gives specific recipes for 18 plant dyestuffs with photos, many with different mordants and modifiers and Mykhalevych gives recipes of 20 dyestuffs with alum mordant, multiple photos, and results of overdyeing with different dyes.

When these were not sufficient, I have consulted sources about natural dyes on textiles<sup>20</sup>, with both historic recipes and processes (Cardon; Liles) and current recipes (Dean and Casselman; Boutrup and Ellis). An excellent source of contemporary research,

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<sup>20</sup> There are procedural differences between dyeing textiles and dyeing *pysanky*, the most obvious one being the temperature, since the majority of textile dyeing is done in a hot or at least warm dye, while *pysanky* have to be dyed in room temperature or marginally warmer, or else the wax can melt or shift and ruin the design. Dean and Casselman provide a very useful table indicating which dyes will work with cool or hot temperature on textiles (49), according to which of the dyes I have used only apple works in a cool dye bath, while both brazilwood and logwood do not (there is no information on elderberry). However, on eggshell all three of these work in a cool (room temperature) dye bath. I have also discovered, thanks to working on this project, some other difference with regards to the use of mordant, and some acidity modifiers.

historical and well as scientific, is an annual international conference “Dyes in History and Archaeology” which I have attended in 2023 in person and in 2024 online. I have also relied on my own experience of making and using natural dyes for *pysanky* since 2016.

One of the criteria for the resulting recipes to be sustainable, in this case, to have a chance to be adopted by the community of practice, is that they are fairly simple and straightforward. *Pysanky* artists are used to making an anillin *pysanka* dye by mixing powder in hot water, adding a teaspoon of vinegar, and using that dye sometimes for several years with minimal maintenance. Hence, I was aiming to make the recipes as simple as possible, as long as they work, at least to begin with. With time, as we accumulate more knowledge and experience, and as the community is also gradually exposed to making simpler dyes from woods, barks, and flowers, rather than just powdered chemicals, we might also be ready to develop and share more elaborate recipes if they turn out to work better.

I will now briefly summarize how I came up with a recipe for each dye, while the recipes themselves and additional illustrations are in Appendix 1B.

### Applewood (*Malus domestica*) yellow

I know that the wood of apple tree has been used on eggshell in the *pysanky* community in Ukraine, however, there does not seem to be a published recipe. Of the contemporary sources I have consulted, only Dean and Casselman<sup>21</sup> include directions (not a precise recipe) for apple bark used on textiles, and they suggest soaking the bark “for a week or so” before gently simmering (107). I have found, however, even 48 hours of soaking was giving a dye that was too dark, towards brownish yellow, rather than the bright happy yellow which is generally considered a typical *pysanky* yellow. Not soaking the woodchips at all gave a brighter shade, but the dye appeared weak and slow to adhere to the shell. After a few rounds of experiments, I have concluded that soaking overnight (about 12 hours) was ideal for a bright warm yellow. I have used the whole pieces of dried wood probably from the trimmed branches. It would be interesting in the future to experiment with separating the bark and more specifically the inner bark, and to see whether there is a significant difference between using those and the whole branches.

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<sup>21</sup> Cardon mentions procyanidins as the substances that occur in apple bark among others (698), but there are no other mentions of the apple bark dye in her book.

## Elderflower (*Sambucus nigra*) yellow

For elderflower, I found a recipe<sup>22</sup> only in Mykhalevych (32–33), however it is for the fresh elderflower rather than dried (which I used), and does not give the exact proportions. She also says that the resulting dye is fairly stable, which I did not find to be the case with dried elderflower dye which ferments very fast (within a few days), changes resulting color from bright cold yellow to mustardy, and eventually does not color the egg well. It is common for *pysanky* artists, both the ones who use aniline and natural dyes to suggest a quick vinegar dip before the first dye, which is often the yellow. This is done mainly to remove residual dirt or oils from the egg surface so that the dye adheres better and more evenly. Dried elderflower dye did not like the vinegar dip at all, so perhaps alternate ways of cleaning the egg surface before dyeing should be considered and tested for this dye.

## Brazilwood (*Caesalpinia echinata*) red and black

Brazilwood, as far as I am aware, has not been used on *pysanky* at the present time, or if it has, this use has not been published. Of all the dyes I have worked with in this project, achieving color with brazilwood is the most significant, since it is a famous historical dye and is often mentioned, but until now we did not know what brazilwood color could have looked like on eggshell, and could only speculate based on sappanwood, a different redwood dye of Asian origin, closely related to brazilwood.

The sources I have consulted (Cardon 282–86; Liles 138–41; Dean and Casselman 78) only provide recipes/directions for redwoods in general, not distinguishing for dyeing purposes between brazilwood (*Caesalpinia echinata*) and sappanwood (*Caesalpinia sappan*), even though Cardon gives details of somewhat different chemical composition and the proportion of brazilin, the dyeing substance, in different redwoods saying that “*C. sappan* contains more than three times the amount in *C. echinata*”(282). I personally have found it much easier to work with sappanwood in the past than with brazilwood for this project, however, because the structure of the dyestuff was very different (I usually used thick woodchips of sappanwood and the brazilwood I had was mainly sawdust), and I did not use them side by side, I cannot make any conclusive claims.

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<sup>22</sup> It is interesting to note that there are numerous references to elderberry dyes for textiles and *pysanky* in other sources, but not to the yellow made of the flowers.

Brazilwood appears to require a lot more of the alum mordant than any other dye I have used, including sappanwood, which led to the mordant experiment described in the next section. Perhaps because the wood was cut very finely, I did not see much of an effect of soaking the dyestuff before cooking the dye. I have also discovered that there is such a thing as “too much mordant” which I will discuss in Chapter 3C, and so I have come to what I think is an optimal amount of the mordant, at least for now, documented in the current working recipe. The second round of the brazilwood dye made from the same sawdust gives brownish-brick red on the yellow background, not the brighter red of the first round.

My current version of the recipe of brazilwood red dye with alum, when iron mordant was added to it, had also worked much better for producing black than my previous attempts of achieving brazilwood black. Hence I think working with this dye and developing the recipe was a worthwhile endeavor, despite the very limited and uncertain availability of brazilwood.

### Logwood (*Haematoxylum campechianum*) black

It appears, that I was the first person to use logwood dye on eggshell at the present time, from extract in 2016 (Svarnyk, “Logwood Dye (Extract)”) and from wood chips in 2020 (Svarnyk, “Logwood Chips”). Using logwood in this project has allowed me to formalize the simplest working recipe for achieving black with addition of both alum and iron mordant. There are multiple logwood recipes for textiles (Liles 185–92; Dean and Casselman 94; Cardon 271–271), they are, however, much more complicated<sup>23</sup> than what has worked for me on eggshell. We do not know whether the color I have achieved will be lightfast or not. I have not observed any major issues with the eggs I have dyed with logwood in the past, however, I did not run proper lightfastness tests either, so this is a good project for the future. It would be especially interesting to compare the lightfastness of logwood with the blacks made from berries that are used extensively by egg artist in Ukraine and elsewhere. Also, I know from past experiences that logwood dye does not spoil. Once prepared, it can stay in a jar for several years, and still work, provided there is enough of the dyeing substance left in it.

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<sup>23</sup> Also, according to Dean and Casselman (49), both logwood and brazilwood dyes only work using the hot dyeing method, while on eggshell they appear to work quite well in room temperature.

## B. Mordant Experiment

### Summary

Mordants are an essential component in the process of dyeing with most natural dyes, and there is an extensive body of knowledge and technique of mordant usage accumulated through experience when dyeing textiles, however, Dominique Cardon says: “It is still not entirely understood how mordants function.”<sup>(5)</sup> Also, we cannot simply replicate the textile mordanting recipes on *pysanky* because eggshell is a very different material from fiber, the process of mordanting eggshell is different and it is understood even less (or not at all).

While I was making natural dyes and using them, it appeared that a larger than usual quantity of alum mordant was required for the brazilwood dye to work well (for the details of this story, as well as other details of the experiment, see Appendix 2). I then decided to conduct an experiment to see whether the amount of alum mordant would be affecting the saturation of the resulting color for both yellow dyes (apple wood and elderflower) and for the red dye (brazilwood). This was a home experiment, and as such it was limited since I did not have controlled environment or precise measuring tools a lab would provide. Still, I think it was worth carrying it out, even with these limitations.

I have conducted this experiment in January 2025, and the results were mixed. For the brazilwood, with the mordanting process I chose to use, indeed it appears that increasing the concentration of the mordant was also increasing the saturation of the resulting color. For both yellow dyes, the experiment appeared to not have worked and would require adjustments and further experiments to clarify the results.

### Brief description of the process

For this experiment, I have decided to use pre-mordanting (when the material is first soaked in the mordant solution, and then dyed in the dye bath) rather than simultaneous mordanting<sup>24</sup> (when the mordant is added directly into the dye bath), mainly because it was easier to control the amount of the mordant used, but also due to additional reasons provided in the Appendix 2. As it turned out, there were also some disadvantages to using this method which I could not have predicted, and which I will discuss in a moment. The next question was how much mordant to use.

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<sup>24</sup> This process is referred to differently by different authors, I'm using Cardon's term (14).

Present day textile dyeing recipes indicate the amount of mordant that is required, and they measure the amount as the percentile of the weight of fiber to be dyed.<sup>25</sup> The fibers that are to be dyed will be soaked in the mordant solution, and so the whole mass of the fibre will absorb the mordant. With the eggshell, we only dye the outer layers of the shell (unlike fiber the shell cannot soak in the liquid), so even if we wanted to determine the “weight” of the dyed mass, at this point it would be impossible to do so, and hence the textile recipe indications of amounts are of not much use to us. In the eggshell dyeing descriptions we get varied and very approximate suggestions about the quantity of the mordant to be added to the dye: “the amount of a pea to the quart of water” (Korduba 6), “like salt to hot food” (Kulzhynskyi 55), like the head of a matchstick to a glass of dye (Manko, *The World in Pysanky of Taras Horodetskyi* 103), the amount like two-three heads of the matchstick for half a glass of dye (Vlenenko and Ktitorova 17), on the tip of the knife for 200ml water (Mykhalevych 19). Furthermore, these amounts are not dye specific, but are recommended across the board for all natural dyes<sup>26</sup>.

I have decided to start with the highest concentration of alum in water that was working (until alum was not dissolving any more), and then to further dilute that original solution to achieve different levels of concentration alum. I have then prepared samples pre-mordanted with different level of concentration of alum mordant to be dyed with the following dyes: apple wood (yellow), fresh brazilwood (red of pink), elderflower (yellow), and brazilwood dye that was 6 days old, because the historic textile recipes indicated that leaving the redwood dyes, and specifically the brazilwood to age for some days, weeks, or even months was improving the outcome (Cardon 282).

The outcome of this first experiments was that both yellow dyes did not work well enough with the samples I have pre-mordanted, even though these same dyes worked considerably better when I used them on test eggs with simultaneous mordanting method while adding a little of the alum solution directly into the dye (resulting in a much lower concentration of the mordant). The possible conclusion about the yellow dyes might be that both yellow dyes do not work well with pre-mordanting and instead work much better with simultaneous mordanting. Alternatively, it might be that the initial concentration of

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<sup>25</sup> For example, the suggested range of the amount of mordant for protein fibres is “10-20% per weight of dry textile”. (Boutrup and Ellis 57)

<sup>26</sup> In natural dyes on textile research, it is known that different concentration of the mordant might result in a different saturation of the resulting color, for example, Cardon (5) provides an image from a 1846 French publication showing these differences on a striped cotton cloth. However, it appears to be less common to provide different concentration of a mordant in current recipes.

the alum was too high for the yellow dyes and they worked better with simultaneous mordanting process because the concentration of the mordant was much lower there.

For brazilwood, the fresh dye samples worked as expected, that is, the higher concentration of alum mordant corresponded to a higher saturation of the resulting dye. This is a very important result, because it would suggest that, indeed, at least for brazilwood, the higher concentration of the mordant (up to the level that I have used in the experiment) is going to improve the saturation of the color and result in a better (more desirable) outcome. The 6 days aged brazilwood dye, contrary to the expectation, gave much paler results than the fresh dye, however, one would want to repeat that experiment again to ascertain it was not some other factors that interfered with the results.

### Conclusions and further steps

For the yellow dyes, if it is indeed the case that the two yellow dyes I tried require a mordant-in-the-dyebath method, I would have to test the effect of the different mordant concentration on the saturation of the dye with mordant-in-the-dye method. If the result of poor outcome was a concentration of the mordant that was too high, rather than the dyeing method, then different kinds of experiments would be required (e.g. testing whether samples with lower concentration of the mordant would dye better than the ones with higher concentration).

For the brazilwood, the outcome is clearly better with the higher concentration of the mordant when pre-mordanting. In the future, it would be interesting to test some of the following:

- whether there is a plateau with mordant concentration, where further increasing the amount/concentration of the mordant does not improve the dye absorption anymore;
- whether increasing the time that the eggshell spends in the mordant solution and/or in the dye, would compensate for the lower concentration of the mordant;
- whether the concentration of the mordant affects the lightfastness of the dye;
- whether other additions to the dyebath (e.g. calcium) or to the process (dipping the egg into acid before dyeing) would improve the outcomes;
- whether there is a different result when pre-mordanting vs. simultaneous mordanting;

- whether a different and easier available redwood dye (for example, sappanwood) can replace with similar or better results the brazilwood which is quite expensive, and not consistently available.

## C. Remaking of *pysanky*

### My three sources

In the process of the preparation for the selection of which eggs from the original *pysanky* collection or Mrs. Skarzhynska I was going to remake, I have worked with three different sources: the reprint of the Kulzhynskiy's catalogue originally published in 1899, the current *pysanky* collection of the Poltava Lore Museum, and the set of original cards with the gouache drawings of *pysanky* from Konstantyn Moshchenko papers, Ukrainian History and Education Center Archives. Somerset, NJ, USA.

Kulzhynskiy's catalogue contains 2115 printed drawings of *pysanky* from the original collection up to January 1, 1898. Out of them over 500 are full size color images and over 1500 small black and white. The catalogue also contains some additional data about most *pysanky* in the catalogue, such as the year of acquisition, the place it came from, who brought it, sometimes the name of the design or motif, sometimes the name of the person who wrote the *pysanka*. For the black and white images, there are additional textual descriptions of each *pysanka*, which sometimes are sufficient to decipher the full pattern, but often not.

The current collection of the Poltava Local Lore Museum contains about 460 old<sup>27</sup> *pysanky*, some of which are from the original collection as recorded in the printed catalogue, while the other are not. The problem, which seems to be common for several old *pysanky* collections in Ukrainian museums, is that the original documentation, such as the item passports and the inventory books, seems to have been lost and/or replaced at

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<sup>27</sup> We do not have the information about the age of all 460 *pysanky* in the current "old" collection. The acquisition of items continued after the publication of the 1899 catalogue and at some point several different collections have been merged together, then separated, and then merged again (Halian; Suprunenko). We know for sure that some of the *pysanky* currently in the collection are not in the 1899 catalogue because they come from regions in Western Ukraine which have not been covered in the catalogue. At this point, it seems that there is no way to date all *pysanky* in this collection, unless, perhaps, at some point more of them are identified as being in the catalogue or perhaps some additional information about the collection or acquisition is uncovered at some point. The *pysanky* I have identified are all dating from 1888 when the collecting began till 1895.

some point with new catalogues, without additional information about individual *pysanky*.<sup>28</sup>

The cards with the gouache drawings of *pysanky* from the Moshchenko papers appear to be some sort of a record of the original collection with some not as yet identified additions.<sup>29</sup> The cards contain the full size color images of almost all of the *pysanky* in Kulzhynskiy's catalogue, including the full size color images of those *pysanky* which in the catalogue are small black and white, and some additional *pysanky* with sometimes more and sometimes less information about their origin included in the cards.

These three sources provide different kinds of information about the original *pysanky* that were in the collection, some overlapping and some unique. Of the three sources only Kulzhynskiy's catalogue is publicly available, while the access to the original *pysanky* in the museum and the image cards in the archive is somewhat restricted.

### Identification of *pysanky* in the museum collection

Prior to my involvement, it appears, the *pysanky* in the current collection of the Poltava Local Lore Museum have not been compared with Kulzhynskiy's catalogue of the original collection to identify the overlaps and thus establish the identity and provenance of a particular *pysanka* where possible. To date, I have matched to the Kulzhynskiy catalogue 13 *pysanky* from the current museum collection as almost certain and 4 more as probable, out of 64 I have photos of<sup>30</sup>. The first three *pysanky* I have recognized already while at the museum. One of them is very much well known, and the other two I knew because I have written them from the catalogue earlier. I was allowed to take some photos for reference and later requested museum's photos for the *pysanky* I would attempt to identify. I was then comparing the photos which have been provided to me by the museum with the images in the printed catalogue and the archival cards. I will share some of my discoveries and the identification strategies I have developed.

One of the elements that stands out the most in a *pysanka*, gives it its character and makes it recognizable is the motif(s) used. For example, the first *pysanka* I have recognized and identified in the Poltava Local Lore museum collection was the "magpies"

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<sup>28</sup> This problem also seems to have affected the collection of the Kharkiv Historical Museum where no original documentation about the collection has been preserved at the museum (Kravchenko 10), and also, though to a lesser degree the museum collections of old *pysanky* in Lviv.

<sup>29</sup> Kulzhynskiy (25) mentions watercolor cards made by Mr. Khodorkovsky from Lubny, and several other sets of card which all together might have constituted the bulk of this archival set.

<sup>30</sup> Appendix 3A contains the chart of correspondence between the catalogue numbers in the three sources and some additional information about these *pysanky* I have identified.

(Kulzhynskyi #363)<sup>31</sup>. The “bird family” motif, containing larger and smaller birds with unusual decorative colorful broken lines on the bodies is extremely unusual, well known and much loved (Figure 16). After Kulzhynskyi it has also been republished in other *pysanky* books (Biniashkevskyi 23; Manko, *The Ukrainian Folk Pysanka* T35). Another motif that was useful in identifying several *pysanky* was the motif of a sun rather than a more common motif of a star or a rosette. This motif, looking like a sun in a child’s drawing, does appear in *pysanky*, especially in the Western Ukraine, however there are relatively few eggs with this motif in Kulzhynsky’s catalogue, and hence they are easier to identify. A unique combination of this motif with other motifs helped me to recognize the second *pysanka* (Figure 17) even when the background red color has almost completely disappeared (Kulzhynskyi #545). Other less common or easier to identify motifs, such as the motif of a rake, for example, appear on several *pysanky* in the museum collection, but there are very few in Kulzhynskyi, and hence some of these *pysanky* can be identified as definitely not a part of the original collection by 1899 when the catalogue was published.

Another element helpful in narrowing down the identification is the “division”

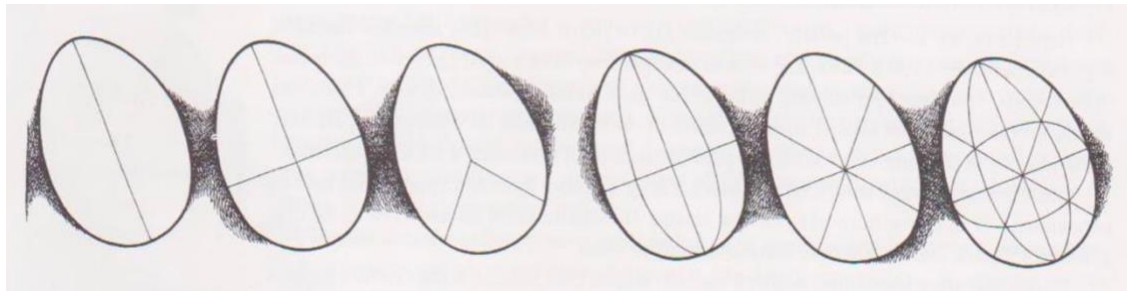


Figure 4. Some of the common *pysanky* divisions, the “saddlebag” is the third from the left. (Manko, *The Ukrainian Folk Pysanka* 36).

(Figure 4). The vast majority of *pysanky* are divided, usually with the initial white lines, into sectors or fields which define the way that the ornamentation is arranged on the surface of the egg. This division might not be so apparent to a lay person viewing a *pysanka*. However, to a *pysanka* artist or a researcher, the basic division is an essential part of any given *pysanka*. It structures the perception of a *pysanka* and is one of the common ways of categorising a *pysanka* as belonging to a particular group. While by itself the basic division is insufficient to identify any given *pysanka*, a less common basic division is very useful for quickly filtering out the *pysanky* that are divided differently

<sup>31</sup> I am using # to indicate the catalogue number of an individual *pysanka* in Kulzhynskyi and elsewhere.

and zooming in only on the *pysanky* with that particular division. For example, the “saddlebag” division has proven very helpful in identifying several *pysanky*. (Figure 19)

Finally, unusual background colors (or unusual color combinations in general) are also a great filter when looking in the catalogue for a *pysanka* you are trying to identify. However, something that I have discovered through this experience is that faded or even completely disappeared background colors can also be a pointer to identify a *pysanka*. I have found out from the second *pysanka* I have identified (Kulzhynskyi #545) that a background red color might disappear almost completely, leaving just a faint residue of a purplish hue. I have also discovered from the only *pysanka* I have identified so far from Kyiv governorate, now Zhytomyr oblast, (Kulzhynskyi #741) that the green can disappear completely or almost completely leaving behind only a slightly beige yellow (Figure 21). This discovery has helped me to identify several other *pysanky*. For example, when I tried to identify a *pysanka* with what looked like an unusual yellow background and a somewhat unusual cross motif, I thought it would be relatively easy to either identify or eliminate, because there are very few *pysanky* with a yellow background and the cross shape would be standing out, but I could not find such *pysanka* in the cards<sup>32</sup>. Eventually it occurred to me that the background could have been initially a different color, and only upon a very close examination of the museum photos, one could barely see in some of them that there were indeed yellow stripes on a background of a different color, rather than the whole background being yellow. (Figure 20) This made it possible to identify this by now yellow looking *pysanka* as a *pysanka* originally with dark green background with some yellow stripes. (Kulzhynskyi #1739)

The comparison of the *pysanky* in the collection of Poltava Local Lore Museum with the original late 19<sup>th</sup> century documentation is a work in progress. Hopefully, my discoveries on the use of the motif, division, and color can be helpful to further identify more of the *pysanky* in this collection.

Once I have identified *pysanky* that were still present in the collection of the Poltava Local Lore Museum, this became one of the factors that has influenced my decision on which *pysanky* I was going to remake. Another factor was the colors of *pysanky*, since other than natural white color of the eggshell I could only make yellow, red, and black dyes. The third main factor was that I wanted to remake a group that in

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<sup>32</sup> When it came to colors as identified features, I used archival cards more than the printed catalogue, even though they are less convenient to flip through, because archival cards are all in color, whereas only a fraction of the printed catalogue images are in color, rest are black-and-white.

some ways would be able to represent the place where it came from, even if my color limitations would not make this representation full. I ended up making two groups: one from Poltava region, and one from Volyn region, which I will briefly describe, along with the key learning points from remaking each group.

### Remaking 11 Poltava Region *Pysanky*

12 *pysanky* from the village of Ivakhnyky (possibly the current village of Yakhnyky) in Lokhvytsia povit, Poltava governorate came to Mrs. Skarzhynska's museum near Lubny in the year 1890. At least one of these has survived and is currently in the collection of the Poltava Local Lore museum (Kulzhynskiy #309). Three of them are recorded in color in the catalogue and the rest the rest 9 in black and white, and all of them only use red and black color with the white main lines, hence I could remake them within my current color limitations. I have remade 11 out of 12 (Figure 22). The design of one of them (Kulzhynskiy #304) I could not decipher with enough clarity to be able to make it.

One of the reasons for remaking these particular *pysanky* is that one of them has survived, the other reason is that they are from the area not far from where the first museum that housed Mrs. Skarzhynska's collection was located, and that no *pysanky* from this group include colors that I cannot currently create, thus I could remake almost the whole group. Based on the *pysanky* recorded in Kulzhynskiy, towards the end of 19<sup>th</sup> century, green was a color extremely *popular* on *pysanky* in Poltava area, there are relatively few eggs from the Poltava governorate that do not have green on them, this group being somewhat of an exception.

This group is of *pysanky* is quite interesting, for they are made by two women with different last names and have been brought to the museum by two different *pysanky* collectors respectively (Kulzhynskiy 121). And yet, one would not be able to sort them by author based on their designs. In fact, I am inclined to think that either these two women were writing together and possibly influencing each other, or that several types of *pysanky* were common in the village, and this is why both women are doing some of each. One *pysanka* here stands out because of the geometric grid of triangles division with a heart motif in each triangle (Kulzhynskiy #301), then there are three *pysanky* not appearing very traditional, all with names referring to plants (Kulzhynskiy #302, 303, 304). Finally, the rest eight *pysanky* look more traditional, even though the motifs are not the most common ones. Three of the *pysanky* have the sun motif, five have a six-pointed

star or a rosette, four have a double-line saddlebag division, which is actually rather complicated to do well, especially without using the pencil<sup>33</sup>.

Comparing the one surviving *pysanka* with its image in the catalogue (Figure 18), it is quite clear that the person sketching the *pysanka* for the catalogue was having a difficult time with the double lines of the saddle bag, especially where the round medallion meets the half-band, and did not record the lines correctly, which means that we also do not know whether the rest of the saddlebag division eggs in this set were recorded correctly or not. I cannot blame the person doing the sketch, for I myself did not notice the differences in the original *pysanka* until I made a number of them, and then had to remake at least the surviving one.

The second interesting challenge was the six-pointed star, which is much less common than the eight-pointed one. The first time I made #298 at the very beginning of my Master's studies, instead of making the six-pointed star, I made the eight-pointed one just out of habit. The rest of the composition was not working, since the stars at the bottom and the top of the egg defined how the whole egg was divided. I had other challenges with this particular *pysanka* design and ended up remaking it three more times, and even then I was more happy with the band in version 3, but with everything else in version 4 (Figure 23). It was interesting to see the six-pointed star motif used in different divisions and different positions on these eggs, and also to see it replaced by other motifs, such as the suns, or the three-leaf branch in the saddlebag division eggs. Besides the variations of the way the motif was placed, or the way motifs replaced each other in the same position, there was also some variation in the bands, and in the use of red decorative dots.

### Remaking 12 Volyn Region *Pysanky*

A set of 97 *pysanky* from the village of Derman, Dubno povit, Volyn governorate came to the museum in the years 1894 and 1895, and, unfortunately, Kulzhynskyi's catalogue does not specify the year for each *pysanka*, but the cards in Moshchenko papers do. There is also no information about who wrote the *pysanky* or the names of the *pysanky* or motifs. However, at least 6 of them have survived (Figure 24), which is the largest group of those I have identified so far, and this was one of the reasons I have chosen to remake some of these *pysanky*. Out of 6 that have survived, 4 are in the yellow-red-black color scheme that I could remake (Kulzhynskyi #1661, 1697, 1705, 1741). All 4 of these

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<sup>33</sup> We assume that at that time no pencils or other sketching tools were used, and the design was done free hand, straight on the egg surface with wax (which cannot be altered after it has been applied).

in the catalogue are listed in color, I have chosen 2 more that are in color in the catalogue and 6 more in black-and-white to complement the ones that have survived. The other two surviving *pysanky* which I cannot remake at this time originally had green color on them, which by now has almost completely disappeared (Kulzhynskyi #1686, 1739).

When I was choosing the *pysanky* to supplement the ones that have survived, I have looked through the images of all *pysanky* that originally came from this village multiple times, trying to decide, which of them I could remake, prioritizing the *pysanky* which in the catalogue were printed in black-and-white rather than in color when possible and while maintaining the balance between the *pysanky* that were written in 1894 (Figure 26) and 1895 (Figure 27). One of the features that characterizes many of the *pysanky* from this village is the way that yellow is used not for outlining independent figures or filling out solid areas, but instead yellow lines or stripes are used to embellish the areas of other color, most of the time red, less frequently black. I have tried to choose a variety of the ways these yellow lines are working and hence to showcase them. I also tried to choose a variety of divisions to represent the larger collection from this village. There were no major differences in tendencies which I could identify between the *pysanky* from two different years.

To supplement #1661 with the magnificent S-shape in half of the *pysanka*, divided from the other half by a rather intricate band (Figure 25), I chose two *pysanky* which have a half-S, so just one curl, but placed very creatively within two very different divisions, #1695 and #1685. A very interesting motif in #1697, a triangle with a stripe down the middle, sometimes decorated with dots, additional stripes on both sides and what looks like tassels along the base, seems to be one of the favorite motifs in this village, unfortunately we do not know whether it had any name or meaning. I have chosen #1737, #1701 to show the variation of both the details of this motif as well as its placement on the egg. The star of #1705 is complemented by a different version of the star in #1715, and, finally, the saddlebag #1741 is complemented with #1737 to showcase other possible motifs in the medallion of the saddlebag as well as the variation in the half-band. Because at least two *pysanky* with saddlebag division from this village have survived, it is interesting to see the medallion in one of them being much more rounded, while in the other one with sharp corners on the sides, both drawn superbly well in the original *pysanky*, with the motif in the medallion accompanied with a different but still matching motif repeated in the half-band. I was delighted, challenged and humbled trying to remake

the *pysanky* in this collection, several of them I did more than once, and would have continued trying to do better, if the project was not limited in time. (Figure 28)

The process of remaking these traditional patterns has reminded me again that the experience and attitude is trying to submit to the pattern and to follow it the best you can, rather than trying to control it or master it in a dominating way. These *pysanky* look deceptively simple and also deceptively imperfect with their lines not being always straight, designs not always symmetrical, color areas not always filled completely, or else spilling out. And yet there is a flow and composure in the finished *pysanky*, which is coming through in those that have survived so much more than in the printed catalogue or drawn cards. I am reminded again, why I love remaking these documented old *pysanky*. It is because I want to see how the patterns materialize and come to presence on the egg surface so much differently than how they are recorded on a flat surface of the paper.

## Chapter 3: Practice and knowledge

### A. Sustainability

While I was working on this project, in September 2024, the UNESCO Chair on Applied Studies of Intangible Cultural Heritage at the University of Tartu organized a graduate student seminar about Sustainable Development and Cultural Heritage. It was this event, and further the compilation of articles that included several written by the speakers of the seminar (Bortolotto and Skounti) that inspired me to consider the concept of sustainability as an underlying theme for my current and also future research. I thought that the concept of sustainability could be useful in maintaining the fruitful tensions between past, present, and future, and in case of the *pysanky* craft I was studying, would be a good measure of viability, for lack of a better word.

It was interesting to have a first-hand experience that traditional or past practices are not always sustainable in the present or in the future. Ukrainian local source of insect red color, *chervets* (*Porphyrophora polonica*), which gave the name to the color red and the month of June in several Slavic languages, was at the core of international trade before there were nations as we perceive them, well documented since at least 15<sup>th</sup> century (Cardon 645). It was still used locally at the end of 19<sup>th</sup> – beginning of 20<sup>th</sup> century, but currently it is not commercially available, and it is not clear whether it is locally used for dyeing even in the places where it is still abundant in nature (mainly in Central Asia). The only commercially available source of natural red which we know was used on *pysanky* in the past, brazilwood (*Caesalpinia echinata*), has limited and uncertain availability, and is quite expensive. It is not likely that this dye would be adopted for use by *pysanky* artists on any significant scale. Hence, other sources of natural red, such as sappanwood (*Caesalpinia sappan*), madder (*Rubia tinctorum*) and cochineal (*Dactylopius coccus* or *Coccus cacti*) should be explored as more sustainable options. Thinking through the concept of sustainability while engaging in practice was an interesting endeavour, and I am looking forward to formulating a more thorough analysis of this concept in the future.

These observations shed light on the tensions between the two paradigms in heritage research and management, that of heritage preservation, and that of living heritage. Perhaps, the concept of sustainability, especially if developed beyond the

currently used application of meeting the sustainable development goals (Brundtland) could become a foundation for new ways of thinking about heritage and working with it.

## B. Gaps in knowledge

The main source of difficulties I have encountered while working in the project comes from the gaps of knowledge of several kinds. Firstly, the lack of academic engagement with the *pysanky* tradition in general was making it difficult for me to even formulate what is it I wanted to do and why it was important, starting from even defining the *pysanky* tradition: Is it a craft, and if so, why does it not fit the usual characterizations or a craft (Becker 864–65)? Is it folk art, and what does that really mean? Is *pysanka* a ritual object, and if so, what are the implications of that? I have worked through some of these questions in a conference presentation (Svarnyk, *The Resilience of a Tradition*) and did not include these issues here due to limited space, but they have not been fully resolved and require further development.

Secondly, the gaps in the ethnographic documentation of the tradition, and especially of the craft processes that are central to this project, arise from the fact that neither the ethnographers of the late 19<sup>th</sup> century who have published the information on *pysanky*, nor the informants that were collecting information and *pysanky* for them, were themselves the practitioners of the craft. Hence, unlike the historic textile dyer's manuals, these records are not done from the point of view of a craft practitioner nor for the use of a craft practitioner. They do not contain actual recipes or detailed descriptions of the process, and often seem to lack awareness about some aspects of the process which becomes especially visible in understanding the working of mordants. One of the most interesting examples resulting from this lack of practical experience is when Kulzhynskyi says that brazilwood is used for achieving red color and Korduba says that brazilwood is used for achieving black, which seems like a contradiction. However, to a craft practitioner, who used mordants, brazilwood is a particularly amazing dye source, because the same dye which with alum mordant gives red can be reused for black when iron mordant is added.

The difficulties in interpreting the information on the use of dyes in ethnographic sources are complicated further by the common historical confusions about dye source names and origins, and the lack of research about historic trade in the region and in what is now Ukraine. Despite these shortcomings, I am extremely grateful to these 19<sup>th</sup> century ethnographers for collecting and recording what they could, and for producing a body of

published literature about the Ukrainian *pysanky* tradition which does not seem to exist on that scale at that time about any other local Easter eggs tradition. Looking at the current explosion of the books published about Ukrainian *pysanky*, one can see the echoes, especially of Kulzhynskyi, in many of them.

Lastly, there are gaps of knowledge and research about the use of natural dyes on eggshell, and the differences in technique and process between textiles and eggshell due to which it is not possible to simply reproduce the textile dye recipes on *pysanky*. Gradually filling out of these gaps is a work in progress, and I hope that this Master's project has also made a small contribution to this work.

### C. Knowledge discovered

To do justice to all that I have learned from doing this project, starting from the information about the natural dyes used on *pysanky* in ethnographic sources, to the old *pysanky* I have seen in museum collections, and *pysanky*-related information in the archives, to the strategies I have developed to identify *pysanky* at the Poltava Local Lore Museum, to the questions raised and the refined during the mordant experiment, and the discoveries about the role of motif, division and their variation while remaking *pysanky*, I would have to rewrite the whole written part of the MA project here again, perhaps with more detail and added levels of reflection. Instead, I would like to give one example which I have not yet discussed, saving it for later, and which, I believe, is a good illustration of the complexity of how knowledge can develop, including from what initially appears as ignorance and a dead end of sorts.

This example can be characterised by a following question: is there such a thing as “too much mordant”? I have already mentioned Dominique Cardon's claim that “It is still not entirely understood how mordants function” (5). If that is the case even with textiles, where the amount of research conducted and experience recorded is manifold greater than with *pysanky*, then what can we say about how mordants function on the surface of an eggshell? My example starts with Sumtsov, one of the late 19<sup>th</sup> century ethnographers who has published the first text specifically about *pysanky*, where he makes a rather puzzling statement about the use of a mordant: “To make *pysanky*, in addition to dyes, one needs decolorizing liquid. Most often it happens to be beetroot kvass or a solution of alums.”(59)

In the literature on the natural dyes used on textiles, I have never seen any reference of alum being used for “decoloration”, which, of course is no wonder since the

purpose of dyeing is usually “coloration”, rather than “decoloration”. Also, it is much more common to use pre-mordanting on textiles, where the fabrics or fibers are first soaked in a mordant solution, and then rinsed to remove “excess” mordant, rather than the simultaneous mordanting that is usually used with *pysanky*. Sumtsov’s claim seemed counter-intuitive, because alum is supposed to facilitate the coloring and improve the attachment of the dye to the material, not remove the dye from the material, so initially I assumed that Sumtsov or his informant simply made a mistake.

However, during the process of dyeing eggs with brazilwood for this project, as I was trying to “squeeze” all color out of an expensive dyestuff that I was also running short on, I have noticed that the “weak” (well used) dyebath with high concentration of alum mordant, during the repeated dips in the dye which are done to achieve a deeper and more concentrated color, was removing color from an egg instead of adding it to the egg<sup>34</sup>. In light of this discovery, it appears that the “decoloration” with the help of alum, which is reported by Sumtsov, might also be possible, moreover, this might serve as a caution against adding too much alum into the dyebath, especially if the dyebath is already “weak”. This experience with alum during the dyeing process supported the possibility formulated during the mordant experiment, that the concentration of mordant might have been too high for the yellow dyes, and that might have been a reason why the yellow dyes did not work with pre-mordanting during the mordant experiment. Running further mordant experiments, which I have outlined, becomes even more important in the context of this new observation of how alum mordant works. It also becomes even more important, that in the working recipe I have managed to come up with a precise amount of mordant, which is enough for the dye to work well, but not too much to cause “decoloration”.

To make this story even better, a person whom I happen to know, was troubleshooting their attempts to dye a *pysanka* with a different natural dye recipe posted on the dedicated Facebook group (*Riast*). The dye was not working and there were no suggestions on what else to fix. I then asked this person, how much mordant they were using, perhaps it was too much? Indeed, the person has lots of mordant and used a lot more than “on the tip of the knife” amount suggested in the recipe. They made a new dye with less mordant, and the problem seems to have been solved.

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<sup>34</sup> This has affected the tone of the red color in some of the *pysanky* from Poltava region which I was remaking at the time. Even though I have made a new batch of dye and tried to improve their color subsequently, some of them have never quite recovered and remained rather dull.

I wanted to give this example here, because it ties together the research done in preparation for this project with all three components of the practical part, and shows how practice in practice-based-research can confirm or disprove the theoretical assumptions we bring to the practice. This example also happens to include the illustration of the further sharing of the knowledge I have gained with the community of practice.

## D. Knowledge sharing

Rather than a more typical scientific process that starts with a hypothesis, which is confirmed or disproved through an experiment, and then the knowledge acquired is disseminated, my experience in this project was that of multiple flows of knowledge sharing in different directions. From the very beginning of this project, I was both receiving and sharing knowledge or experience in communities as well as with individual people. I will only list here some of the key events, and I have no doubt that this process of knowledge exchange will continue.

At the very beginning of my Master's degree studies, in the autumn of 2023 I have attended an annual conference "Dyes in History and Archaeology" organized by the Centre for Textile Research at the University of Copenhagen and presented a paper there with a preliminary overview of the ethnographic sources which are discussed here in Chapter 1B, and my results of using dye replacements for the historic red dyes. This is the largest international conference dedicated to historic dyes, and I received a lot of very useful feedback including the information about where brazilwood could be purchased in Europe, which made it possible for me to remake the *pysanky* with at least one red historic dye used on eggshell before, rather than using only substitutes. On the other hand, the conference participants were interested to see what natural dyes looked like on eggshell, something that most of them have not seen before. I am definitely planning to continue attending this conference whenever possible, to both share my discoveries and receive suggestions from the researchers of natural dyes.

In the summer of 2024, right after my first two field trips, I was asked to give a detailed presentation about the research and fieldwork I was doing in Ukraine at the Ukrainian Eggcessories *Pysanky* Retreat 2024 in Canada. This is the largest in-person *pysanky* retreat out of three or four that happen annually in North America, and many people who write *pysanky* internationally and quite a few who teach *pysanky* workshops, gather at this retreat. In the autumn of 2024, I have presented a paper based on the research related to this Master's project but which I did not include in the written part at the

international crafts conference “Heritage in the Service of Sustainable Communities” in Viljandi, Estonia. A few weeks later, at the Museum of Ethnography and Crafts of the Ethnology Institute of National Academy of Sciences of Ukraine, I was asked to present some of the results of my research and fieldwork for the members of the museum community and the public. This was done as a part of a larger series of presentations dedicated to the digitization of a number of *pysanky* from this museum’s collection which was just completed, and highlighting parallels between the situation of *pysanky* collections in the Western Ukraine with that of the Eastern Ukraine was a very welcome contribution. Finally, in the spring of 2025, I was invited to give a detailed online presentation about natural dyes on *pysanky* on the basis of the Ukrainian History and Education Center, Somerset, NJ, USA in the archives of which I did research during the previous summer. This again was done for the broader *pysanky* community; the talk was recorded, and the video was made available afterwards. My experience from the audiences and organizers during and after all of these events was of genuine interest and enthusiasm, I have received numerous follow-up comments and questions, made new professional connections, and even some new friends.

I hope that these interactions continue because I find them inspiring and very helpful, and they demonstrate a need for knowledge coming out of studies such as this one. I also hope that eventually this sharing of knowledge becomes a foundation for a community that would research *pysanky* tradition thoroughly and professionally, and gradually fill out some of the gaps in knowledge and understanding of this craft, its past and the ways of its future developments.

## Conclusion

Most if not all introductions about *pysanky*, written as well as oral, start with a reference to the past. I am no exception to this rule, I have started with a reference to the past, and this whole project has been a conversation with the past, even though thinking along with the concept of sustainability inevitably and helpfully opens the conversation towards the present and the future. Whether this anchoring in the past is desirable or not, and whether it could be overcome, or not, are not really the questions I am particularly interested in. What I am fascinated with, however, in regards to *pysanky* tradition and its past, is to understand what we can and what we cannot know about the past, and to be able to draw the line between knowledge and ignorance, and to not be afraid of this line. So in this Master's project I took a narrow area, the use of natural dyes on *pysanky* as recorded in late 19<sup>th</sup> century ethnographic sources, and tried to see what would happen if I attempted to remake some of this past in the present, with the view towards the future. I was one craft practitioner, with my own views and beliefs, biases, experiences, strengths and shortcomings, trying to see what the past tradition would reveal to me, if I engaged with it through the practice, through making and remaking.

What I did not quite expect was that I would be able to encounter the “messengers” of this past tradition, that the *pysanky* from the source I was going to work with, as well as other *pysanky* from around the same time, would still be there in museum collections, waiting for me, though it did not have to be me, and that I would get to meet them in person and to work with them. This added so many more layers to this adventure, and showed me other paths to explore, both during working on this project, as well as in the future.

Some of the practical outcomes of this Master's project are the following:

- the information about the natural dyes used on *pysanky* from Kulzhynskyi and Korduba, both published in 1899, is made available in English for the first time;
- *pysanky* in the collection in the Poltava Local Lore museum have been compared with Kulzhynskyi for the first time, 13 *pysanky* have been matched as almost certain and 4 more as probable, thus restoring the provenance of these *pysanky*. The strategies of doing such comparison have been identified and described for the first time, the work is to be further continued;

- the archive of Konstantyn Moshchenko at Ukrainian History and Education Center Archives, Somerset, NJ, USA, which until now has been undescribed and was hence unavailable for research, has now been described at the folder level;
- working recipes for four historic natural dyes on *pysanky* have been developed, and are being made public, three of them for the first time;
- the first experiments of the use of mordant when dyeing eggshell have been conducted and further experiments have been sketched out;
- *pysanky* have been dyed with brazilwood, which is a historic and often mentioned dye, probably for the first time in the last several decades or longer, and we have found out what this color can look like on the egg surface;
- historic *pysanky* that were collected in the years 1890, 1894 and 1895 in two Ukrainian villages have been remade with natural dyes.

This list is already much longer than I could have imagined when I started. However, it would be even more interesting to see, what would happen if instead of looking at one practitioner engaging with tradition, we could look at the community, or several communities, and see how they engage with the tradition, what is important to them, what inspires them, what they are looking for when they practice this tradition. It would also be interesting to see what else does the tradition have to offer, what is present in the tradition and what is absent. What are things we could perhaps still learn about the tradition, and what are things that have disappeared far enough into the past to become inaccessible to us. This kind of a scaling up of this project from one practitioner to many, and from one aspect of the tradition to several, as many as possible, is what I would like to see develop in the future.

While working on this project, I have become specifically interested in the theme of record keeping. The loss of attribution or lineage of *pysanky*, which seems to have occurred due to the changes in the Soviet cataloging processes, is something I would like to study further, especially to see whether this was a systemic occurrence rather than a set of singular instances. I would also like to see how the past of the tradition, and the reference to that past, is used in identity politics, both at the grand scale of states or even international institutions like UNESCO, and also on a smaller scale of communities or even individual artist. I would like to study how these identities that are formed through the traditional craft further function to include or exclude, to make claims of ownership and entitlement, or, on the contrary, to disown or negate. I would like to study the rifts which appear out of this identity-making, both within craft practitioner communities, and

between the communities of craft practitioners and the professionals and institutions, such as museums, which often end up being the guardians, as well as the researchers of the traditional crafts. I hope to have a chance to work on at least some of these questions in the future.

# Resüme

## 19. sajandi lõpu põssankade taasloomine looduslike värvidega

Ukraina traditsiooniline lihavõttemunade, põssankade kaunistamise kunst kanti 2024. aastal UNESCO vaimse kultuuripärandi esindusnimekirja. Selle traditsiooni akadeemilises uurimises on aga lünki, nii selles, mis puudutab traditsiooni üldisemalt kui ka teadmistes munade värvimises kasutatavate looduslike värvainete kohta, mis ongi selle magistriprojekti fookus.

Projekti eesmärk on valmistada valik 19. sajandi lõpu põssankasid kasutades ajaloolisi looduslike värvaineid kollase, punase ja musta värvi valmistamiseks. Tegemist on põssankadel traditsiooniliselt kõige enam kasutatud värvidega. Projekt viidi läbi praktikapõhise uurimistöö meetodit kasutades, pöörates erilist tähelepanu jätkusuutlikkuse küsimustele. Uurimistöö allikateks on 19. sajandi lõpu põssankade-teemalised väljaanded, mis loetlevad sel ajal kasutatud värvimismeetodeid, samuti kaasaegne kirjandus looduslike värvainete kasutamise kohta munade ja tekstiili värvimiseks. Materjali töö jaoks on kogutud välitöödel Poltava koduloomuuseumis ja Ukraina ajaloo- ja hariduskeskuse arhiivis Somersetis, USA-s.

Selle magistriprojekti praktiline pool koosneb kolmest erinevast osast: looduslike värvide retseptide väljatöötamine, katsed peitsimisainetega ja 19. sajandi põssankade taasloomine. Magistritöö kirjalik komponent loob tööle konteksti ning võtab kokku praktilise komponendi läbiviimiseks tehtud uurimuse ja välitööd (1. peatükk), dokumenteerib praktilise komponendi kolme etappi (2. peatükk) ning kajastab lõpuks kogu projekti tulemusi (3. peatükk). Töö lisadest leiab ülevaate looduslike värvide retseptid ja nende väljatöötamise protsessikirjeldused, peitsimisainetega tehtud katsete kirjeldused ja tulemused ning andmed muuseumi- ja arhiivipraktika käigus tuvastatud põssankade kohta.

Magistriprojekt võib huvi pakkuda käsitöö- ja rahvakunstiteadlastele, pärandispetsialistidele, värviteadlastele ja restauraatoritele, muuseumide ja arhiivide töötajatele, etnoloogidele, kultuuriantropoloogidele ja kõigile, kes imetlevad põssankasid.

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# Appendix 1. The details of developing the dye recipes

## A. Decisions about the dyes to include in this project: between availability and sustainability

In this Master's project, I have limited the colors I was trying to achieve with natural dyes to yellow, red, and black, and this has, in turn, limited, which *pysanky* I could then remake<sup>35</sup>. These are the most common and most basic colors in traditional Ukrainian easter eggs, though there are some differing opinions on whether dark brown was used traditionally rather than black<sup>36</sup>. What follows is my reasoning for choosing which dyes to adopt for this project to achieve yellow, red, and black based on the dyes listed in the ethnographic sources which I have discussed in Chapter 1B.

For the yellow dye, I have decided to discard onion skins as a source, due to several reasons. It is true that this dye has been commonly used, and was perhaps the only natural dye to continue to be used on eggs, especially to dye boiled eggs without ornamentation. However, because onion skin dye has been used on eggshell quite a bit in the recent years, some of the egg artist in Ukraine have concluded that it fades considerably with time. Secondly, depending on the type of the onion, the color varies considerably from yellow to reddish brown, hence it is difficult to achieve a predictable and reproducible color.

I have chosen to work with domestic apple tree (*Malus domestica*) wood, because it seems to be such an iconic color for the eggs, not only used pretty much everywhere in Ukraine, but also in some areas imparting its name to the yellow dye in general. This dye

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<sup>35</sup> For example, many of the *pysanky* in late 19<sup>th</sup> century collections have green sections, possibly achieved by overdyeing the background natural yellow with the synthetic methylene blue; some have the pure blue color, also possibly of the same origin. These *pysanky* were then left out from the consideration of remaking, since I am not yet prepared to create a relatively reliable natural bright green on eggshell, and it is not clear whether a reliable natural blue on eggshell, other than the fading blues of berry or other origins, is even possible.

<sup>36</sup> I have heard these opinions multiple times in the *pysanky* communities both in Ukraine and in diaspora, without a reference to a source, and usually the reasoning given is that it is not possible to achieve true black with natural dyes. This opinion comes from people who do not use natural dyes and it is factually incorrect. It is true that in a few ethnographic regions dark brown is indeed the background color traditionally used for *pysanky*, however, from what we see in late 19<sup>th</sup> century ethnographic sources, black (or what is referred to as black) in general seems to have been used considerably more widely than brown, and the black is certainly achievable with natural dyes.

source is not very common to be used on textiles, but is relatively easily available, and sustainable at least from the point of view of availability, since the seasonally pruned branches of apple trees that would be otherwise discarded, are perfectly suitable for the dye. All three of my Ukrainian ethnographic sources mention the wild apple tree bark, however, it appears that domestic apple tree wood can also be used with a similar result. I have also heard that Pelageya Lytvynova, whom I mentioned as one of the earlier ethnographers, wrote about using the domestic apple tree bark dye for *pysanky*, but, I was unable to find her book so far, to be able to ascertain that information.

The second source of yellow I chose to work with is elderflower (*Sambucus nigra*), firstly because it is mentioned by two out of the three ethnographers, secondly because it is easily available not only to source by oneself, but also to purchase in a herbal store, including online. Looking back, I will continue using elderflower dye, and will likely try to experiment with how well the color lasts, but I will probably be careful about recommending its use due to the very short time that this dye lasts. From the point of view of sustainability, if one has access to an elder tree or bush and the flowers or berries of it are not used for other purposes, then of course they can be used for color. However, using something of medicinal or nutritional value (which is the case for both elderflowers and elderberries) for color may be considered more wasteful than using apple tree branches which would be discarded anyway.

For the red dye, I had to forego the “deer antlers” mentioned by Kulzhynskyi because we do not know what this dye is. Also, the only other local source of red color listed by the ethnographers, *chervets* or “Polish cochineal” (*Porphyrophora polonica*) had to be discarded since this insect dye is not commercially available. Since the use of the cochineal from the Americas has not really been confirmed, I did not consider using it for this project, it is, however, the closest substitute insect dye and it is commercially available, so it could be used if historic accuracy is not an objective. Even though it is imported, it has high dye content and because of that is not as expensive as some other red dyes, so it could be considered moderately sustainable. I have completely discarded red sandalwood both because it is endangered and because the colorant is difficult to extract.

I was left with the only option of the natural red that has been documented as having been used on eggs, and that is Pernambuco or brazilwood (*Caesalpinia echinata*) (Cardon 276) which was available at the time when I have started this project, though its availability was limited already then. Currently this dye appears to be out of stock and it

is not clear when or whether it will become available again. In the future, it would be interesting to compare brazilwood with sappanwood (*Caesalpinia sappan*), which was the redwood dye of Asian origin available in Europe before brazilwood, and which is much easier to acquire and is not and has never been in danger of extinction unlike brazilwood.

For the black, I have decided for now to forgo the local versions of the sources of black listed by both Sumtsov and Kulzhynskyi, partially because it is difficult to forage wild trees, and the process of making the dyes seemed somewhat complicated and included exotic ingredients like *kvass*. Instead, I have opted for the imported logwood (*Haematoxylum campechianum*) (Cardon 263), which is listed by Kulzhynskyi as one of the options, because it is available and fairly easy to use, and the same brazilwood (*Caesalpinia echinata*) which I used for red dye, since it has been mentioned by Korduba, and would have been available to those who have used brazilwood for red. In the future, I would like to explore the black dyes made of local sources, since this is definitely a more sustainable option, if it works, than imported dyes.

## B. Resulting natural dyes recipes and photos

### **Apple wood yellow – warm golden yellow**

100g apple wood chips dried, 500ml distilled water, soak overnight.

Simmer 30 min. Strain.

Add a pinch of alum.

The dye works well and gives consistent color for at least a week (unless it is used up sooner). Wood chips can be reused at least once more to make another batch of dye. For darker brownish shades of yellow, soak 48 hours or more.

### **Elderflower yellow – cold bright yellow, mustardy yellow**

50g dried elderflower, 500ml distilled water.



Figure 5. Apple wood yellow. On the right: soaking for 48 hours, on the left: soaking 12 hours.



Figure 6. Elderflower yellow. Two eggs on the left: fresh dye. The rest of the eggs: a dye that is a few days old.

Simmer 10 min. Strain. Add a pinch of alum.

Do not do a vinegar dip before putting the egg into this dye.

The dye ferments within a few days and color changes from bright cold yellow to mustardy yellow, eventually does not color the eggs well. Plan to use as soon as possible after preparing.

### **Brazilwood red – bright warm red over yellow background**

50g brazilwood sawdust, 500ml distilled water.

Simmer 15 min. Strain. Add 0.5g of alum.

The dye lasts well for several weeks.

Wood chips can be reused at least once more for a less bright brick-red.

### **Brazilwood black**

50g brazilwood sawdust, 500ml distilled water.

Simmer 15 min. Strain. Add 0.5g of alum.

Add a pinch of iron mordant.

The dye lasts well for several weeks.

### **Logwood black**

50g logwood chips, 500ml distilled water.

Simmer 10 min. Strain. Add a pinch of alum. Add a pinch of iron mordant.

The dye does not spoil and can last at room temperature for several years when not frequently used, until the color lasts.



Figure 7. Comparison of two yellows. Left: apple wood, right: elderflower.



Figure 8. Brazilwood red over yellow background. Top left: over elderflower, top right: over apple wood. Bottom: second batch of brazilwood dye from previously used sawdust over apple wood yellow.



Figure 9. Brazilwood black over red.



Figure 10. Logwood black over red.

## Appendix 2. The details of the mordant experiment

### A. Why mordant experiment?

In the spring of 2024, I was doing the “proof of concept” experiment trying to test whether my Master’s project was doable in principle, that is, whether it would be possible to achieve enough of traditional colors with the natural dyes that were listed in the late 19<sup>th</sup> century ethnographic sources. I was the first and only person (that I know of) in the present time to try and dye eggshell with brazilwood (*Caesalpinia echinata*). Both me and others have tried using for the red dye on *pysanky* sappanwood (*Caesalpinia sappan*), which is a close relative of brazilwood in terms of dyeing substances, so I had high hopes that the dye would work. But in the first two rounds, no matter how concentrated a dye I was making, I was only able to achieve pink on white surface and correspondingly orange on surface that was previously dyed yellow (Figure 11), I was not able to get the deep enough red that would be required.

I didn’t know what to do, and so as the last resort I added a lot more of alum mordant into the dye bath than what I would normally add. To my surprise, it worked, I got the proper red. It appeared that the brazilwood dye required a lot more of the mordant than the other dyes I have used before, including the sappanwood (the dye closest to brazilwood).

This is why, as part of this MA project I wanted to run a very basic experiment to see whether it would be possible to determine, if and to what degree the amount of



Figure 11. Mordant experiment. First attempts at brazilwood dye, insufficient color saturation.



Figure 12. Mordant experiment. Pysanky as a result of completed first attempts at brazilwood dye.

mordant in the dye affected the saturation of the resulting color, and whether this amount was different for different dyes I was using.

## B. The reasons for pre-mordanting rather than simultaneous mordanting

Kulzhynskiy (58) mentions that pre-mordanting was used in Podillia governorate, though it appears that simultaneous mordanting was much more common with eggs, and is the only method used currently among *pysanka* artists who use natural dyes, in contrast with textile dyeing where pre-mordanting is by far the more common method. I had several reasons for using pre-mordanting rather than simultaneous mordanting, and I will list here some of the most important ones.

Firstly, pre-mordanting of the samples allows for a much better control of the concentration of the mordant and the evenness of eggshell exposure to a mordant across the samples used in the different dyes. It is much easier to make the initial mordant solution, dilute it several times, and then use the same batch of the dye to color all the samples. Trying to achieve exactly the same levels of the concentration of a mordant in different dyes while adding the mordant directly into the dyebaths would require measuring tools more precise than what I had access to at the time. Also, the dye would have to be split into batches with the different amount of mordant in each, making it more complicated, rather than using the same dye for all the samples in pre-mordanting<sup>37</sup>. Secondly, pre-mordanting is often the preferred process when dyeing the textiles to avoid the waste of dye, because, in theory, the mordant will bond with the material first, and then when submerged in the dyebath, all the dye will bond with the mordanted material. Instead, during simultaneous mordanting some of the dye might bond with the mordant before bonding with the dyed material, and attach to the dye pot, for example, rather than to the dyed material. (Dean and Casselman 43) Thirdly, since nobody I know of has tried pre-mordanting the eggshell, I wanted to see how it would work, this seemed like a good occasion for trying it out in a more organized and controlled process than my usual dyeing. Something that I did not anticipate, but that ended up being welcome bonus in case where it worked was that since the amount of the mordanting liquid was slightly lower than the amount of the dye I used, in case of brazilwood especially, we can see on

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<sup>37</sup> These and some other advantages of pre-mordanting are listed in Cardon (12).

the outer edge of the dyed part of the samples the difference of the dye adhering a lot less and with a different color tone to the unmordanted surface.

## C. Numbers, proportions

I have prepared samples pre-mordanted with different level of concentration of alum mordant for 15 min. each to be dyed with the following dyes: apple wood (yellow), fresh brazilwood (red of pink), elderflower (yellow), and brazilwood dye that was 6 days old.

### **Preparation of the pre-mordanted samples:**

#### **Aluminium mordant solution:**

120 ml of distilled water + approx. 1g of alum (Kremer)  
Submerge the eggshell into 15ml of solution for 15 min.

Dilute the original solution to 50%, repeat.  
Dilute the original solution to 25%, repeat.  
Dilute the original solution to 12.5%, repeat.

Result, pre-mordanted eggshell samples with 1, 1/2, 1/4 and 1/8 alum concentration made for each of the 4 dyes (16 samples in total).

#### **Dyes:**

100g apple wood dried chips  
500ml distilled water  
Soak for 2 days.  
Simmer 30 min. Strain.

100g brazilwood sawdust  
500ml distilled water  
Soak for 2.5 days.  
Simmer 30 min. Strain.  
Use first batch same day, second batch 6 days later.

50g dried elderflower,  
500ml distilled water  
Simmer 10 min. Strain.

I submerged each pre-mordanted sample into about 20ml of dye for 15 min.

## D. The process

I started dyeing pre-mordanted samples with the apple wood dye, but the dye did not seem to work almost at all, definitely not to a degree that would make it possible to see clear differences between the samples pre-mordanted in the alum solution of different

concentration. (Figure 13) Unfortunately, we were going through the cold weather spell of several days of -30C outside, and the house was rather cold. I thought perhaps it was the lower than normal temperature of the dye and of the whole environment that has caused the poor outcome.



Figure 13. Mordant experiment with applewood dye. Concentration of alum is reducing from left to right.

Hence, for the fresh brazilwood dye which I did next, I decided to slightly warm up the dye, in case the reason for apple wood not working was indeed the cold, and so that I did not waste another set of pre-mordanted samples. This did work, it is visible that the saturation of color from brazilwood dye decreased with the decrease of alum concentration. The samples dyed with a 6-day old brazilwood dye, contrary to the expectation turned out worse than with the fresh dye. (Figure 14)



Figure 14. Mordant experiment with brazilwood dye. Top row: fresh dye. Bottom row: aged dye. Concentration of alum is reducing from left to right.

Next, I tried the elderflower dye, which I have warmed up to avoid the “cold dye” problem I assumed could have been one of the reasons of the apple dye not working on the samples. However, the result turned out very similar to the apple dye, with all the samples not taking on the dye properly (Figure 15), which leads me to suppose that the problem was not the temperature, but rather some other factor.



Figure 15. Mordant experiment with elderflower dye. Concentration of alum is reducing from left to right.

To check the other possibilities still available to me, I have added some mordant solution directly into both yellow dyes. This would result in a much lower concentration of the mordant than on pre-mordanted samples, but with the mordant interacting with the dye during the dyeing process (simultaneous mordanting) rather than having two separate consecutive processes, first mordanting (pre-mordanting) and then dyeing. Without changing anything else (no warming up the of the dyes), I have placed into the dyes the test eggshells for the same 15 min. duration which I used for both the pre-mordanting mordanting and the dyeing of the initial samples. The result on the eggs dyed via this simultaneous mordanting process was clearly significantly better than on the pre-mordanted samples. The conclusion I drew from this was that it was not the case that the dyes did not work (e.g. there was not something wrong with the dyes themselves), rather, they did not work with the pre-mordanted samples I have prepared.

## Appendix 3: The details of remaking *pysanky*

### A. Identified *pysanky* in the museum collection

This chart contains the correspondence of catalogue numbers of the *pysanky* identified at the Poltava Local Lore Museum (PLLM) to the ones in Kulzhynskiy's catalogue and the cards from Moshchenko Papers at Ukrainian History and Education Centre (UHEC). Additional information about the place of their origin and the year has been compiled based on Kulzhynskiy's catalogue, other than the years marked with “\*” which came from the cards at UHEC. The first 13 *pysanky* I have identified as almost certain, and the last 4 (where Kulzhynskiy# is followed by “?”) as probable.

Kulzhynskiy#	PLLM#	UHEC#	Governorate	Povit	Place	Year
309	418	421	Poltava	Lokhvytsia	Ivakhnyky	1890
328	272	569	Poltava	Lokhvytsia	Pisky	1889
363	200	503	Poltava	Lubny	Berezotocha	1890
418	454	591	Poltava	Lubny	Lubny	1888
545	269	442	Poltava	Lubny	Tarandyntsi	1890
573	344	584	Poltava	Lubny	Khoroshky	1890
741	445	102	Kyiv	Skvyra	Khodorkove	1894
1661	457	355	Volyn	Dybny	Derman	1894*
1686	299	349	Volyn	Dybny	Derman	1894*
1697	319	1458	Volyn	Dybny	Derman	1895*
1705	432	1481	Volyn	Dybny	Derman	1895*
1739	444	1497	Volyn	Dybny	Derman	1895*
1741	435	376	Volyn	Dybny	Derman	1894*
365?	255	502	Poltava	Lubny	Berezotocha	1890
442?	270	415	Poltava	Lubny	Lukomia	1890
1529?	56	1125	Podillia	Kamianets	Surzha	1895
1794?	63	1414	Volyn	Ostroh	Nityshyne	1895

## B. Additional Illustrations



Figure 16. Identification. Left: Poltava Local Lore Museum #200 from six sides, museum photos. Top right: Kulzhynskiy #363. Bottom right: my photo of the pysanka at the museum.



Figure 17. Identification. Left: Poltava Local Lore Museum #269 from six sides, museum photos. Top right: Kulzhynskiy #545. Bottom right: my photo of the pysanka at the museum.

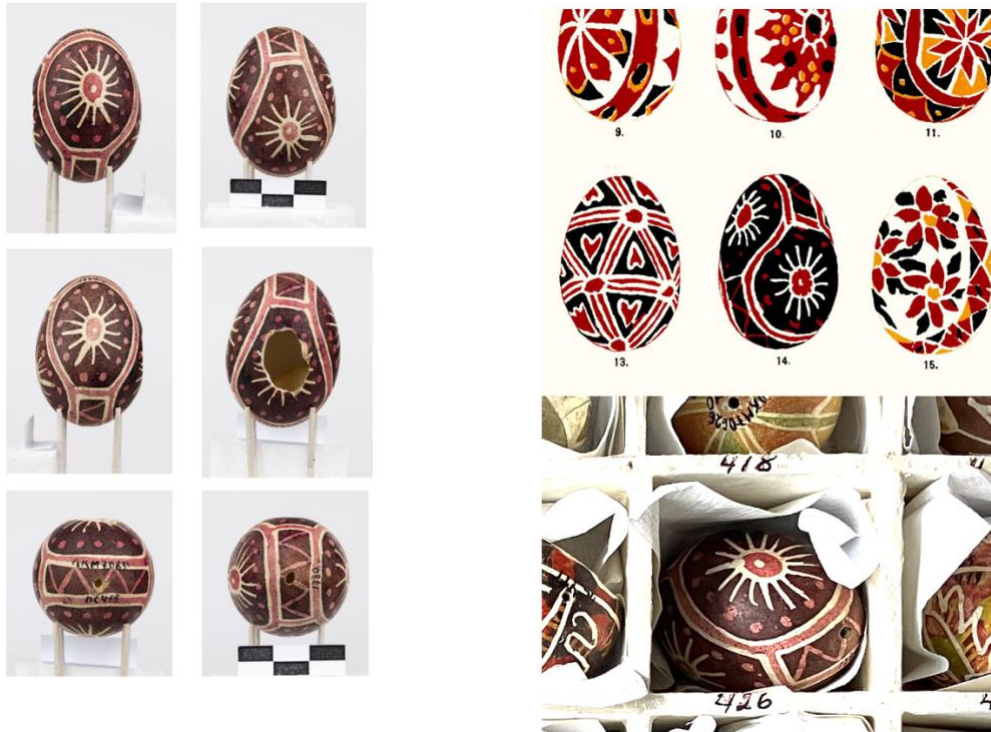


Figure 18. Identification. Left: Poltava Local Lore Museum #418 from six sides, museum photos. Top right: Kulzhynskiy #309. Bottom right: my photo of the pysanka at the museum.

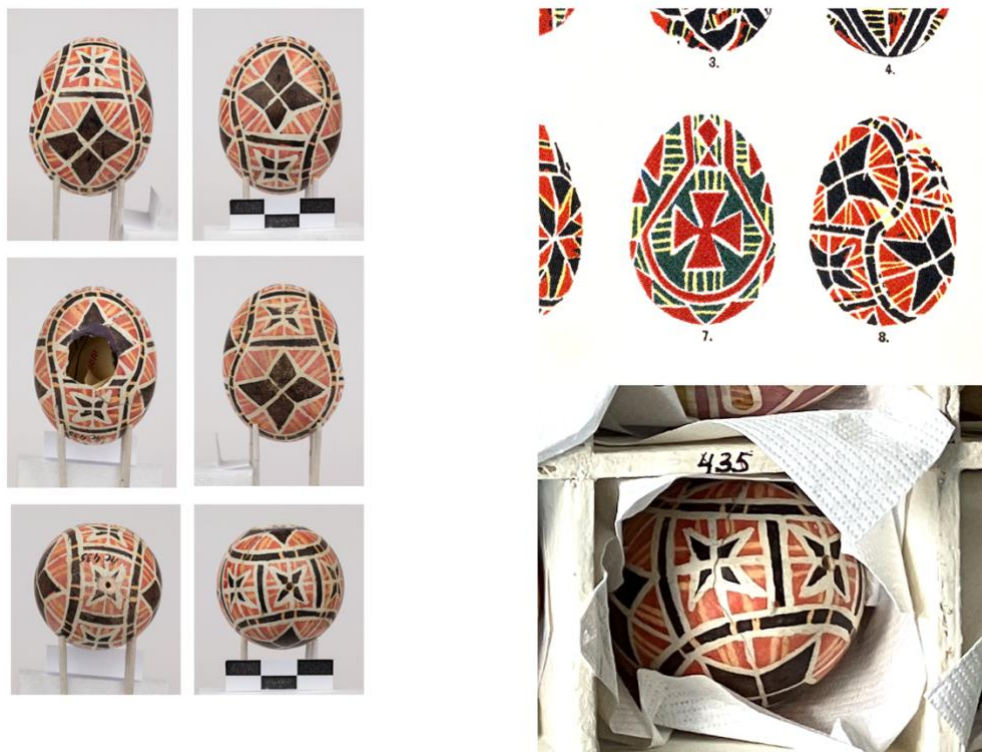


Figure 19. Identification. Left: Poltava Local Lore Museum #435 from six sides, museum photos. Top right: Kulzhynskiy #1741. Bottom right: my photo of the pysanka at the museum.

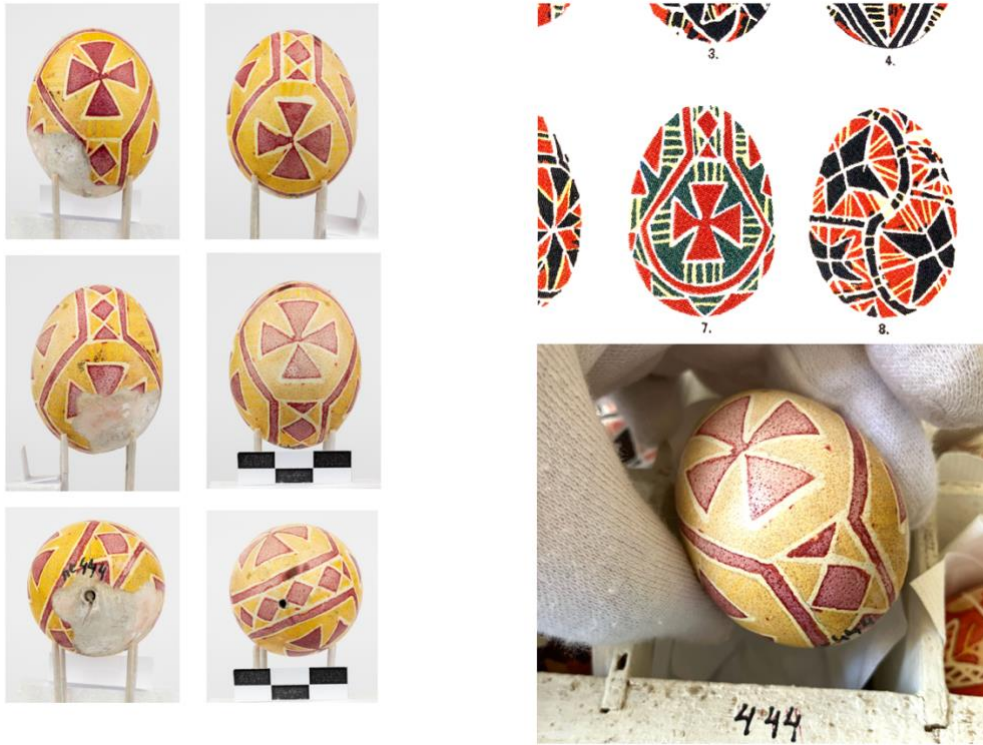


Figure 20. Identification. Left: Poltava Local Lore Museum #444 from six sides, museum photos. Top right: Kulzhynskyi #1739. Bottom right: my photo of the pysanka at the museum.

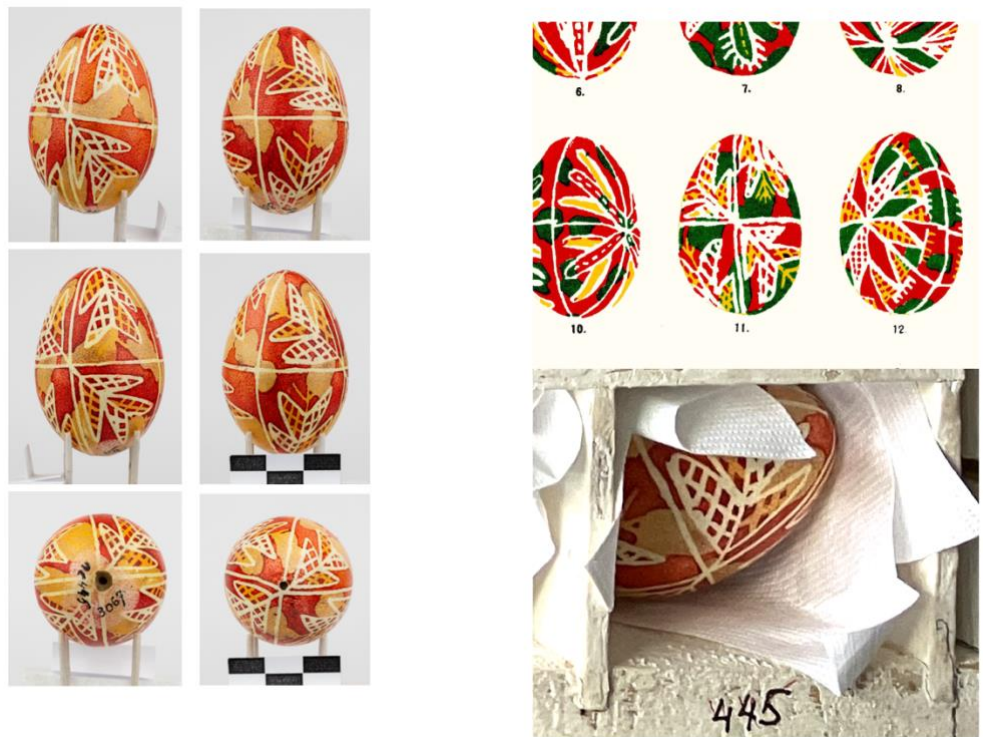


Figure 21. Identification. Left: Poltava Local Lore Museum #445 from six sides, museum photos. Top right: Kulzhynskyi #741. Bottom right: my photo of the pysanka at the museum.



Figure 22. Remaking Poltava region pysanky. Kulzhynskiy #298-309, catalogue images with corresponding remakes, except #304.



Figure 23. Remaking Poltava region pysanky. Four attempts at "the combs" ("hrebinyky") Kulzhynskiy #298 viewed from the side and from the top. Notice how the size and shape of the egg, as well as the thickness of the white lines (due to the different size of the funnel pen opening) changes the look of the design on the completed pysanka. To my eye, the middle band, which probably also gives the name to the pysanka, because it is most suggestive of a "comb", looks best on the second from the right (third attempt), while everything else, including the shape of the rosette, and the fitting of the suns between the segments of the rosette, looks best in the first from the right (fourth attempt).



Figure 24. Remaking Volyn region pysanky. Six identified pysanky from Derman village at the Poltava Local Lore Museum, the two on the right had green on them and this I could not remake them. Museum photos.



Figure 25. Remaking Volyn region pysanky. Kulzhynskiy #1661, Poltava Local Lore Museum #457, museum photos from six sides.



UHEC 337, Kulzhynskiyi 1725



UHEC 355, Kulzhynskiyi 1661



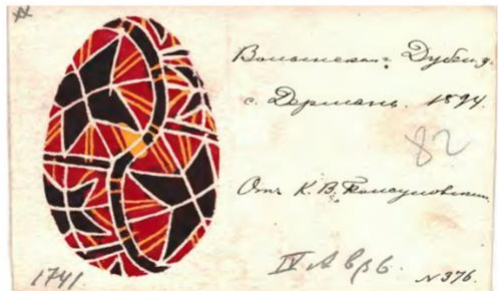
UHEC 340, Kulzhynskiyi 1654



UHEC 375, Kulzhynskiyi 1737



UHEC 353, Kulzhynskiyi 1695



UHEC 376, Kulzhynskiyi 1741

Figure 26. Remaking Volyn region pysanky. Cards from Moshchenko papers, UHEC. Pysanky I chose to remake from 1894.



UHEC 1457, Kulzhynskiy 1701



UHEC 1465, Kulzhynskiy 1685



UHEC 1458, Kulzhynskiy 1697



UHEC 1466, Kulzhynskiy 1728



UHEC 1464, Kulzhynskiy 1715



UHEC 1481, Kulzhynskiy 1705

Figure 27. Remaking Volyn region pysanky. Cards from Moshchenko papers, UHEC. Pysanky I chose to remake from 1895.



Figure 28. Remaking Volyn region pysanky. Completed pysanky.

## Appendix 4: The process diary

### Autumn 2023

Preliminary overview of information about natural dyes on *pysanky* in 19<sup>th</sup> century ethnographic publications.

Conference presentation “Historic Uses of Natural Dyes on Eggshell in the Ukrainian Craft of Egg Batik and Present Day Adaptations,” DHA42 (Dyes in History and Archaeology), Copenhagen, Denmark, October 31, 2023.

Course:

P2VK.01.182 Project Management.

By the end of the autumn semester, the preliminary plan for the Master’s project is done.

### Spring-summer 2024

Detailed overview of information about natural dyes on *pysanky* in 19<sup>th</sup> century ethnographic publications.

Proof of concept experiment, trying out the natural dyes, including brazilwood, to see whether they will work. Master’s project plan is confirmed, decisions are made on which colors and dye sources will be used. March 2024

First fieldtrip: Ukraine. Beginning of identification of *pysanky* at the Poltava Local Lore Museum. Continuing literature review. May-June 2024

Second fieldtrip: Moshchenko papers at the Ukrainian History and Education Center, Somerset, NJ, USA. Examination of the archival cards with *pysanky* images and additional information. July 2024

Invited presentation: “*Pysanky* in Ethnographic Catalogues and Museum Collections” Ukrainian Eggcessories *Pysanky* Retreat 2024, London, ON, Canada, July 18, 2024

Courses during the fieldtrips:

HVKU.03.032 Practical Training on (Museum) Collections

FLKU.04.123 The Practice of Folkloristic Fieldwork

FLKU.04.129 Practice in Folklore Archives

## **Autumn 2024**

Presentation: “The Remaking of Traditional *Pysanky* (Easter Eggs) from an 1899 Ukrainian *Pysanky* Catalogue,” Tartu NEFA Autumn School, Tartu, Estonia, September 19, 2024

Conference presentation: “The Resilience of a Tradition in the Craft of Ukrainian Easter Eggs (*Pysanky*),” Heritage in the Service of Sustainable Communities, Viljandi, Estonia, October 2, 2024

Third fieldtrip, Ukraine. Continuing visits to Museums, libraries, and archives. Continuing literature review.

Invited presentation in Lviv: “Етнографічні дослідження та музейні колекції писанок Наддніпрянщини кінця 19ст.,” Музей етнографії та художнього промислу (МЄХП) Інституту народознавства НАН України, Львів, Україна, 25 жовтня 2024

Student conference presentation: “Recreating Natural Dyes for *Pysanky* (Traditional Ukrainian Easter Eggs) from late 19th century Ethnographic Sources: Challenges and Potential Solutions,” HUMA Autumn School Student Conference, University of Tartu, Estonia, November 15, 2024

Decisions about which *pysanky* to remake have been made, beginning to remake. Mordant experiment. January 2025.

Course during the fieldtrip:

HVKU.03.028 Practice Abroad

## **Spring 2025**

Invited presentation: “Natural Dyes for *Pysanky*: Past, Present, and Future,” Ukrainian History and Education Center, Somerset, NJ, USA, online, March 11, 2025

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