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THE COLOUR YELLOW AND ITS IMMORTAL AND MORTAL BEAUTY

Review article

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In this paper, another in a series of papers dealing with colour terms and their etymologies (greys, reds, blues and purples having been researched previously), the author focuses on yellows: the pigments/dyes used through history, their origins, manufacture and stories that have become inextricably linked to them; the associations that specific colours seem to evoke both on personal and collective levels (culturally and socially induced colour associations); yellow colour terms and their etymologies. The colour yellow has always held a great fascination for humans throughout history as well as serving to perpetuate various social memes, some of which are of particular significance to art history studies. The relevant etymologies and the stories they tell shed light on the history of yellow pigments and dyes, and the role they have played in our civilization, whilst providing an interesting example of a language - art history interface.

Keywords: yellow colour terms, pigments, dyes, etymology, art history

1. Cultural Yellows versus Personal Yellows

With its various tints and shades the colour yellow often evokes different and sometimes, conflicting associations. It is seen as the colour of sunshine, hope, energy, optimism, enlightenment, academic excellence, relaxation, opulence and power but also as the colour of cowardice (as expressed by the terms yellow and yellow-bellied), jealousy, envy and deceit (in Western mediaeval and Renaissance paintings Judas Iscariot always wears yellow robes), caution, sickness and irresponsible, sensationalistic journalism (yellow press/journalism - derived from so called "yellow kid papers", Pulitzer's "World" and Hearst's "Journal American", which, at the end of the 19th century, carried a comic strip whose main protagonist was the "yellow kid", a boy from a New York slum wearing an oversized yellow nightshirt that served as a kind of billboard for social commentary).

Commercial web sites abound with pretty descriptive terms, from pale lemony and olive yellows, straw, canary, primrose, pineapple, dandelion and daffodil through

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butter, butterscotch, corn, bumblebee and banana to flaxen, tawny, saffron, honey, amber, fire, mustard, yellow ochre, Tuscan sun, royal yellow, mellow yellow, cyber yellow etc. What these sites, however, make no reference to are a host of other yellows: the bilious greenish yellow tones of desperation (Schiele), the dull sallow jaundiced skin hues of the diseased and dying (Munch), the raw loud jarring screaming strident yellows of pure primitive unadulterated emotion (Nolde), the slimey gooey acidic corrosive yellows of our worst nightmares (Gieger), the sophisticated contemplative shimmering yellows of those large inverse looking MOMA canvases (Rothko), the blinding white yellows of Nicolas de Staël's ambivalent Mediterranean sun, the hot blazing yellows of eternal fires of hell that cannot be placated by any good deed (Bosch), the yellows of conflagration and brimstone and destruction (John Martin)...What the sites selling paints cannot/will not offer words for is the scorching pulsating yellow haze enveloping a cornfield in high summer, waiting under an ominous sky, as in that painting Van Gogh did before he shot himself. He loved yellow passionately and allegedly used to eat yellow paint in the hope that enough of its vibrancy and life force would rub off on him. It did not.

Kandinsky's perception of yellow, on the other hand, is less sunny. Being a synesthete, he both sees and hears it: "Yellow, if steadily gazed at in any geometrical form, has a disturbing influence, and reveals in the color an insistent, aggressive character. (It is worth noting that the sour-tasting lemon and shrill-singing canary are both yellow.) The intensification of the yellow increases the painful shrillness of its note" (Kandinsky: 2015). Similarly, a BBC Culture art critic Kelly Grovier (2018) begins his article "The Murky History of the Colour Yellow" by professing that "yellow is the cruellest colour".

What yellow terms can we use to describe Zurbaran's luminous lemons and oranges set against that stern, dark minimalistic background (according to many, an ultimate still life)? Or the lush silky feminine feel of the folds in the dress worn by Fragonard's "Reading Girl"? How do we describe the light falling on the dress, table, hair in Vermeer's "A Lady Writing a Letter"?

Ultimately (and this is something I try to impress on my students) there are always more hues and shades (and perceptions) of colour than we can name at any specific time, and it is exactly this inexhaustible number of possibilities that makes art depiction/reviewing so challenging and creative. I sometimes invite my art history students to create their own colour terms and many have done so to their credit (Stojanović: 2014).

As for colour associations (which constitute an interesting field of study per se), they are conditional on many things. More often than not, it is the social and historical context - and not personal preference - that determines our perception of colour. In America, yellow ribbons (Puritan legacy from the English Civil War) were worn as a sign of hope by women waiting for their men to come back from war. The set of emotions and associations evoked by this yellow would have been very different from that evoked by the yellow badge or armband required to be worn by Jews in the Middle Ages/Nazi Europe. Can our appreciation of gold and its undeniable beauty be ever completely free from the concept of wealth and power that has traditionally and indelibly become part of its semantics? Why is it that in Europe most people prefer other colours to yellow (one can only speculate on the possible correlation with Judas Iscariot iconography, Nazi legacy, centuries of relative neglect, cultural predominance of other colours etc.) whereas in India and China, yellow is one of the most popular and valued colours, pregnant with positive associations? In their work artists inevitably blend (both wittingly and unwittingly) personal and culturally/socially induced associations and our interpretation of their work is again conditional on numerous factors – as has been pointed out by Derrida and others.

The etymology of the term yellow is predictable, though with some interesting twists: “yellow (adj. Old English *geolu*, *geolwe*, ‘yellow’, from Proto-Germanic **gelwaz* (cognates: Old Saxon, Old High German *gelo*, Middle Dutch *ghele*, Dutch *geel*, Middle High German *gel*, German *gelb*, Old Norse *gulr*, Swedish *gul* ‘yellow’), from PIE **ghel-* (2) ‘to shine’, with derivatives referring to bright materials and gold” (Harper: 2017). Needless to say, the term yellow shares the same PIE root with gold (*ghel* ‘to shine’). And indeed, throughout history, most yellow pigments have been, in one way or another, associated with gold. It is, however, interesting that in Middle English the term was occasionally used to denote some bluish, greenish and gray hues, and there may be a connection to the Greek word *cholos*, gall, and Latin *helvus*, tawny (Neufeldt and Guralnik 1984: 1548). This tawny earthy mustardy and (occasionally) bile-like colour meaning brings us to the first yellow pigment in this paper, and one of the oldest – yellow ochre.

2. Yellow Ochre

Even though, etymologically speaking, the word ochre (also spelled ocher, oker, oaker) is derived from the Greek word *ōkhra* < *ōkhros* pale, pale yellow (Neufeldt and Guralnik 1984: 938), not all ochre is yellow. True, its main ingredient

is iron hydroxide (limonite) which lends it a yellow colour, but ochre comes in many earth tones (there are yellow, red, purple and brown ochre varieties) depending on its chemical composition or the manner of processing: the presence of hematite, for example, turns it red; heating/roasting makes it also darker/or redder. Along with sienna and umber – also natural earth pigments, ochre was one of the first pigments to be used by man since prehistoric times, not just in some of the most famous images of cave art still extant (Pech Merle, Altamira, Lascaux) but also for ritualistic, cosmetic, decorative and other purposes. Ochres (often combined with orpiment) are found in abundance in ancient Egyptian tomb paintings: golden, yellow ochre tones for women and red ones for men. They were also widely used in Greek, Hellenistic and Roman wall paintings (Pompeii). Interestingly, speaking of Pompeii, according to research conducted by Italy's National Institute of Optics in 2011, much of the red colour that adorns the walls of the villas of Herculaneum and Pompeii was originally a yellow ochre, turned red by the gases emitted during the Vesuvius eruption in AD 79. Ochres also appear in frescoes from the Late Antiquity, and in European and Asian illuminated manuscripts. "Ochres of various hues and compositions are the most commonly used pigments on icons from the Byzantine and Russian Orthodox traditions" (Eastaugh et al. 2013:286). Though not as radiant as some other yellow pigments, yellow ochre had two significant advantages: it was cheap and, even more importantly, it was not toxic.

3. Orpiment and realgar

Orpiment is a golden yellow mineral, ranging in colour from bright yellow to vivid orange and brown, and even blood red if, as is often the case, combined in mineral deposits with realgar - the only pure orange pigment available until the invention of modern chrome orange. Its name, orpiment - from Latin *auripigmentum*, gold pigment - is a reference to both its rich golden hue and its traditional use as a yellow golden pigment. Also known as King's Yellow (*Königsgelb* in German or *jaune royal* in French), its use can be traced back to ancient Egypt, Persia and Greece, where it was called *arsenikon*, "adapted from Syriac (al) zarniqa 'arsenic', from Middle Persian zarnik 'gold-colored' (arsenic trisulphide has a lemon-yellow color), from Old Iranian *zarna- 'golden', from PIE root *ghel- (2) 'to shine', with derivatives referring to bright materials and gold" (Harper: 2017). Thus it appears that our contemporary word arsenic, orpiment's main constituent, is derived

from the Greek word for orpiment, *arsenikon*, and ultimately, from Middle Persian 'gold-colored'.

Colour-wise, orpiment was, especially in its mineral form, so similar to gold that "the ancients fostered the distinctly alchemical idea that the superficial resemblance had deeper roots: that orpiment contained gold itself. Pliny says that the Roman emperor Caligula extracted gold from the natural mineral form of orpiment" (Ball 2003:100). Indeed, it was not before the 18th century that European alchemists completely gave up on trying to transform orpiment into gold.

An arsenic sulfide mineral, containing 60% arsenic, orpiment is often breathtakingly beautiful as well as highly toxic. Ancient Egyptians used it for decorating sarcophagi, and even more bizarrely (considering its toxicity), in women's cosmetics. Among the artifacts found in the tomb of Tutankhamun was a small paintbox with orpiment pigment: apparently, the young king could not do without it in the afterlife. Its splendid yellow colour found its way into many a mediaeval manuscript (e.g. *The Book of Kells*, *Lindisfarne Gospels*, Persian codices) as well as into Elizabethan miniatures. In the 15th century, the Italian painter Cennini, in his famous *The Craftsman's Handbook (Il Libro dell' Arte)*, writes that the colour of orpiment resembles gold more closely than any other colour but cautions his fellow artists "Beware of soiling your mouth with it, lest you suffer personal injury" (1933:29). It was for this reason as well as because orpiment reacts with copper and lead-based pigments and makes them darker when in close proximity (which happened all too often in many paintings), that some artists shunned its use and resorted to less poisonous alternatives. Nevertheless, it remained in use until the end of the 19th century when it was phased out due to its toxicity and the invention of new synthetic colours.

Realgar, or red orpiment as it is sometimes called in English, traces its name back to the Arabic *rahj al-ġār* - powder/dust of the cave/mine. Because it can be easily synthesised by heating orpiment, it has also been called burnt orpiment, and even more romantically, ruby of arsenic (Eastaugh et al. 2013:319). It is so toxic that Cennini (1933: 29) recommends that it should not be used at all, except, sometimes, on wooden panel. Aware, however, that artists will use it for the intensity and purity of its orange colour, he advises: "It wants to be ground a great deal with clear water. And look out for yourself."

4. Pigments and Their Immortal and Mortal Beauty

Even a cursory look at pigments/dyes used throughout history shows that people have far too often (and for various reasons) favoured beauty over safety, which brings us to the title of this paper, and human fascination with beauty: it sometimes went so far as to involve readiness to die/or at least have others die/ for it. Today, we know for a fact that Egyptian blue, which lent its beautiful blue hues to glass, faience and wall paintings as far back as the 3rd millennium B.C., could be dangerous if too much dust was inhaled, and that women in ancient Egypt used the highly toxic orpiment in their cosmetics. In ancient Rome, cinnabar (mercuric sulfide) and minium (red lead) were common cosmetic ingredients. Both the manufacturing of these two pigments and working with them constituted an enormous health hazard: the slaves and prisoners who got sent to work on the extraction of cinnabar/vermillion were, practically, meted out the death sentence and inhaling/ingesting the red lead pigment (minium) was more often than not just as lethal. In the Renaissance, Venetians actually made their own expensive bright red dye derived from nearly pure ferric oxide of the hematite type, enriched with arsenic, a secret ingredient added to enhance the brightness. Arsenic is the main culprit for much beauty in art, and no doubt, for just as much death. Both orpiment and realgar have extremely high arsenic content and are ranked amongst the most lethal pigments. As for cobalt, Finley (2002: 296) says: "Calling it 'cobalt' is rather like calling it 'goblin': in German folk legend Kobald was the name of a vicious sprite, who lived in the earth and resented intruders. It is a decent metal on its own, but it attracts a nasty companion in the form of arsenic, so the European silver miners who often came across it hated it, gave it the name of a gremlin, and for centuries they threw it away before it ate their feet and attacked their lungs". Lead white, one of Vermeer's favourite pigments, "the greatest of the whites and certainly the cruelest" (Finley 2002: 296), has caused many an artist's (or apprentice's) death. It kills gradually and relentlessly, in the final stage affecting the brain – a destiny that befell many women, from Egyptian and Roman times all the way to Victorian England, who habitually used lead white for makeup.

5. Toxic Green Wallpaper and William Morris

In Victorian England, a new vibrant green colour (Scheele's green, discovered in 1778) had soon become all the rage: numerous homes, ranging from middle-class ones to Buckingham Palace, were adorned with the new, intense green wallpapers.

The only problem was that they contained arsenic. An increasing number of people, especially children, falling prey to a strange disease were soon reported, but it was some time before doctors realized that the culprit was arsenic in the wallpaper. The ever-growing mistrust of green wallpapers finally led to calls for a legislation that would ban the use of copper arsenite in the manufacture of home goods. However, profits from the green wallpaper production and sales were so high that many industrialists (and their doctors), dismissed the claims as unfounded and used their clout and money to stop the bill from being passed. William Morris, a major figure in the British Arts and Crafts movement, whose father owned the largest arsenic producing company of the age, mocked: "As to the arsenic scare a greater folly is hardly possible to imagine: the doctors were bitten by the witch fever." (Kelvin 1987: 463) He would later deny having had any knowledge of arsenic's toxicity, and, to his credit, in 1875, his wall-paper manufacturing company switched to an arsenic-free green, but to this day his motives behind that statement remain unclear.

6. Gold and Ormolu

Throughout history yellow was often just a poor substitute for gold – the supreme, divine, transcendental colour of immortal Egyptian pharaohs; the most sacred and precious Greek statuary (chryselephantine technique, from Greek *chrysós* gold and *elephántinos* ivory); the Ravenna and Palermo otherworldly yet ostentatious mosaics; the painstakingly executed calligraphic lettering, gold on crimson, in Carolingian manuscripts (chrysography/gold-writing); the expensive radiant spirituality of orthodox icons. Referring to this obsession with gold as the "gilt complex", Ball (2003:97) says: "The one colour the alchemists could not conjure up for painters was the one they labored the hardest to devise." While working with gold leaf or powdered pigment is not, per se, dangerous, the technique of bronze gilding called 'ormolu' (from French *or moulu*, literally 'ground gold') was known to cause irreparable health damage. Especially favored by French clock designers and cabinetmakers in the 18th and 19th centuries, the technique involved working with mercury and, in the process, highly toxic mercury fumes were inhaled. Few artists lived beyond the age of 40. Even though the use of mercury was banned in France in 1830, the technique survived well into the 20th century. It appears that the unparalleled beauty of the objects created in this way, as well as the high prices they commanded, overrode all health concerns.

7. Gamboge

Also called rattan yellow, wisteria yellow and ivy yellow, gamboge as a colour name can be traced back to *Gambogia*, the Latin word for Cambodia. It is extracted by tapping resin from the gamboge tree (genus *Garcinia*). First, a deep incision is made in the bark of the tree (which must be at least 10 years old), from which milky yellow juice exudes into a hollow bamboo cane, carefully placed beneath the gash. When the juice has solidified, the bamboo is broken away, leaving large rods of hard, brittle, raw gamboge. The pigment is orange to brown in colour but when mixed with water it turns magically into bright, almost fluorescent yellow. In China and Japan, the pigment was used as early as the 8th century and still today Theravada Buddhist monks wear gamboge-dyed saffron-orangey robes. It is believed that the pigment arrived in Europe at the end of the 16th century. The first recorded use of the colour term in English was in 1634 (Maerz and Paul 1930: 195). In Europe, it was particularly favoured by Flemish painters for its transparency, though they soon realized the colour was not lightproof. A relatively toxic colour, it was often used in combination with oft-lethal orpiment and another three highly toxic lead-based pigments: lead-tin yellow, *giallorino* and Naples yellow. Unlike most other yellows, gamboge is not toxic enough to kill, but it can, nevertheless, be lethal: in recent history, during the Vietnam War and the subsequent Khmer Rouge Regime, collecting the resin was so dangerous that few people dared venture into the forest and the pigment was almost impossible to buy.

8. Saffron

Nowadays, we think of saffron mostly as a seasoning that lends our rice that beautiful rich yellow hue and distinct flavour, and indeed, today it is mainly used as a condiment, for colouring food and for medicinal purposes. But saffron has been around for thousands of years, not just as a spice, fragrance and medicine but also as a colour used in ancient cave art (traces of saffron-based pigments have been found in 50 000 year-old paintings in modern-day Iraq), in dyeing fabrics (e.g. as a substitute for Tyrean purple which was, at times, reserved only for royalty), and even more importantly, to illuminate mediaeval manuscripts: here it was sometimes used on its own, as an inexpensive (though, unfortunately, not a lightfast) alternative to gold, but more often it was mixed with other pigments: "Mixed with glair, saffron produced a strong, pure, transparent yellow; combined with azurite, it

offered a vibrant green. Cennino says that a blend of saffron and verdigris produces 'the most perfect grass colour imaginable' " (Ball 2003: 101).

The story of saffron – its cultivation, trade, uses and importance through history – is an intoxicating read, which brings together many different strands. Inevitably, one finds here romance and titillation: in the Song of Solomon, the lover likens his beloved's cheeks to "an orchard of pomegranates, an orchard full of rare fruits, spikenard and saffron, sweet cane and cinnamon"; Cleopatra had saffron sprinkled in her warm baths before trysting her men, in the belief that this would make their love-making more pleasurable; throughout history and across continents saffron has been thought to be a potent aphrodisiac, which is why, for example, Greek heterae made abundant use of it.

To add to the story, there are a lot of engaging historical facts. When Nero entered Rome, the streets of the city were strewn with saffron in his honour. Alexander the Great was a great believer in saffron's healing properties and regularly put it in his bath water and tea. Saffron Walden is a mediaeval English market town that had its name changed from Chepyng Walden to Saffron Walden because in the 16th and 17th centuries growing saffron was the town's main industry and source of income, and its coat of arms still bears witness to these days. Saffron Walden has its counterpart in Turkey – a magical old town called Safranbolu (Saffron City), which is on UNESCO's World Heritage List for its beautiful Ottoman architecture; the saffron still grown in its vicinity is of the highest quality, and traditionally, it has been used, among other things, for dyeing Turkish carpets.

The saffron narrative is dotted with with war and violence. When the Moors invaded the Iberian Peninsula they planted saffron in all southern regions of Spain and this was to be one of their most enduring cultural legacies, which persisted long after their expulsion from Spain. The Crusades and the 14th century Plague had pushed up the price of saffron in Europe and this high demand even led to the fourteen-week-long "Saffron War" in Switzerland. Ships carrying the valuable cargo of saffron in the Mediterranean were often the target of pirate attacks. Throughout history unscrupulous saffron producers and merchants adulterated saffron by adding butter, soaking it in honey, keeping it in damp places to increase its weight etc., and as a result, special laws were passed to protect the saffron trade: "a man called Jobst Funderlers was once burned in Nurnberg on a bonfire of his own fake saffron" (Finley 2004: 230).

The saffron story has some fascinating and occasionally, bizarre twists. The *crocus sativus* flower has a special fragile kind of beauty, its petals being of “an intoxicating colour, fluttering on the edge of blue and purple” (Finley 2004: 241). They, alas, cannot be put to any commercial use: saffron is obtained only from the three tiny red filaments from the pistil, called stigmas, and some 150 flowers yield just one gram of dried saffron. Getting rid of a host of pretty unwanted purple blue flowers has occasionally posed quite a problem. Finley (2004: 235) notes that in Saffron Walden, a royal decree was passed in 1575 prohibiting crokers (saffron farmers) from throwing the saffron flowers into the river in the time of flood, and those who disobeyed faced stiff punishment – two days and nights in the stocks. Another oddity is that this beautiful flower whose female organs yield the luxurious red threads, is male sterile and incapable of self-reproduction, which is why it has to be planted manually: one saffron crocus bulb for each flower. Crocus gathering is a back-breaking, laborious, painstaking process. And yet, in Minoan Late Bronze Age frescoes it is such a festive occasion. One of these wall paintings depicts two women, richly bejeweled and adorned, almost dancing their way through a craggy landscape, scattered with clusters of crocus. Another verges on the psychedelic: against a flat red background, an agile looking blue monkey (originally restored by the Arthur Evans team as a young man, but later converted to a monkey, in keeping with Egyptian/Minoan conventions - white for women, red for men and blue for monkeys) picks giant stylized flowers that invade the whole scene. The boldness of colour and composition, and its two-dimensionality give it a strangely modern look: Matisse could not have done it better.

9. Weld

Along with quercitron and buckthorn, weld (also called dyer's rocket, dyer's weed, woold, yellow lake and yellow weed) is a natural yellow dyestuff, obtained from *Reseda luteola*, a tall plant with small pale yellow flowers. The English word weld dates back to the 14th century and appears to be derived from Old English *wald*, forest (Harper: 2017). Weld was one of the most popular organic yellows used as early as the 1st millennium B.C. Initially used for dyeing objects and fabrics (e.g. silk and wool materials), it found its way into some of the most beautiful mediaeval tapestries (e.g. the famous Unicorn Tapestries) and manuscript illuminations - where it provided a bright organic yellow that was a cheaper and non-poisonous substitute for orpiment. Weld pigments, which are very transparent and therefore ideal for

glazing, have been identified in some 17th-century Dutch paintings, notably those by Rembrandt and Vermeer. The cultivation of weld ceased in the 19th century after the introduction of new synthetic yellow dyes, though it is still grown in Normandy and used in silk dyeing.

10. Indian Yellow

One of the most bizarre pigment stories, and the one that I have seen repeated over and over in numerous books on the subject, concerns the origin of Indian Yellow. A bright, warm though fugitive yellow, it had been imported into Europe and used by artists for years throughout the 19th century, without anyone actually knowing how it was made. The mystery was solved in 1883 by one T.N. Mukharji from Calcutta, who wrote a letter to the then director of Kew Gardens, Sir Joseph Hooker, describing the process in some detail. Apparently, the pigment was obtained from the urine of cows fed on mango leaves. He also reported that the cows were undernourished and died early (which can be scientifically accounted for by the fact that mango leaves are rich in a specific toxin, the same as that found in poison ivy). Such cruelty to the sacred Indian animal caused an outrage and at the beginning of the 20th century the practice was banned. So far so good. There are, however, two problems with the story. Firstly, it rests on the testimony of just one man (and a single letter written by him). Victoria Finlay, author of *A Natural History of the Palette* (2004), went to India in search of more evidence, and failed to find any. Having also failed to find any written document pertaining to the manufacture of the pigment being ostensibly outlawed (second problem), she puns: "But when I think of Indian Yellow I will always wonder whether the explanation I have heard is reality or merely a reflection of reality, and whether this story is simply an example of somebody gently, and literally, taking the piss" (Finlay 2004: 217).

11. Chrome Yellow and Cadmium Yellow

The 18th and 19th centuries saw the invention of numerous new pigments and dyes, which created hitherto undreamed-of opportunities for painters, dye and colour manufacturers, and the public in general. Some of these novel, mostly synthetic colours (and the often intriguing stories attached to them) have already been the subject of this and my previous papers (Prussian Blue, Scheele's green, mauve, magenta, solferino etc.) For 19th century painters, the two most important new yellows were chrome yellow and cadmium yellow. Despite its relatively short life-

span as an artists' colour (painters would soon find out, to their chagrin, that it darkened when exposed to sunlight), chrome yellow enjoyed great popularity among artists such as Thomas Lawrence, Böcklin, Turner, Monet, Manet, Renoir, Pissarro, Gauguin etc. Renoir wrote: "I used chrome yellow which is a superb colour but which apparently plays nasty tricks. I tried cadmium yellow; I found great difficulties in using it, it made my paint heavy. Then I wanted to make my little Rubens. I began to paint with Naples yellow, which is a rather dull colour. It gave me all the brilliance I sought. But it's the same story... It depends what I put around it" (André 1919:22). Cézanne and some Impressionists would often combine chrome yellow with another two primary colours, ultramarine and vermilion, to make colored grays (Callen, 2000:157). The etymology of the word chrome is rather obvious: it is derived from ancient Greek *chrôma*, colour; orig. skin, colour of the skin (Neufeldt and Guralnik 1984: 250). Confusingly, however, chrome pigments also appeared on the market as Paris Yellow, Cologne Yellow, Baltimore Yellow, American Yellow etc. Because of its toxicity (lead) and tendency to darken over time, chrome yellow was gradually replaced by cadmium yellow.

Cadmium yellow: "cadmium (n.) bluish-white metal, 1822, discovered 1817 by German scientist Friedrich Strohmeyer, coined in Modern Latin from *cadmia*, a word used by ancient naturalists for various earths and oxides (especially zinc carbonate), from Greek *kadmeia* (ge) 'Cadmean (earth)', from Kadmos 'Cadmus', legendary founder of Boeotian Thebes. With metallic element ending -ium. So called because the earth was first found in the vicinity of Thebes (*Kadmeioi* was an alternative name for 'Thebans' since the time of Homer)" (Harper: 2017). Commercialized for artists' use by the mid1840s and prized for its brilliance, vibrancy and intensity, cadmium yellow was cherished by artists throughout the 19th and 20th centuries and it is still in use today: Whistler, Monet, Pissarro, Van Gogh, Gauguin, Cézanne, Matisse, Ensor, Munch, Picasso, Ernst, Miró, Dali, Magritte, Bacon, Warhol, Anthony Caro, Jeff Koons, to name just a few, have greatly depended on it. Many believe that without cadmium yellow Monet's Water Lilies would never look the way they do. Even though cadmium pigments have a reputation for being lightfast, exposure to air does seem to cause them to fade (e.g. Van Gogh's "Sunflowers", Edvard Munch's "The Scream").

In the 20th century cadmium was also used to paint vehicles (most famously the New York taxi) and as colour for soap, glass, jewelry, plastics etc. However, the future of it is uncertain. In 2014, Sweden called for a ban on cadmium-containing

acrylic, oil, and watercolor paints, claiming that as a result of artists rinsing their brushes in the sink, toxic substances end up in agricultural land, where they pollute the food chain and increase the risk of cancer and bone fracture. The decision remains pending but since then, many artists have voiced their protest against the proposed ban, arguing that, unlike, for example, nickel-cadmium batteries (or, indeed, other cadmium-based industrial products) which contain dangerously high levels of the toxic heavy metal, the cadmium levels in paints are limited to 0.1 percent, which some consider low enough to be safe. Their argument is reinforced by the fact that, oddly enough, cadmium pesticides are still sprayed on food crops throughout Europe and no one seems to be too worried about it. Many people from the art world have signed a petition against the ban as it is widely held that the organic alternatives – so called “cadmium hues” – generally fail to measure up to cadmium’s properties. The landscape painter Emily Faludy says that it would be a “disaster” if she was unable to use cadmium paints. “Often they are simply essential” she says, adding that it is “sunshine in a tube” (Clark: 2014), whilst Janice Robinson, of the European Council of the Paint, Printing Ink and Artists’ Colours Industry, says: “They are indispensable to artists to create works of art with bright colours. Many of the beautiful Impressionist paintings of the 19th century would look very different today without their cadmium-based yellows, oranges and reds” (Ibid). What the future holds for 21st-century artwork remains to be seen.

12. On Pigments

It seems apposite to conclude this series of papers on pigments with a look at the etymology of the word pigment itself. For once, the origin of the term is straightforward and holds no surprises: ME < L *pigmentum* < base of *pingere*, to paint (Neufeldt and Guralnik 1984: 1023). Today, we live in the age of synthetic pigments when artificial colours are taken for granted, and people rarely stop and think about how colours were created in the old days. Throughout history, the importance of specific pigments (and, indeed, of many other things) has waxed and waned, sometimes in the most unpredictable ways. Trade in cochineal was Spain’s main significant source of income, all the way from the 16th to the 19th century when, due to the invention of synthetic colours, the cochineal market almost collapsed. Ultramarine, the deep blue of the Renaissance skies and the Virgin’s robes, made from the semiprecious stone, lapis lazuli - imported from ‘beyond the seas’ - was at times more expensive than gold. Though today lapis still works its

magic, it does so in the form of jewellery adorning women's necks and hands rather than as a pigment. Saffron cultivation constituted such an important part of some cities' economies that their names still bear witness to that (Saffron Walden, Safranbolu, Krokos). And in the New World, a whole country was named after a species of tree (and a dye derived from it): brazilwood, highly prized for its beautiful fiery orange-red colour and used for making bows for string instruments, also yielded a red pigment/dye called *brazilin*, used from the Renaissance onwards to dye luxury fabrics such as velvet, silk and satin. First named "Island of the True Cross" by a Portuguese explorer, Brazil's modern name dates from the 1550s, "from Spanish/Portuguese *terra de brasil* 'red-dye-wood land', from Spanish *brasil* or Italian *brasile*, probably connected to French *braize* (see braize) for resemblance of color to a glowing ember (but Old Italian form *verzino* suggests a possible connection with Arabic word 'saffron'). Originally the name of a type of wood from an East Indian tree, used in making dye; the name later was transferred to a similar South American species. Brazil in reference to the wood is attested in English from late 14c" (Harper: 2017).

13. Conclusion

Both history and history of art are studded with these extraordinary narrative gems – the stories of pigments and dyes through centuries. Preserved in their names are their days of glory, when they significantly contributed to some countries'/continents' economies and were instrumental in the creation of great works of art. An example of an interface between art history and linguistics, this yellow colour terms conspectus opens numerous avenues for further research. It is also an authentic subject-specific text, where each of the stories (its segments and derivatives) lends itself to numerous methodological applications in class, whilst providing motivational content to students in relevant fields, and a starting point for research projects that would involve active student participation. Exploring these stories in English adds to students' knowledge of history, art history, language in general and the English language in particular.

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