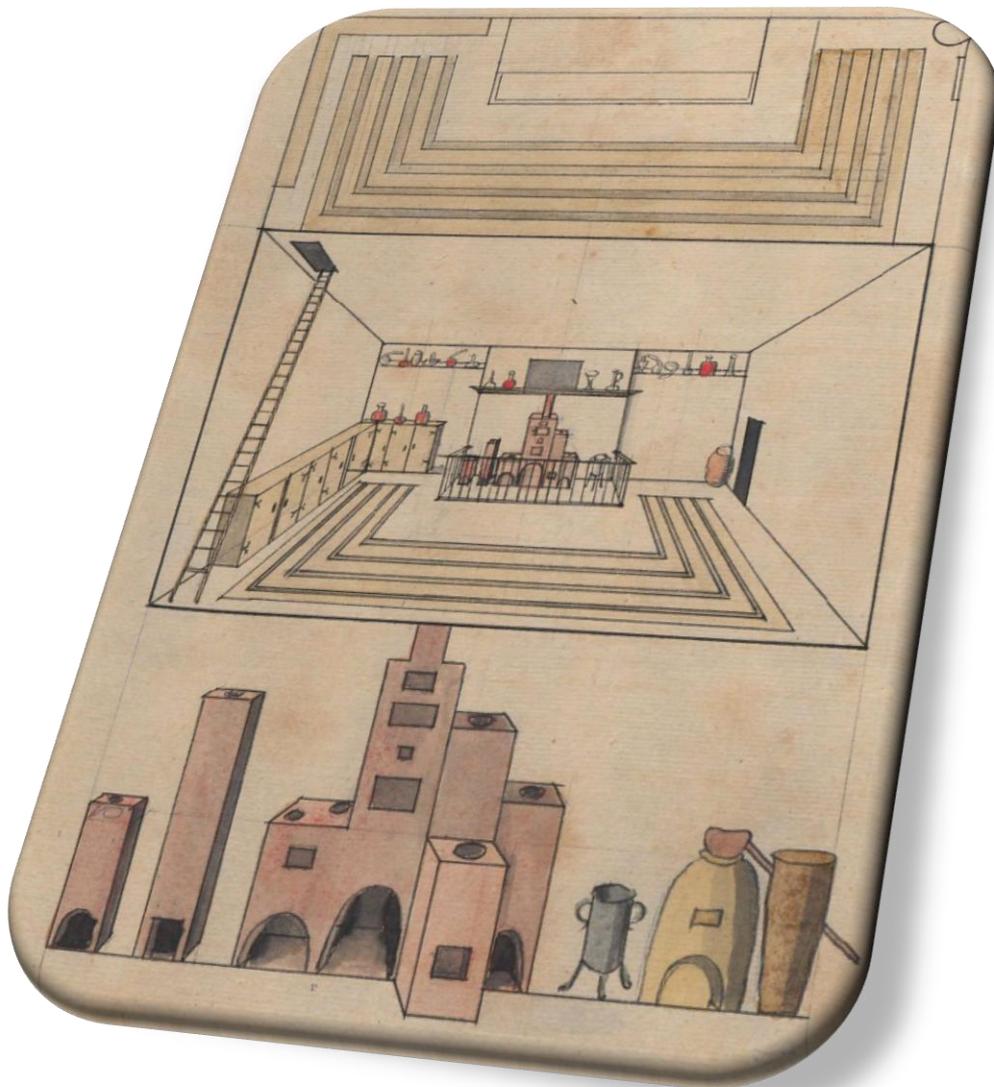


Historical reconstruction: touching the past

8-10th March 2024;

Wrocław, Poland



Introductory meeting and tour of the Museum:

on Friday, March 8th at 16:00; Museum of Pharmacy, Wrocław Medical University, Kurzy Targ 4, 50-103 Wrocław

Welcome Dinner:

just after the tour, on Friday, March 8th at 18:00; Restauracja Lwia Brama, Katedralna St. 9, 50-328 Wrocław

Venue of the workshop:

Museum of Pharmacy, Wrocław Medical University, Kurzy Targ 4, 50-103 Wrocław

Lunches:

Wrocławska Restaurant, Szewska St., 59/60, 50-139 Wrocław

Organizers:

University of Wrocław

Wrocław Medical University

Museum of Pharmacy in Wrocław

Organizing committee and advisory board:

Raj Danuta (Wrocław)

Węglorz Jakub (Wrocław)

Włodarczyk Maciej (Wrocław)

Pękacka-Falkowska Katarzyna (Poznań)

Cover illustration:

Auditorium Chymicum at the University of Leiden, around 1728

In: Itinerarium Gerlach-Fischerianum (MST). Vol. 2, fol. 148.

PROGRAMME & SESSIONS

=== MARCH, 8th ===

- 16:00-17:30 Introductory meeting and tour of the Museum
(after the tour, a short 15-minute walk to the restaurant for dinner)
- 18:00 ... Welcome Dinner (at Lwia Brama Restaurant)
late birds are also welcome but let us know before

=== MARCH, 9th ===

- 08:30-08:45 Opening Ceremony (at the Venue)

08:45-10:30 Analytical Insights into Historical Reconstructions

- 08:45-09:15 "How site and makers matter: Epistemologies of RRR research practices"
– Dupre Sven
- 09:15-09:30 "Volatile profiles of various musk products from *Moschusmoschiferus* L."
–Disan Gunbilig
- 09:30-09:45 "Resins collected from wood ant nests as ancient antimicrobials"
– Fladerer Johannes-Paul (online)
- 09:45-10:30 Discussion
- 10:30-10:45 Coffee Break

10:45-12:30 Theriac: the Same Medicine, Different Reconstructions

- 10:45-11:15 "Experimental history of pharmacy public engagement and the senses"
– Fors Hjalmar
- 11:15-11:30 "*Theriak*: How interdisciplinary questions challenges and practice revealed
disciplinary and institutional possibilities" – Craske Sarah, Kluge Martin
- 11:30-11:45 "Reconstruction of *Theriak*, *Elixir Prioprietatis* and other (pharmaceutical) drugs
– Practical issues" – Raj Danuta, Pękacka-Falkowska Katarzyna
- 11:45-12:30 Discussion
- 12:30-12:45 Coffee Break

PROGRAMME & SESSIONS

=== MARCH, 9th ===
(cont.)

12:45-14:00	Rediscovering Ancient Remedies
12:45-13:00	"A new way to understand medieval medicine"– Van Arsdall Anne (online)
13:00-13:15	"Painkiller, sports cream, massage oil, hand warmer, or all in one? The experimental archaeology of the medicated ointments called <i>ἄκοπα (acopa)</i> by Ancient Greek and Roman medical recipes" –Kovács Erzsébet
13:15-13:30	"Reconstructing a Byzantine deodorant: Ways and reasons" – Kokoszko Maciej, Rzeźnicka Zofia
13:30-14:00	Discussion
14:00-15:45	Lunch (at Wrocławska Restaurant)
15:45-17:30	Alchemy in its scientific, social, and symbolic context
15:45-16:15	"Finding sources of alchemical imagery in experimental results" – Principe Lawrence
16:15-16:30	"Signs and Tokens of Alchemical Change" - Rampling Jennifer
16:30-16:45	"Dreams of gold reconsidered. Towards an experimental history of the relationships between alchemy and chemistry after Lavoisier" – Anatrini Leonardo (online)
16:45-17:30	Discussion
17:30-17:45	Coffee Break
17:45-18:30	Sweet Side of Reconstructions
17:45-18:00	"Can medieval sweets be reproduced? Selected examples of confectionery reconstructions" – Hryszko Rafał, Hryszko Barbara
18:00-18:15	"Challenges of historic gingerbread forms from Silesia" – Klimek Karolina
18:15-18:30	Discussion
18:30	Gingerbread workshop and further discussion (by Klimek Karolina)

PROGRAMME & SESSIONS

=== MARCH, 10th ===

09:00-10:45	Diverse Approaches to Art and Craft Revival
09:00-09:30	"Are we sure? Written sources on artistic materials and the phenomenon of ghost pigments" – Kutzke Hartmut
09:30-09:45	"A puzzling problem of the Viking age tapestry" – Gigilashvili Davit
09:45-10:00	"Reconstructing Duccio – A case study" – Kerman Lesley (online)
10:00-10:45	Discussion
10:45-11:00	Coffee Break
11:00-12:15	Mindscales of Reconstructions
11:00-11:15	"Fool me twice: Perspectives and goals of Arabic recipes for entertainment and deception" – Raggetti Lucia (online)
11:15-11:30	"Rewiring the mind: Experimenting with medieval thinking and writing modes" – Even-Ezra Ayelet (online)
11:30-11:45	"Elixir ad longam Vitam. A fictional recipe based on a very real background" – Kluge Martin
11:45-12:15	Discussion
12:15-12:30	Coffee Break
12:30-14:15	Historical Experiments and Scientific Practices (pt. 1)
12:30-13:00	"Changing perceptions of the past – Understanding the practices of 18 th -century experiments" – Heering Peter
13:00-13:15	"The quadrant – A (not so) timeless timekeeping instrument" – Tepe Enes
13:15-13:30	"The path of the Parabola – Understanding 18th-century teaching devices" – Bergsträsser Linnéa
13:30-14:15	Discussion
14:15-16:00	Lunch (at Wrocławska Restaurant)
16:00-16:45	Historical Experiments and Scientific Practices (pt. 2)
16:00-16:15	"Can practice with an instrument add to the character of an instrument? A case study of the Helmholtz Telestereoscope" – Junk Andreas
16:15-16:30	"Thomas Young's experiments on diffraction and interference: How to communicate what has been seen?" – Mercier Michelle
16:30-17:00	Discussion
17:00-17:30	Final Discussion
17:30	Farewell

ABSTRACTS

Leonardo Anatrini

Università degli Studi di Firenze, Florence, Italy

Dreams of gold reconsidered. Towards an experimental history of the relationships between alchemy and chemistry after Lavoisier.

This paper discusses the possibility of implementing the reproduction of alchemical experiments through the lens of experience-based historical-scientific research, with the aim of practically investigating the historical relationship between science and belief. The discussion is centred around experimental reproductions concerning the case study of transmutational alchemy between the late 19th and early 20th centuries and its role within both scientific research and traditions, such as occultism and the Theosophical Society, which were constantly seeking an epistemologically impracticable synthesis between science and esoteric beliefs.

As early as the 1970s, a small number of academics had already emphasised the potential usefulness, for historiographical purposes, of following in the footsteps of the alchemists themselves, attempting to replicate their experiences and supposed achievements. The more recent reinterpretation of this approach to historical research is based on the concepts of reworking, reproduction, and re-enactment. 'Reworking' refers to the process of creating devices that philologically conform to the source information (such as technical equipment and reagents). With 'reproduction', on the other hand, attention is given to the end products. In the case of alchemy, this implies that the hermeneutics of the texts must be corroborated by autoptic and analytical evidence concerning the execution of the experiments and their outcomes. Finally, 're-enactment' places further emphasis on practice, aiming to obtain a sensory understanding of the given experiment for historiographical purposes. This latter concept, in particular, conveys the possibility of triggering a process of mimesis with the original author whose texts are placed under investigation and put to the test, ideally favouring the practitioners dedicated to the repetition of the experiments in achieving a more direct understanding of the *forma mentis* of their original creators, no longer necessarily mediated by the hermeneutics of the texts. Thus, this methodology offers a concrete opportunity to enhance the scientific and historical study of the relationship between science and philosophical/esoteric/religious beliefs and identities.

ABSTRACTS

Anne Van Arsdall

Independent scholar (USA)

A new way to understand medieval medicine.

Medieval medical texts have not generally been studied for what they are – writings transmitting technical knowledge about how to treat a range of medical conditions. Instead, such peripheral aspects as their provenience, manuscript transmission, illustrations, possibility of plant efficacy are subjects of study. However, by their nature, written instructions such as these for how to perform tasks are quite different from other written works. The former either work, more-or-less work, or don't work; the latter are always subject to interpretation. Like the Latin texts on which they are based, the early-medieval Old English medical texts I study are extremely terse, causing non-technical readers to call them worthless in practice.

Knowledge transmission theory provides a plausible explanation for how such seemingly imprecise and incomplete technical writings function and have always functioned (Michael Polanyi; Harry Collins). Written instructions for how to perform tasks have both a written (explicit) and an unwritten, understood, and learned (tacit) component. Behind such instructions as “drive a car” or “bandage a wound” are many unsaid (tacit) instructions/understandings, which a person wanting to perform the task must know to be able to follow them. However, as a textual scholar with knowledge of languages but scant experience with any of the healing arts, I cannot go but so far in following what those 9th-century remedies are saying. As a consequence, I have begun collaborating with practicing medical herbalists who are interested in the long history of their profession. These practitioners have the requisite tacit knowledge to decode the texts I translate and study. I suggest that such collaboration can lead to a much fuller understanding of early medical texts and the practice of medicine in the West based on a herbal tradition that began with the Greeks.

Linnéa Bergsträsser

Europa Universität Flensburg, Flesenburg, Germany

The path of the Parabola – Understanding 18th century teaching devices.

In the 18th century, Willem Jacob's Gravesande developed an apparatus that was supposed to visualise the flight path of a heavy body. A marble rolls down a ramp and exits in a horizontal direction. The interaction of this horizontal movement with the accelerating force of gravity creates the motion curve of the marble: The parabola. As this flight motion is far too fast for the human eye, 's Gravesande came up with an idea: first with steps, later with rings, he was able to visualise the marble's flight.

His apparatus was an instrument that was intended to demonstrate some different things, like the motion of heavy bodies and the forces of accelerating motion.

At the Europa-Universität Flensburg, we have a reconstruction of the respective apparatus kept at the Museum Boerhaave. As part of my PhD project, I am working with this device and I analyse the accuracy of this demonstration experiment.

Once the instrument has been built and can no longer be changed, you have to concentrate on learning how to use it. In working with this device, the key function of the instrument is that the balls go through the rings. To ensure this, I had to learn to work with all my senses and not just trust my eyes. This was also the challenge for demonstrators in the 18th century. They needed a certain way of dealing with the demonstration experiments before they could show them to the students in the lectures.

In my presentation, I would like to discuss the following questions in more detail: What background knowledge did the demonstrator need? Can an untrained hand perform this experiment? What difficulties arise in handling the object?

ABSTRACTS

Sarah Craske¹, Martin Kluge²

¹ Artist (UK)

² Basler Papiermühle, Basel, Switzerland

Theriak: How interdisciplinary questions challenges and practice revealed disciplinary and institutional possibilities.

In 2017, artist Sarah Craske was embedded in a synthetic biology lab at ETH Zurich (Basel), as part of a residency programme where they were working alongside scientists attempting to design viable antimicrobial peptides. As part of the programme, Craske was building her own synthetic peptides and designing her own experiments inspired by the long history of our relationship with disease, and specifically *Theriak*. One of her peptides she designed spelt THERIAK in its sequence.

Craske wanted to bring the research out of the lab and connect it to its cultural context, both past and present, and approached the Basel Pharmacy Museum as a site to install the resulting work, woven among its existing collections.

Meanwhile, Martin Kluge, having spent years exploring medicinal recipe literature, was keen to use this collaboration as leverage within the Basel Pharmacy Museum to recreate Theriak – an activity that so far hadn't been institutionally supported.

As a side project (much of which pro-bono), to the collaborative exhibition on synthetic biology, and building on Kluge's existing extensive knowledge and work to date, Craske and Kluge recreated Theriak in earnest, following a protocol from a 1684 copy of *Pharmacopoeia Augustana Renovata et Aucta*.

Initially Kluge led on the project; it took a year to both ascertain the ingredients list and to then source them, some of which being distinctly problematic. However by 2018 they were ready to recreate this infamous medicine.

Through this presentation, we will share our embodied experience and learning, the questions and challenges that it raised, the benefits to the institutions and disciplines involved. We will reflect on disciplinary and knowledge biases, and challenges to Western scientific knowledge constructions and 'the march of progress, and consider revisiting different 'ways of seeing'/knowing that could enable us to better understand the world we inhabit.

ABSTRACTS

Gunbilig Disan

University of Natural Resources and Life Sciences BOKU University, Tulln, Austria

Volatile profiles of various musk products from *Moschus moschiferus* L.

The tradition of animal healthcare among Mongolians considered as a vital part of the multispecies nomadic-pastoral community, tightly connected to thousands of years of the nomadic farming economy.

Unfortunately, very few records about non-biomedical animal healthcare survived due to the widespread destruction by the communistic purges in the 1930s. An original woodblock printed manuscript on treatment of contagious diseases, in both humans and animals, using musk, a secretion from a scent gland of male *Moschus moschiferus* L., a highly valued materiamedica, have been discovered recently in Gandanpuntsoglin Monastery, a medical school established in 1730. Furthermore, the value of musk depends on its 'smell' that alter in relation to the origin, and the storage define the remedial quality of musk, according to this manuscript

The distinctive bouquet, and the multifaceted activity [1] of musk from *M. moschiferus* habituating Mongolia is credited to the adaptation of olfactory transduction pathways [2, 3] associated with the continental and hypoxic environment where diffusion of musk is subliminal and therefore stronger scent is crucial to initiate a behavioural response. Recently, the microbiome [4] of the scent gland has also been brought into focus to address differences in musk remedial quality.

Despite numerous research on isolation/identification of various substances in musk, profiling of high-value volatiles proved challenging. The metabolomic profiling was performed in several musk samples from wild, and open-cage captivity musk deer, together with artificial (herbal), blended musk, and a traditional medicine containing musk.

Shotgun analysis with GC-MS provided complete emission profiles and the principle components they contain. It also showed the difference in the volatile composition of various musks and musk-like products, providing the first time such data for many of these products.

We also aimed at advancing our analytical approach to yield more in-depth identification by implementing 2D gas chromatography (GC) coupled with MS other low molecular compounds contained in musk. Strategies for the unconditioned identification of musk constituents using MZmine2 [5] are presented and discussed.

ABSTRACTS

Sven Dupre

Utrecht University, Utrecht, the Netherlands

How site and makers matter: Epistemologies of RRR research practices.

Performative methods are playing an increasingly prominent role in research into historical production processes, materials, and bodily knowledge and sensory skills, and in forms of education and public engagement in classrooms and museums. Such methods, which we refer to as Reconstruction, Re-enactment, Replication, Reproduction and Re-working (RRR), are used across fields in the humanities and social sciences, from history of science and technology to archaeology, conservation to musicology and anthropology, among other disciplines. Bringing together process and product-oriented RRR practitioners makes explicit the variant constellations of human agents and produced objects, thereby providing fruitful avenues for RRR research design. Moreover, confronting RRR in the historical disciplines with ethnographic experimentation allows RRR researchers to compare past and current creative practices rather than opposing the research agendas of historians and less historically inclined disciplines. We have adopted such interdisciplinary designed “Re-methods” to reconstruct lost colour worlds. Illustrated with examples of re-making red glass and black-dyed textiles, in this talk, I will reflect on the importance of site – the ‘field’ versus the laboratory – and the value of re-working with makers to the production of knowledge in RRR research practices.

ABSTRACTS

Ayelet Even-Ezra

Hebrew University of Jerusalem, Jerusalem, Israel

Rewiring the mind: Experimenting with medieval thinking and writing modes.

The paper will discuss methods of reconstruction and reenactment in the study of medieval thinking habits by presenting two cases: the practice of drawing of tree diagrams in the margins of manuscripts; and the practice of analogical mapping and allegoresis. I will present mine and my students' experimentation with drawing our own horizontal tree diagrams and the insights they contributed to my previous study (*Lines of Thought: Branching diagrams and the medieval mind*, Chicago University Press 2021), as well as my recent experimentation with analogical mapping and the construction of detailed allegories in texts and art objects alike. I will address the methodological problems in reconstructing past thinking practices with modern minds, and propose that difficulties of performance teach us about the role of training, habit and expertise in cognition, and therefore help us argue for its historicity versus universalist approaches.

ABSTRACTS

Johannes-Paul Fladerer^{1,2}, Anna Quehenberger¹, Franz Bucar¹, Olaf Kunert¹, Robert Weiss¹

¹ University of Graz, Graz, Austria

² Apomedica Pharmazeutische Produkte GmbH, Graz, Austria

Resins collected from wood ant nests as ancient antimicrobials.

During the last centuries, people from Austria collected resins from wood ant nests. These people were named '*Ameisler*' from the German word '*Ameise*' for ant. The collected resins were used to treat infections of wounds. In this research, we analysed those resins by preparative chromatography, GC-MS and NMR and compared their chemical composition and antimicrobial activity with resins from *Abies* species. The comparison of the antimicrobial activity against MRSA by microdilution assays revealed that resins collected from ant nests were more active than resins from the corresponding trees. In a further step, we were able to identify an acetophenone derivate as bioactive compound. To prove the antimicrobial activity of the acetophenone, it was synthesized and tested as pure compound. This way we could confirm that the identified acetophenone is the bioactive compound from ant resins responsible for its higher antimicrobial activity. This research is proof for the effectivity of resins collected by the ancient '*Ameisler*' in Austria.

ABSTRACTS

Hjalmar Fors¹, Nils-Otto Ahnfelt²

¹ Hagströmer Library, Karolinska Institutet, Stockholm, Sweden

² Uppsala University, Uppsala, Sweden

Experimental history of pharmacy public engagement and the senses.

The research project To recreate the medicines of the past entailed the reworking of two famous medicines: the classical antidote/universal remedy TheriacAndromachalis and the 18th-century universal elixir *HjärnesTestamente*, also known as Swedish Bitters. The project quickly gained traction in Swedish media. It even featured in an issue of the Swedish Donald Duck comic book (KalleAnka& CO #46 2020 pp. 5-14) in which Donald and his nephews visit the University of Uppsala to engage in experimental history of pharmacy. Our own laboratory work consisted of two aspects: the reworking of recipes and the chemical and sensory analysis of the resultant compositions. With support from an Uppsala University startup fund, we also developed a commercial version of *HjärnesTestamente*: a bitter amaro without medical effects based on original recipes. In the presentation I will discuss these various venues for public engagement, and how we came to the decision not just to produce research, but also to make and sell a reworked universal elixir to the public. I will also discuss how public engagement and the commercialization of this elixir generated unforeseen research results, allowing us to better comprehend the role of the senses in early modern pharmacy.

ABSTRACTS

Davit Gigilashvili¹, Sony George¹, Hana Lukesova², Margrethe Havgar³, Marianne Vedeler³, Hartmut Kutzke³

¹ Norwegian University of Science and Technology, Gjøvik, Norway

² University Museum of Bergen, University of Bergen, Bergen, Norway

³ Museum of Cultural History, University of Oslo, Oslo, Norway

A puzzling problem of the Viking age tapestry.

The tapestries found in 1904 in a burial mound near Oseberg farm in the South-Eastern Norway provide invaluable insight into the Viking Age – from textile technology used by the Vikings to their beliefs. The TexRec project, consisting of an international consortium and funded by the Research Council of Norway, aims for virtual reconstruction, interpretation and preservation of these textile artefacts. This highly interdisciplinary research effort covers different modules that address dyestuff analyses, investigations of the threads, interpretation of the motifs, conservation strategies, and development of a puzzle program for virtual reconstruction of the tapestries.

The tapestries from the Oseberg Find are highly fragmented. To interpret their motifs and uncover the stories that they are telling, we need to find the matches and arrange the fragments correctly in space. In simple words, a process similar to jigsaw puzzle solving is needed to identify the matching fragments and virtually reconstruct the original artwork. In this talk, we will present the latest results of an interdisciplinary work on computational puzzle solving for heritage textiles where archaeology and computer science come in synergy.

Reconstructing fragmented heritage artifacts requires intensive human labor. Recent advances in computational techniques demonstrate that part of this process can be automated to some extent, which will substantially facilitate the puzzle-solving process. We will present the use cases of different computational techniques for puzzle solving in different scenarios – from well-preserved modern textiles to highly fragmented and degraded Oseberg Tapestry. We also discuss related challenges and limitations of current computational algorithms.

ABSTRACTS

Peter Heering

Europa Universität Flensburg, Flensburg, Germany

Changing perceptions of the past – Understanding the practices of 18th-century experiments.

Historians have often characterised experiments based on the description and discussion by contemporary researchers. At first glance, this seems appropriate, as it avoids anachronisms. However, it has to be questioned whether the descriptions are reliable or whether factors may have played a role in the historical situation that led to a distortion of this description and, as such, are not necessarily historically perceptible. Analysing instrumental practices with the replication method enables researchers to develop different perceptions of the experiments and thus develop narrations that go beyond the classical accounts.

This does not only apply to classical, i.e., canonical experiments, which are part of today's scientific tradition and are typically still mentioned in textbooks. It applies equally to experiments that were either rejected in the historical situation or that were later discarded as irrelevant. The methodological approach leads both to a different perspective on the instruments and to different insights into the practice with these instruments. This makes it possible to develop an expanded and thus also modified representation of the historical experimental production and communication of knowledge.

In my presentation, I am going to address on the one hand experiments that were carried out in the context of the Paris Academy of Science and became canonical. Thus, we typically find representations in which these experiments are characterised as 'ingenious', and at the same time, it is suggested that the performance of these experiments is unproblematic.

On the other hand, I will discuss an example in which the experiments are rather to be seen as part of the culture of the Enlightenment – they do not (only) take place in the context of the Paris Academy, but especially in public social spaces and also have an educational function. In contrasting these two examples, it will then also become clear how experimental practices changed, but also how this change becomes clear precisely through the methodological approach of the replication method.

ABSTRACTS

Rafał Hryszko¹, Barbara Hryszko²

¹Jagiellonian University, Kraków, Poland

²Ignatianum University in Cracow, Kraków, Poland

Can medieval sweets be reproduced? Selected examples of confectionery reconstructions.

The roots of modern confectionery seem to date back to the late Middle Ages. It was during this period that sugar- and honey-based substances produced by apothecaries of the time acquired a new role in addition to the therapeutic properties that were attributed to them. The taste and appearance of individual products gained an increasing significance. The procedures used in their production stemmed from centuries-old medical and pharmaceutical traditions that dated back to Antiquity and were creatively developed within the Muslim culture and then adopted and popularised by Western European medicine and, above all, pharmacy. In the Middle Ages, these procedures were considerably simplified, and – without completely losing their medicinal function – the products became sweets.

Information about the types of late-medieval sweets, their composition, and the procedures used in their production can be obtained by analysing preserved recipes, both dispersed and gathered in separate collections. The latter include a 14th-century Catalan compilation entitled *Llibre de totes maneres de confits*, which contains 33 recipes for various confectionery products made with both honey and sugar, such as jams, candied fruit, nougats, and marzipans, as well as a 15th-century French recipe book by an unknown author, included in the unpublished Cognier's Manuscript, which is kept in the Departmental Archives in Le Mans in France and offers 22 recipes for sugar confectionery (including jams, sugar paste sticks, candied ginger, pine nuts, and hazelnuts). The thirteenth chapter of *Lumen Apothecariorum*, entitled *De Artificio Zuchari* by the Piedmontese physician and apothecary Quirico de Augustisis particularly noteworthy here. It was published in Turin in 1492 and contains 31 recipes for various types of sweets, candied fruits, jams, marzipans, and jellies, as well as detailed instructions on how to colour sugar into selected colours and how to mould sugar mass into certain shapes, e.g., people, animals, and objects.

The aim of the presentation will be to summarise the conclusions drawn from the authors' activities in the area of confectionery reconstruction, with particular emphasis on the processing and forming sugar mass.

First of all, the results of source research will be presented, including those obtained through a comparative method and analyses of selected iconographic sources. Next, an attempt will be made to translate the old principles and methods of confectionery production into the language of contemporary confectionery. The final result will be the presentation of the results of experiments conducted in the reconstruction area.

This characterisation will also be used to assess the practical possibilities of reconstructing selected confectionery recipes from the late-medieval period as well as to look for answers to the question of the level of reliability of confectionery products obtained with the use of contemporary ingredients, tools, and production methods.

ABSTRACTS

Andreas Junk

Europa Universität Flensburg, Flensburg, Germany

Can practice with an instrument add to the character of an instrument? A case study of the Helmholtz Telestereoscope.

One of the aims of our replication method is not just to build a replica of a historical apparatus but also to practice with it and to verify the findings of the contemporary actors. In my paper, I want to tell you about our experiences made after the successful reconstruction of Helmholtz's Telestereoscope from 1857. The then already well-renowned physicist and physiologist devised the apparatus to overcome the alleged limits of man's angular resolution in binocular vision. From his results, he aimed to infer that the angular resolution is indeed at a certain limit indeed, but the ability of a person to experience spatial impressions could be enhanced from distances around 250 metres to up to 3 kilometers.

When Helmholtz's claims were put to the test by use of our replica, we could not verify all of the inventor's suppositions. Just as Helmholtz's contemporary fellow scientists who tried to make the experiences, some of the claims could be verified by us, others couldn't. But one of the results made by one of our students raised an interesting question: did we test the limitations of human vision or limitations of our replica? And what would the analysis of these findings mean for our research?

ABSTRACTS

Lesley Kerman

University of Plymouth, Plymouth, UK

Reconstructing Duccio – A case study.

This session offers a personal account of the full-scale reconstruction I made of the reverse of Duccio's *Maestà* – the *TwentySix Scenes of the Passion*. The aim is to demonstrate the value of undertaking such a project and will exemplify the key distinctions between a copy and a reconstruction.

The painting was famously carried through the streets of Siena on its way to the Cathedral on 9th of June 1311. In making the reconstruction, my plan was to see what could be learnt from the painting that might develop my practice as a figurative painter with an interest in narrative.

I will talk about the discoveries made about the painting over the fourteen months it took to reconstruct. These concern the way in which Duccio set about making the work and placing it in the religious and political context in which it was made. Duccio conveys a range of emotional attitudes in the work. His articulation of space uses the emerging discovery of perspective alongside the affirmation of the reality of the picture plane.

These discoveries are documented in my book *Reconstructing Duccio* published by Peter Foolen Editions, Eindhoven. My reconstruction was first exhibited in Capel Bethel, Aberystwyth, Wales. It has also been exhibited in Wells Cathedral, Exeter Cathedral and Ely Cathedral (forthcoming).

Taking on the identity of another artist brings great insights into the momentum of one's own practice as an artist. I will reference Borges' story *Pierre Menard, Author of the Quixote*, Richard Hamilton's reconstruction of Marcel Duchamp's *Large Glass*, a process that I witnessed as a student, and the reconstructions undertaken by my students at Exeter College of Art and Design, which have been archived by Tate TGA 20161/3.

ABSTRACTS

Karolina Klimek

Muzeum Ziemi Niemczańskiej, Niemcza, Poland

Challenges of historic gingerbread forms from Silesia.

Silesian Gingerbread House –a tiny museum and a hand manufacture is an attempt to restore the memory of the gingerbread craftsmanship's traditions to the historical region of Silesia. Since, in the common consciousness of the present inhabitants of the area, the knowledge about it does not exist at all, it was necessary to reach to authentic, unquestionable sources and planning, which implemented, in the preparation phase of the project, long-term oriented undertakings. When creating the tools, special reference was made to the historical methods of gingerbread making, both in terms of forms and recipes. It is a formula that requires tedious queries, collecting archival sources, historical objects and comparative analyses. Therefore, it is still an ongoing process of exploration and interdisciplinary research. One of the areas of PIERNIKARNIA ŚLĄSKA's interest is, for example, the iconography of Silesian gingerbread moulds, which are an expression of the pictorial, symbolic and allegorical tradition of a given period, as well as the position of gingerbread in the customs and culture of Silesia. One of the challenges of reconstructing the historic, figural gingerbreads turned out to be shaping the wooden forms, as well as their appropriate use, as such.

ABSTRACTS

Martin Kluge

Basler Papiermühle, Basel, Switzerland

***Elixir ad longam Vitam*. A fictional recipe based on a very real background.**

The creation of my own *Elixir ad vitamlongam* was preceded by years of exploring the genre of recipe literature. This genre is characterised by the fact that authors with a great deal of practical knowledge address a readership for whom they assume this knowledge to be known. Through my own practice, I have tried to track down this implicit knowledge.

The greatest desideratum in medical prescriptions, however, are references to healing concepts and underlying ideas of health. In order to track these down, inspired by the interdisciplinary collaboration with the artist Sarah Craske, I once utilised the freedoms of art. By reversing the perspective and starting from healing concepts from the 15th to 17th centuries, I developed a fictional recipe – similar to a historical novel – that is closely based on historical sources.

In this case, the recipes for *Elixirs ad longamvitam* or *Aqua vitae* proved to be ideal. There are countless variations of these, most of which differ fundamentally and cannot be understood as traditional versions of an original recipe. What they all have in common is that a large number of ingredients are required and, in the case of aqua vitae, a distillation takes place at the end at the latest. One of the reasons for the wide variety of recipes is the attempt to extract as much vitality as possible from the locally available raw materials and to use this as a life-prolonging medicine. The preparation therefore depends on the individual circumstances and leaves room for personal creativity.

The aim I had set myself was to invent a recipe that reflected the mentality of the late Middle Ages and early modern times as closely as possible, with the ideas of the macrocosm and microcosm and concepts in analogies. I was free in my choice of ingredients to avoid legal restrictions and health concerns. Ultimately, of course, it was about realising the idea without compromise.

ABSTRACTS

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Reconstructing a Byzantine deodorant: Ways and reasons.

In our talk we intend to present a sample of our research concerning ancient and Byzantine cosmetics, namely powder deodorants limiting natural perspiration, the so-called *katapasmata* (καταπάσματα). Our primary aim is to retrieve information on the choice of ingredients and the method of manufacturing such preparations, focusing on a selected recipe preserved by Aetius of Amida (who was a 6th-century AD Byzantine physician) in his *Librimecinales*. Originally, however, the said prescription comes from the work entitled *Kosmetika* (Κοσμητικά), penned by Criton of Heraclea (1st/2nd cent. AD). The material is embedded in medical literature since, both, in Antiquity as well as in Byzantium, cosmetology constituted a branch of medical knowledge. The recipe is part of cosmetology lore also present in other extant medical treatises.

Our source text includes a detailed recipe for the deodorant, listing exotic aromatics (e.g., cassia-cinnamon, Nepalcardamom, costus, spikenard) and a mineral substance (alum), which gives us an insight into the core deodorising substances at the disposal of ancient and medieval physicians, and (together with the information on its application whereabouts) enables us to identify the group the cosmetic was targeted at.

Comments included in the formula, together with other pieces of topical data coming from other medical literary sources, allow us to elaborate on the process of pulverising necessary solids (in a mortar), ways of using liquids for the sake of properly combining the solid ingredients, the shape of the final product (a pill) and reasons for selecting it, modes of storing the cosmetic, preparing the deodorant before its direct use (re-pulverising), and whereabouts of its application (baths).

The contents of the recipe also allow us to conclude that the components of the cosmetic were not chosen at random but according to the rules of *materiamedica*, i.e., a detailed and in-depth knowledge of their properties, specified long before the time of Criton and Aetius by specialists in the line. The said theory also allows us to explain why such a combination of ingredients was thought to be effective.

Straightforward as the formula may seem for us as its translators, it is not equally easy for us as its commentators, since there arises a question whether we have properly interpreted the reason for Criton's and Aetius' technical terms usage. Our dilemma concerns first of all the shape given to the cosmetic, and validity of the *materiamedica* theory in the light of contemporary scientific research.

ABSTRACTS

Erzsébet Kovács

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Painkiller, sports cream, massage oil, hand warmer, or all in one? The experimental archaeology of the medicated ointments called ἄκοπα (*acopa*) by Ancient Greek and Roman medical recipes.

Among the hundreds of medical recipes written in Vulgar Latin and preserved by the Carolingian abbey of Lorsch, later edited and translated by Ulrich Stoll, we find a group of recipes towards the end, all bearing similar names: *acopum*, *murocopusConstantini*, *lysoponium*, *adcopon* [!], *lisoponion* [!], *myrocoponlysoponion*. What kind of a drug or ointment could this have been?

This Lorsch recipe promises relief from pain, tension and freezing in the winter, and adds that *hoc Augusta utebat[ur]*, “this was much used by the Empress.” Almost the same recipe was recorded by not only Marcellus Empiricus (5th century AD) but also ScriboniusLargus (1st century AD), which alone indicates the scope of these recipes through Antiquity until the early Middle Ages. And in fact, I would like to briefly trace the evolution of Ancient Greek and Latin ἄκοπα, *acopa* recipes as well as their most characteristic ingredients from the simple rancid old olive oil and pitch (discussed by both the Hippocratic author and Galen) to the various refined variations and combinations (so refined as to have been allegedly used by the elite women of the Emperor's family), all of them apparently used for weariness, pain, stiffness from the winter cold, rheumatic pains, rigidity, gynaecological disorders and even more.

In order to be able to correctly interpret these recipes, I would like to first put them in context by considering the opinions of natural philosophers and medical authors on the physiological effects of movement, exertion, and cold. Having reconstructed historical disease aetiology, I would like to show the possible uses of experimental archaeology and reconstruction of the recipes themselves. Recreating a few choice recipes with safe ingredients, comparing them to similar modern products, and possibly also trying them on, we are able to get an impression of how these ointments might have felt on the skin, and make an educated guess about approximating the ancient lived experience, which then might tie in with the historical understanding of these symptoms.

ABSTRACTS

Hartmut Kutzke

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Are we sure? Written sources on artistic materials and the phenomenon of ghost pigments.

Besides chemical analyses of artworks, written sources are an important resource of knowledge on historical artistic materials and techniques. Written sources include publications in journals, technical literature, patents, archival materials, notebooks, etc.

To reproduce historical recipes and analyse the products became an important approach in conservation science and historical art history. Those studies help to develop preservation strategies, to answer questions of dating and authenticity, and are essential for revealing forgeries.

For the latter, one key question is whether an identified material matches the time period in which the artwork is claimed to be produced. A sound knowledge on the periods materials were produced and available is here essential.

Written sources are the main – and actually only – source to determine beginning and ending (for example, the banning of lead white) of a production process. Variations of manufacturing processes may be tracked by chemical analyses, too, allowing a more precise dating.

However, not in every case the situation is such clear as one may think. In particular, there exist a number of materials, mostly pigments, which are mentioned in the contemporary technical literature but were not found in artworks yet. We call them 'ghost pigments' or 'non-existing pigments'. Some examples are: Titanium Green, copper citrate, copper green, some tin compounds, oil blue etc.

In a project on ghost pigments, historical recipes are collected, reproduced in the laboratory and characterised by means of SEM/EDX, Raman and infrared spectroscopy, XRD, and other analytical techniques. We are aiming to make conservators and other experts aware of the possible occurrence of less-known pigments.

ABSTRACTS

Michelle Mercier

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Thomas Young's experiments on diffraction and interference: How to communicate what has been seen?

Thomas Young (1773-1829) is widely known among physicists today for his double-slit experiment of 1807. However, the British natural philosopher and physician carried out many other optical experiments during the course of his extensive work on the wave nature of light and the principle of interference. Today, the basic principles of these experiments are well-known; however, the experiments performed by Young are not. Young's published descriptions are difficult to understand and leave several questions unanswered both in respect to the details of the apparatuses he used and the observations he made in performing the experiments. As part of my PhD project, Young's experiments on diffraction and interference are analyzed by using the replication method.

What and how could be seen in the context of his time, is not easy to understand at all—I first had to learn how to see: A skilled observer can, for example, see a certain number of stripes of a certain colour, of a certain shape and of a certain arrangement in the created images when performing Young's experiments. An unskilled observer, on the other hand, cannot see these characteristics and cannot find any correspondence between Young's descriptions of these and his or her own perception. Even the most thorough descriptions cannot make up for a lack of the skill in this respect.

Experimental activities and observations also had to be documented and communicated. But what is decisive or noteworthy is also not easy to define, to record and to communicate 'vividly'—I was literally lost for words: It is possible for a skilled observer to see the specific characteristics or shapes in the images created and to make a useful documentation during experimentation. But how can experimental findings be communicated as they were seen by the skilled observer, but could never be seen by an unskilled observer and cannot be fully and clearly described by using verbal terms and expressions?

In this talk, I will describe the experiences I made (experimentally) and focus in particular on the difficulties in communicating what has been seen and the development of an adequate way to communicate experimental findings.

ABSTRACTS

Lawrence Principe

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Finding sources of alchemical imagery in experimental results.

Medieval and Early Modern alchemy are famous for their wealth of often bizarre imagery, expressed both in textual and pictorial format. Many explanations of the sources for such imagery have been proposed over the past century, some more plausible than others. The origin of images and metaphors--whether alchemical or otherwise--obviously resides in local and temporal contexts of culture, society, and personal experience. This talk will provide examples of the origins of some alchemical imagery in the direct laboratory experiences of practicing alchemists themselves. The sensual experience of chemical transformations, then as now, can often be surprising and vivid, providing visual and other experiential foundations for expressing these transformations in specific, yet still culturally-embedded, metaphorical language.

ABSTRACTS

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Fool me twice: Perspectives and goals of Arabic recipes for entertainment and deception.

The Medieval Arabic corpus of sources dealing with entertainment and deception offers a privileged point of view to understand the material reality behind the text. This corpus, in fact, displays side by side the steps that the performer has to take, the instructions for the inspector in charge to unveil fraudulent practices, and advices for the audience to wise up against such deceptions. As for the cunning performers of various deceptions, who lived off swindles and petty crimes, they were actually endowed with a refined knowledge of natural properties, a true 'street science', each from his own point of view and with his own agenda. These different points of view influence the composition of the texts, along with the kind of information they may yield. A close comparison of these perspectives may inform the replication in a way that may better reveal the 'kernel of knowledge' behind the procedure and the performative component that accompanied it. Such sources, however, do not only inform about the knowledge of nature and the way in which performers, swindlers, peddlers, and their audience conceptualized it. Looking through the glass of these procedures and their goals, one may inquire into social and material history, as they leverage on common sense, shared needs and aspirations.

ABSTRACTS

Jennifer Rampling

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Signs and Tokens of Alchemical Change.

Alchemical texts often teach their readers to replicate and observe “signs and tokens”: chemical alterations in their materials which were thought to indicate significant change. This preoccupation with visible signs (or signa) extended to the elaborate cover names used to disguise alchemical processes and materials, from the “Crow’s Bill” that signalled putrefaction, to the array of Green Lions, Red Dragons, and Grey Wolves whose names hint at their identities as philosophical solvents made from specific ingredients. Since these tokens were designed to be replicable, it should also be possible to reconstruct them in a modern laboratory. This paper examines my own attempts to reconstruct alchemical tokens at the beginning, middle, and end of practice, focusing on fifteenth- and sixteenth-century England.

ABSTRACTS

Enes Tepe

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The quadrant – A (not so) timeless timekeeping instrument.

Portable quadrants used to be a prominent class of astronomical instruments for about a millennium. Especially astrolabic quadrants, whose principles are derived from plane astrolabes, took an important role in the history of timekeeping. For my PhD project, I am researching two astrolabic quadrants, which can be considered the state-of-the-art instruments of their respective cultures, from the 14th-century Damascus and the 17th-century London. One aim of this project is cross-cultural analysis of timekeeping practices in the Islamic World and Western Europe over well-established traditions. A central part of my analysis will be based on practicing with reconstructed instruments in accordance with the replication method.

The historical instruments that were chosen for this project were intended to be used in predetermined time periods and geographical regions. Therefore, in order to be able to analyze the practice with the respective reconstructions in an unintended place and centuries later requires necessary adaptations. Some of these adaptations are solely time-variant, whereas some of them are also location-variant. Whatever the nature of these adaptations is, they are unavoidable for reenacting the historical timekeeping practices.

One of the quadrants is an almucantars / trigonometric quadrant made by Muḥammad ibn Aḥmad al-Mizzī (d. 1349) and designed to be used in Damascus region. For this instrument, we initially had two candidates, one of which has a production date of 1327 and now kept in the collection of The British Museum, London, whereas the other one was made two years later and now in the collection of David Museum, Copenhagen. Since these two quadrants are of different variants, I faced different problems with each of them during the selection process. The other instrument is a large quadrant of inverse projection and sector made in 1658 by Henry Sutton (d. 1665) to be used in London and present in the collection of History of Science Museum, Oxford. This instrument requires less adaptations since the intended place and time of the use is closer to 2024, Flensburg. Nonetheless, we can illustrate both some elements which change entirely and other elements which remain the same even after centuries, particularly using the almanacs on it. Furthermore, even though some elements on the instruments are not subject to change, our interpretations of them will be changing both technically and contextually during our reenactments. Using stars, which are not indicated on the instruments, for reckoning time is an example for such adaptations on the practice.

In this paper, I am going to show some examples about how the reconstructions require to be deviated from the historical astrolabic quadrants.

ABSTRACTS

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Reconstruction of *Theriac*, *Elixir Proprietatis* and other (pharmaceutical) drugs – Practical issues.

In our presentation, we explore the practical challenges involved in the reconstruction of Theriac, Elixir Proprietatis, and other historical pharmaceutical drugs used in the Polish-Lithuanian Commonwealth. Interdisciplinary collaboration between two historians and two pharmacists was essential for navigating the complexities inherent in reconstructing early modern medicines. One of the primary challenges was establishing a common language of communication between experts from disparate fields, each with its own specialized terminology and methodologies. Overcoming this barrier required mutual respect, patience, and a willingness to bridge disciplinary divides. Deciphering historical texts posed another significant hurdle in the reconstruction process. Historical documents often contained cryptic or outdated language, making bilateral interpretation a daunting task. However, by combining historical expertise with pharmaceutical knowledge, our team could unravel the puzzles of early modern recipes, uncovering valuable insights into medical practices of bygone centuries. Sourcing authentic ingredients presented yet another challenge, as many of the substances mentioned in early modern texts were no longer readily available. Thus, methods, such as botanical and chemical analysis, had to be involved to identify suitable substitutes while maintaining historical accuracy. Furthermore, adhering to historical preparation methods while conforming to contemporary standards required careful navigation of practical (and sometimes ethical – see the use of opium or CITES-regulated materials) considerations. Ultimately, the reconstruction of Theriac, Elixir Proprietatis, and other selected historical drugs from the Polish-Lithuanian Commonwealth offered us a unique opportunity to glimpse into past medical and apothecary practices. Yet, by combining historical insights with scientific rigour, the reconstruction of early modern pharmaceutical formulations transcended mere scientific inquiry; it also engaged the senses, offering a holistic understanding of historical medicinal practices.