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Materiality of The Colour

- Pigments in Oil Painting And Their
Symbolism in My Artistic Work



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This thesis explores the various groups of pigments that are used in oil painting in different historical periods of art development. The main aim of this work is to provide a detailed historical investigation of pigments in oil painting and to create my own palette consisting of a limited group of pigments that would work as a baseline in my future artistic work process.

Main objectives of this work are the expansion of my knowledge on pigments and gaining more experience in paint-making; compilation of my own universal palette on the basis of traditional historical methods of paint-making; and the creation of an oil painting using primarily hand-made oil paints. Subsequently I'd like to take a deeper look at my own relationship with colours and textures, and certain meanings and symbols I tend to associate to them.

Keywords: pigments, paint, oil paint, symbolism

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Tässä opinnäytetyössä tarkastellaan erilaisia pigmenttiryhmiä, joita käytetään öljymaalauksessa eri taiteen historiallisen kehityksen aikakausilla. Tämän työn päätavoitteena on tarjota yksityiskohtainen historiallinen tutkimus öljymaalauksen pigmenteistä ja luoda oma, rajatusta pigmenttiryhmästä koostuva paletti, joka toimisi lähtökohtana tulevassa taiteellisessa työprosessissani.

Tämän työn päätavoitteena on laajentaa tietojani pigmenteistä ja saada lisää kokemusta maalintekemisestä; oman universaalien paletin kokoamisen perinteisten historiallisten maalien valmistusmenetelmien pohjalta; ja öljymaalauksen luominen pääosin käsintehdyillä öljymaaleilla. Myöhemmin haluaisin tarkastella syvemmin omaa suhdettani väreihin ja tekstuureihin sekä tiettyihin merkityksiin ja symboleihin, jotka minulla on tapana yhdistää niihin.

Avainsanat: pigmentit, maali, öljyväri, symbolismi

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1. Introduction

The purpose of this thesis is to explore different pigments, their usage in oil painting throughout history and contemporarily, as well as to analyse how my own artistic work is impacted by those materials, and what symbolism I assign to certain colours and textures.

As an artist and painter, I've been drawn to this subject because material and technical aspects of making an artwork have been especially enthralling for me, particularly when it comes to dry pigments, their unique qualities, and their interaction with drying oils. I hold the view that discussing the materials used in artmaking is relevant. It's important to remember the limitations, possibilities and potential impacts of different substances and technologies on art produced throughout history and today.

Thus, by deepening the understanding and the feeling of those materials I hope to achieve a workflow in which I'm able make more conscious decisions that lead to more desirable outcomes in my future artistic endeavours. This exploration nevertheless cannot be considered as belonging to the natural sciences, although there will be a certain number of references to physics and chemistry that are relevant to the processes that are being described.

2. Pigments in oil painting

2.1 History, origin, and pigment codes

According to several different sources, such as *The Artist's Handbook Of Materials And Techniques* (Mayer 1940, p. 29) for example, pigments are finely powdered colourants that, when mixed with liquids, add colour to various materials without dissolving in them. Pigments can be categorised into two major groups: inorganic (mineral) and organic. Inorganic pigments include native earths (such as ochre and raw umber), calcined native earths (like burnt umber and burnt sienna), and inorganic synthetic colours (such as cadmium yellow and zinc oxide). Organic pigments are derived from vegetables (e.g., gamboge, indigo, and madder), animals (like cochineal and genuine Indian yellow), and synthetic organic sources.

A pigment code, also known as colour index, is a unique identifier that is given to pigment according to its serial number, hue, and recognised usage class. Pigment codes are abbreviations of colour name groups followed by a number. Meanings for each pigment code abbreviations are as follows:

PB - Pigment Blue

PBk - Pigment Black

PBr - Pigment Brown

PG - Pigment Green

PO - Pigment Orange

PV - Pigment Violet

PW - Pigment White

PY - Pigment Yellow

Additionally, some pigments are listed as “Natural”, having N instead of P in their indexes, NR for Natural Red, and NY for Natural Yellow, for example.

While commercially available pigments, paints, and colour materials can have many different names depending on how the manufacturer has decided to call them, a pigment code stays the same, and can be easily identified. Checking the pigment code helps artists ensure they are getting the pigment with desired properties, regardless of the commercial name. Utilising The Color of Art Pigment Database for pigment code verification proved to be immensely valuable during my research. This comprehensive resource offers an extensive collection of information on various pigments, making it an essential tool for artists, researchers, and professionals alike.

A system of standards for testing, that has been established by the American Society for Testing and Materials (ASTM for short), is being used by many artist material manufacturers to test and ensure their qualities, such as lightfastness among many other aspects in relation to pigments. Pigments' lightfastness is graded the following way: I - Excellent, II- Very Good, III- Fair, IV- Poor, V - Fugitive or Very Poor (Mayer 1940, p. 12-13)

2.2 Brief discussion of the chosen pigments

During the initial stage of working on this thesis I had the idea of making my own pigments. However, after taking into consideration the goals I have set for myself for this project, I've decided to forego the stages of the acquisition of necessary substances and minerals and the following chemical treatment of them, as well as grinding them into a state of fine enough powder that could be considered a pigment. Those aforementioned processes are undoubtedly interesting and would deepen my understanding in this area even more, but going through with such an endeavour would require a lot more time and research, therefore extending outside the boundaries of purpose of this thesis.

The idea of recreation of historical palettes is by no means something that hasn't been heard before. For example in the article *Recreating Rembrandt's Colour*

Palette With Modern Pigments Evie Hutch delves into Rembrandt's artistic techniques, examining the composition of his colour palette and proposing current options to replace the obsolete pigments (Hutch, 2022). This article had a big influence on my approach to this subject. Mainly I was trying to take inspiration from known historical palettes, such as colours of prominent painters of the Dutch Golden Age, and to better understand the logic behind their assembly. My objective, nevertheless, wasn't to create a replica or an imitation of aforementioned colour choices.

When I was approaching the question of what would be the best suitable pigments for this work, at first one of my main objectives was to create a palette that would primarily consist of pigments that are lightfast (according to the system of standards developed by the ASTM - grade I or II) and as non-toxic as possible. Regarding toxicity, I was gathering information about each pigment either from *The Color of Art Pigment Database*, or from the pigment catalogue provided by Mayer (Mayer, 1940, p.35-62).

After thorough consideration I've made a decision to compose a palette made up of the following pigments: Titanium White (PW6), Bismuth Vanadate Yellow (PY184), Yellow Ochre (PY42), Raw Sienna (PBr7), Burnt Sienna (PBr7), Pozzuoli Red (PR102), Pyrrole Red (PR254), Cassel Earth (PBr7), Iron Oxide Black (PBk11), Nicosia Green Earth (PG23), Ultramarine Blue (PB29). Later on I've added Phthalo Blue (PB15) to the list in order to use as a component for an attempt at imitating the hues of Cobalt Blue (PB28) and Cobalt Chromite (PB36) also sometimes referred as Cobalt Turquoise. All the pigments were purchased from Kymin Palokärki, a Finnish company/store, based in Porvoo, in Finland.

2.3 Drying oils and their properties in painting

Drying oils belong to a class of vegetable oils that have the ability to form a tough, adhesive film when exposed to air, resulting in a solid, elastic substance. This process of drying occurs through oxidation or absorption of oxygen from the air,

accompanied by complex chemical reactions, leading to a new substance with distinct physical and chemical properties that cannot be reversed. The drying power of these oils is proportional to the amount of unsaturated fatty acids present and is characterised by an increase in weight or volume due to oxygen absorption, partially offset by the loss of by-products in gaseous form. This definition is in correspondence to several sources on artist's materials - such as *Painting Materials: A Short Encyclopaedia* (Gettens R.J., Stout G.L. 1942, p. 18), *The Artist's Handbook of Materials and Techniques* (Mayer R. 1940, p. 169). The vast list of drying oils include but is not limited to: linseed oil (one of the most frequently used), safflower oil, poppy oil, walnut oil, and sunflower seed oil.

I've chosen walnut oil instead of linseed, even though it's the one that is the most recommended, because unfortunately I've developed a strong sensitivity for the smell of linseed oil, which made using it in painting almost impossible. To me walnut seemed to be the best option to replace it, because of its milder smell and a softer more satisfying flow. Walnut oil also doesn't yellow as much as linseed oil (Mayer,p.175), but it forms a weaker film on a surface. Overall many experts, including Gettens, Stout, and Mayer, tend to view walnut oil as inferior to linseed oil regarding its quality, and because there is a higher risk for cracks to form in it over the time. I, however, would not count walnut oil as one to be avoided entirely because of the properties forementioned. The longevity of my paintings is something of a concern to me, nevertheless the effects of walnut oil, such as more subdued blending and the overall texture of the paint, were a bigger priority for me in this project.

3. My own process of paint-making

“The development of our modern industrial system based on an economy of mass production makes it quite understandable why it is impossible for the producer of a raw material that is sold daily in freight-car lots to turn out with scrupulous care the insignificantly few barrels of his product that the artist of the world consume annually. One of the contributory causes of the decline of standards for materials at the same time that advances in technology and knowledge made it possible to improve quality was the development of the paint and colour industry from one which produced materials largely used for decorative purposes to one whose products are primarily used for large scale industrial or protective purposes. Pigments, oils, and other products, highly satisfactory for industrial purposes but of a quality inferior to that demanded for artists’ use, are made in enormous quantities. The superlative grades are produced on a much smaller scale and are not so widely available.”

(Mayer, 1940, p. 9)

3.2 Process documentation



Picture 1. Materials and tools

Tools and materials needed for mixing oil paint are shown on Picture 1.: a glass palette with matte finish, a palette knife, a glass muller, refined walnut oil, dry pigment powders, aluminium tubes, and a pipette for more controlled addition of liquid oil into pigment powder.

A well comprehensive guide to making oil paints by hand can be found for example in Margaret Krugs book *An Artist's Handbook, Materials and Techniques* (Krug 2007, p.218-219), and it proved to be quite helpful in this process. Another useful resource on the matter was found on Jackson's Art Blog website - an article by Julie Caves *Making Your Own Oil Paint With Jackson's Pigments* (Caves, 2022). The mechanism for paint-making is fairly uncomplicated, and it has stayed almost unchanged for centuries. Basic outline of the process goes as follows: after putting dry pigment powder on a matte glass palette, one should pour a small amount of drying oil into it, followed by working the oil into the pigment powder until they form a paste-lake texture. Then the paste can be mixed even further with a use of a glass

muller, until desired consistency of paint is achieved. When paint is ready for use it should be put in an airtight container for storage, for which I used aluminium tubes.



Picture 2. Mixing of Pozzuoli Red



Picture 3. Mixing of Raw Sienna

Working on the method described earlier, which I will later write, I still moved very intuitively and situationally, because the instructions, for example, were for linseed oil, and I used walnut oil after all. Besides, on the one hand, I wanted to preserve the relationship of a kind of study, consideration and repetition. But on the other hand, there was something that I still wanted to do in my own way, and in the end - isn't this one of the advantages of creating your own paints? After all, you can control the texture and other aspects, such as fluidity, viscosity, hardness, consistency.

I probably assumed that if I made the paints myself, I would have a special relationship with them, unlike ready-made factory paints. It is difficult to explain, but for me, each pigment seems to have its own character, its own individuality. However, over the course of the time, the whole process became very stressful and rushed, and I felt that I was too abstracted from all of this, so I was focused only on finishing the work on time.

3.3 Results

After all the materials and equipment were gathered and were ready to be used, I began to work the stage of the production of oil paint in mid-November of 2023, and it took me several weeks to produce 12 tubes of paint varying in volume from approximately 40 ml to 60 ml (picture 4.). I must admit that the working process was as equally enjoyable as it was physically demanding.



Picture 4. Oil paint ready for use.

I enjoyed making Bismuth Vanadate Yellow and Pyrrrole Red, but Burnt Sienna and Cassel Earth didn't turn out that well, unfortunately, because their texture felt like toothpaste, and was very hard to use unless the paint was diluted with a large quantity of walnut oil. For this reason I think it's better to use a different pigment or just buy a ready-made one, because I feel like it is much harder to achieve the consistency of the paint that I prefer to work with, while mixing paint by hand in comparison to machinery used in paint factories. Nevertheless it was an interesting experience.

4. Painting “*Aurum nostrum non est aurum regum*”

4.1 Influences and context

As any other artist I've been influenced by the time I live in and the cultural environment around me through my life, be it a conscious decision to take in an inspiration or just a passive impact taken in on a subconscious level.

When I was working on *Aurum nostrum non est aurum regum*, I drew a lot of inspiration from several artists of the Baroque period, such as Rembrandt Van Rijn, Anthony Van Dyck. In the case of Rembrandt I strongly relate to the sensitivity and emotions that show through his work throughout all of his life, as well as his handling of light and shadows. Van Dyck on the hand has painted many portraits in which, strangely, I can see parts of myself in their character, or maybe there is something about them that I strive to be like. Another aspect is that I feel a strong resonance with their love for their craft, because I recognize drawing and painting as hard work.

The other sources of inspiration for me are magic and occultism. I have the following association in my mind regarding this: the more an artist puts his soul into his work, his painting, the more mystical depth his paintings acquire. In this sense another artist who greatly influenced me, if not stylistically, then, instead, at the degree of fascination in mysticism and something otherworldly, was Hugo Simberg.

I recognize that a lot of the artistic influence I draw comes from completely different times from the world I live in. But also don't try to replicate something that has inspired me, nor do I think about art history as a straight line of continuation with a clear progress towards something. The most important thing is an emotional connection and my intuitive interpretation of the messages in those artworks.

4.2 Application of handmade oil paint and painting process

After an initial drawing of a composition was completed, I began to work on a monochrome, grisaille, layer. In traditional indirect oil painting technique grisaille is a monochromatic layer upon which after it is completely dry a coloured layer is applied. This method allows for a better definition of shapes and volume, since there is no distraction by the colours. Although for the majority of my time as a painter I've used a direct method of painting or the mix of those two. However, since one of my objectives was to research and to practise historically traditional ways of painting, I've decided to include elements of it in my work.



Picture 5. Grisaille stage

Following the completion of the grisaille-layer, I started working on filling the image with colours, following with utilisation of glazing technique. A glaze is a thin layer of paint heavily diluted with either oil or a painting medium, which allows a painting layer beneath it to be seen through (Gettens & Stout 1942, p. 25).

Bismuth Vanadate Yellow and Pyrrole Red came to be most pleasant in handling not only during the paint preparation stage, but during painting as well, especially while I was working on the sunlight showing through the trees in the background.

I was particularly delighted by the range of hues that can be achieved by mixing Bismuth and Pyrrole together as shown on Picture 6.



Picture 6. Painting in progress, working on a coloured layer

One of the colours that I felt like it was missing from my palette while working on the glaze, was a deep warm transparent brownish yellow. I was using it extensively in many of my previous works, and I underestimated how much it was needed here. It suits perfectly in creating an atmosphere of a late sunset with golden light. That is another element from the 17th century painters' palettes that I'm very fond of. Although during that period painters used a colour named Stil de Grain, which was quite fugitive, because it was made from unripe berries of buckthorn, making it a dye by nature (Hutch, 2022). There are many modern pigments that could be used to

substitute it, for example PY83, PY110, PY139, PY129. In my case I unfortunately had no other choice but to use a couple of ready-made oil paint tubes (Winsor & Newton Indian Yellow PR101, PY139 and Green Gold PY129) to imitate Stil de Grain, that I had purchased in the past, partly because it's harder to come across previously mentioned pigments in dry powder form.

4.3 Exploration of the meanings and the symbolism

There are a few visual elements that I tend to use quite often when painting a picture. Yellow irises, interestingly shaped oak-trees, and colourful sunsets appear in my works pretty frequently. Aside from being fascinated by them visually, I often include them because I intuitively feel like they just have to be there, even though I wouldn't have a straightforward answer as to what meaning they bring.

It is usual for me to draw a rough sketch on canvas (in this case panel) before starting painting in oil. These sketches typically are not yet particularly defined, they more so serve as map markings, placeholders, for myself of the things I want to paint in the later stages. I rarely do a complete drawing separately beforehand, as many other painters prefer to do. For me that would look almost like a finished painting. Instead I prefer to keep developing the image as I go. It feels right for me to work in that way, because I see how the emotional rawness and rough movement are preserved way better with this approach.

When I first started working on this artistic part, I considered incorporating Tarot-inspired symbolism, but I eventually abandoned this idea in favour of other concepts. However, after creating small copies that could be rearranged, shuffled almost like cards. As a result, this process led to the creation of a Tarot-like element, where the meaning of the story changes depending on their sequence (Picture 7.).



Picture 7. Example of Tarot cards

When it comes to colours, it's hard to explain, but pure, unmixed blue is essential to me. I rarely use blue to deepen the shadows; instead, I darken them with black, brown, or other colours. The realistic aspect is sacrificed, but that way the image feels more authentic to me in the end. When blue isn't mixed, it's pure and the only blue on the canvas. The blue then stands out and feels more unique. Blue represents something more transcendent, a hidden essence of our world that shines through this electric blue.

For me, yellow represents both the colour of wealth and the colour of poverty. It is also the colour of something pleasant, close, and rather ordinary, as well as something extravagant. It is an earthly colour; actually, it is obtained from “earthy” ochres, sienna, and so on. If blue is a kind of the hidden underbelly of our reality, then yellow is like the threads with which it is interwoven, the threads that connect it all.

In other words, yellow is present in many aspects: I mix yellow to create various greens, oranges, or browns. In this particular painting, one of the characters has a golden sleeve, the panther has a golden chain, and the sun, with its yellow hues transitioning into orange and then red; the grass is yellowish-green due to the

evening light. On the one hand, referring back to the title, the gold seems somewhat unreal, yet it is the most authentic it can be because it is "gold in the air", the gold of the world, the "gold of life".



Picture 8. *Aurum nostrum non est aurum regum*, Jan Andrzej Sobell, 2024

“The alchemist's maxim, “Aurum nostrum non est aurum vulgi, “Our gold is not the gold of the masses,” suggests that to him “gold” meant not literally the metal, but rather esoteric knowledge, the highest state of spiritual development...”

(Biedermann 1989, p.154)

The name of the painting is a wordplay on a Latin phrase “*Aurum nostrum non est aurum vulgi*”, which can be interpreted as “*Our gold is not common gold*”, and it is referring to the alchemical gold, and the secrecy and exclusivity of alchemists. By changing “*vulgi*” to “*regum*” the meaning shifts to “*Our gold is not royal gold*”, implying that the gold depicted here is not real, but painted, theatrically artificial and is an illusion made by the sunset light, and thus has little to do with actual power.

The golden glove on one of the characters in the painting looks a bit like a theatre prop, and this artificiality and "unreality" of gold in the gilded sleeves, the gilded glove, and the theatricality of it all, including their poses, is inspired by the

traditional theatre that greatly influenced me during my childhood. In these performances, a lot of attention was paid to decorations and costumes. The gold in those costumes and decorations wasn't real but carried so much meaning that it felt even more real to me. It was gold on two levels, but not in its original form.



Picture 9. *Aurum nostrum non est aurum regum*, Jan Andrzej Sobell, 2024, second version of the composition

Those two men seem to me as being not very wealthy or powerful by themselves, but they rather represent jesters, actors, knights, criminals, and rebels. When I think about paintings depicting kings or other significant historical figures, they often commissioned portraits of themselves wearing their most expensive clothes to demonstrate their status and power. Studying the history of colonialism, the late Renaissance, and how Europe became wealthy and how Europe was exploiting slave labour and oppression, or by taking gold from other gold-rich countries and rulers, we realise that this gold is partially tainted by blood. On the other hand, theatrical and jester-like gold, "gold in the air", and "gold of life" are not tainted by this; you create it with your own hands, or it already exists in nature, and you just need to see and notice it.

5. Conclusions

My final thoughts on the matter of making oil by hand are unfortunately ambivalent. In a hindsight there are a few things that I would have done differently. Certainly I could have benefited from more transparent colours in my selection. I also came to the conclusion that in the future I probably won't be making oil paint on a regular basis, at least not for all the colours in my palette, because of how energy and time consuming it is. Still, I'm glad that I discovered Bismuth Vanadate Yellow for myself in this process of learning, and it probably will hold a permanent place in my palette.

In general, I want to say that I can continue to paint my paintings indefinitely; I have a lot of things in mind that I would like to embody in them. I prefer not to think about paintings in terms of their readiness or completion. It is entirely possible that I'll be tempted to make some changes to *Aurum nostrum non est aurum regum* in the future.

On the one hand, a painting is a kind of story, but on the other hand, it lives in its own world; that is, this story will continue to exist regardless of whether you are looking at it or not. Like a theatre that exists apart from the viewer; if you are a viewer in the theatre, you come there, and they show you a performance, a play. And when the play ends, the actors go home, they are no longer the characters of this play, in other words, it also ends for you, and the world that was in the play is paused, unlike a painting. In a painting, it continues to live, and something happens there, something of its own, regardless of you. I always look at my paintings as artefacts that live their own lives. That is, they are not illustrations for a story; they are a story in themselves in my head.

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