

‘Colouring’ — Material Depiction in Flemish and Dutch Baroque Art Theory

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Abstract

Seventeenth-century painters were masters at painting objects and beings that seem tangible. Most elaborate was painting translucent materials like skins and pulp: human flesh and grapes, for instance, require various surface effects and suggest the presence of mass below the upper layers. Thus, the viewer is more or less convinced that a volume or object is present in an illusionary space. In Dutch, the word ‘stofuitdrukking’ is used: expression or indication of material, perhaps better understood as rendering of material. In English, ‘material depiction’ probably captures this painterly means best: it includes rendering of surface effects, while revealing the underlying substance, and it implies that weight and mass are suggested. Simple strokes of paint add up to materials and things that are convincingly perceived. At first glance, material depiction hardly seems a topic in early-modern art theory, yet 17th-century painters are virtually unequalled as regards this elaborate skill. Therefore, 17th-century written sources were studied to define how these might discuss material depiction, if not distinctly. This study concerns one of many questions regarding the incredible convincingness of 17th-century material depiction: besides wondering why the illusions work (Di Cicco *et al.*, this issue) and how these were achieved (Wiersma, in press), the question should be asked why this convincingness was sought after. Was it mere display of ability and skill? And how was material depiction perceived, valued and enjoyed? First, contemporary terminology is determined: the seemingly generic term ‘colouring’ signified the application of convincing material depiction especially — which is not as self-evident as it sounds. Second, and extensively, the reader will find that convincing or appealing material depiction was considered a reference to religion and natural philosophy.

Keywords

Material depiction, material perception, oil painting, Flemish and Dutch Baroque, convincingness, illusion, art history, art theory

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1. Introduction

1.1. *Deluding Birds*

In his *Natural History*, the Roman author Pliny the Elder (23/24–79 CE) describes the origin and early history of painting. In a widely known anecdote, set in 5th-century BC Greece, the aim of classical painting is brought forward by means of a competition. The painters Zeuxis and Parrhasius both test their ability to render worldly things in paint as if these were real:

“[Zeuxis] produced a picture of grapes so successfully represented that birds flew up to the stage-buildings; whereupon Parrhasius himself produced such a realistic picture of a curtain that Zeuxis, proud of the verdict of the birds, requested that the curtain should now be drawn and the picture displayed; and when he realized his mistake, with a modesty that did him honour he yielded up the prize, saying that whereas he had deceived birds Parrhasius had deceived him, an artist. It is said that Zeuxis also subsequently painted a Child Carrying Grapes, and when birds flew to the fruit with the same frankness as before he strode up to the picture in anger with it and said, ‘I have painted the grapes better than the child, as if I had made success of that as well, the birds would inevitably have been afraid of it.’” (Pliny, 1961, Book XXXV.xxxvi, verses 65–66)

Pliny does not tell us how Zeuxis painted his grapes and not one ancient depiction remains that looks as convincing as this anecdote claims possible, nor is there an image of a curtain we would want to draw. Illusionary paintings of curtains and grapes referring to the above story were, of course, re-assessed in the renaissance and the topic recurs in art history up to our millennium. Curtains drape many paintings and can even (partially) hang ‘in front’ of the ‘actual’ picture (Fig. 1) (see Note 1). Many stories and scenes allow for the display of grapes — from narratives in which they perform, such as mythological Bacchic scenes and drunkenness in Biblical stories, to paintings of pleasant bucolics and luscious still lifes with mouthwatering bunches.

It is particularly in early-modern paintings that we find magnificent demonstrations of skill regarding material depiction — beyond grapes and curtains and encompassing Michelangelo Merisi da Caravaggio’s filthy feet and Michel Sittow’s fur collars. It seems painters from the Low Countries were exceedingly preoccupied with the subtle shades of tangibility from the beginning of the 15th century onward, culminating in the dashing still-life paintings we know from the 17th and 18th centuries (Fig. 2). Dutch and Flemish Baroque painting, especially still-life painting, is highly appealing because of its convincingness: the images show seemingly three-dimensional objects with a remarkable attention for material depiction.



Figure 1. Gerard Dou, *Man Smoking a Pipe*, c. 1650, oil on panel, 48 × 37 cm, Rijksmuseum Amsterdam, bequest L. Dupper Wzn., Dordrecht (inv. no. SK-A-86).



Figure 2. Abraham Mignon, *Still Life with Fruit and Oysters* (detail), 1660–1679, oil on canvas, 60.5 × 75 × 11.7 cm, Rijksmuseum Amsterdam, on loan from the City of Amsterdam, bequest A. van der Hoop (inv. no. SK-C-187).

1.2. *Material Depiction in the 17th Century*

Skilful material depiction is one of the main stylistic features of 17th-century Netherlandish art and still-life painting would not have been successful without it. Nevertheless, it does not appear to be a focus in early-modern art theory, nor has it, subsequently, been in research today. Was it not deemed important? A widely addressed topic is the appreciation of illusionary painting as a whole, encompassing artificial perspective and *trompe-l'oeils* (e.g., Fucci, 2015; Ziamba, 2017). Accomplished material depiction as an artistic or technical means seems relatively absent in contemporary written sources, but this study proves that it was simply overlooked: painters or authors and beholders show awareness of its value. This article sheds light on an essential, yet underexposed agent in Baroque painting by delving into its art theory, arguing that material depiction takes on a larger role in 17th-century art theory than one might initially think.

For that, material depiction is retrieved as a topic from art-theoretical texts. Contemporary terminology for turning strokes of paint into convincing material illusions is explained first. Second, the objectives behind material depiction are addressed. The texts are of various character: expressions of admiration by beholders, and texts written for and by artists, amateurs and art lovers about the art of painting, practically and theoretically. Among the artist-authored texts are well-known ones such as the *Schilder-Boeck (Book of Painting or Painters*, 1604/1973) by Karel van Mander, but also the lesser known, yet to the topic highly relevant, recipe book by Willem Beurs, *De Groote Waerelt in't Kleen Geschildert (The Big World Painted Small*; Beurs, 1692; Lehmann and Stumpel, in press).

2. Terminology: 'Stofuitdrukking' and 'Colorering' or 'Coloriet'

When discussing how certain materials are depicted, art historians in the present-day Netherlands and Belgium speak of 'stofuitdrukking' ('material expression' or 'indication of materials'), a term that has no equivalent in English. It cannot, however, be traced back to the early-modern period (Note 2). For the Dutch language area, 'stofuitdrukking' probably makes its *début* in late nineteenth-century art criticism. The oldest find for the use of 'stofuitdrukking' (with and without hyphen or space between 'stof' and 'uitdrukking') dates from 1891 and treats still-life paintings by a madame van Deventer (Note 3) showing onions, lemons and a glass flask. The 'stofuitdrukking' is considered very well done for the latter — and not at all for the lemons (Schmeltz, 1891) (Note 4).

In early-modern art theory, the visualisation of material properties was not treated as a separate pictorial artifice, such as light or rendering of space.

However, it was (part of) the last and perhaps most elusive step in the artistic process: after the design and preparatory paint layers, in which space, shape and lighting were determined, colours were applied. An apprentice would learn about colour application in the master's workshop by looking and doing. Linked or similar to what art treatises name 'colouring' ('coloreren' or 'coloriet' and variations in Dutch 17th-century sources — Note 5), or painting ('schilderen' — Note 6) even, is the rendering of material properties. 'Colouring' and especially 'painting' may sound bulky, but when studying the chapters and books that discuss this topic more extensively (and practically) in sources, one will find that these treat methods for displaying the skins of things in particular.

An example is chapter twelve in Karel van Manders *Grondt der Edel-vry Schilderkunst (The Foundations of the Noble and Liberal Art of Painting*, part of the *Schilder-Boeck*, 1604): "Van wel schilderen oft coloreren" ("On painting or colouring correctly") (van Mander, 1973, p. 252ff / fol. 46 v). Van Mander stresses the importance of nuanced tonality for different skin types for humans. Skins must be colourful and glowing in order to blossom as the painted skins by Italian artists do — and not make people look like fish or statues, as is apparently the case in northern painting in his opinion. He mentions several pigments that should not be used if one wants to avoid the latter effect (van Mander, 1973, pp. 261–265). Obviously, colour in general encompasses more than material depiction alone, but the choice for colour composition (Note 7) is often treated separately from the act of colouring (or painting) itself.

Unfortunately, the book that might have expounded on colouring conclusively, was never finished: art lover Willem Goeree wished to issue a series on art making for youngsters, comprising books on drawing, architecture, perspective, anatomy, composition and a last one on colouring ('coloreeringh'). He finished only three books and an introduction to this magnum opus. Colouring was never published. For the book on colouring, he had announced to include light, shade, reflection and harmony, but the act of colouring itself is not mentioned (Kwakkelstein, 1998). Goeree did add a treatise by Geerard ter Brugge on watercolouring to his book on drawing. This book consists of instructions for colour combinations that (should) lead to successful depictions of specific objects and beings, for which the word 'kolore(e)ren' is used (Note 8).

The book that is concerned most with material depiction in oil is *De Groote Waereld in't Kleen Geschildert (The Big World Painted Small*, 1692). Author Willem Beurs sets off treating colours and paints in general, but, other than telling which of these do and do not go well together, he skips the design of the image (composition and lighting). The main body of the book attends to observation and colouring the surfaces or visible materials of phenomena,

things and beings, epitomized in succinct recipes. The material recipes read like an accessible cook book, with ingredients and applications being given, although painting them might require some experience:

“For snow in sunlight, white is mixed with light ochre and carbon black, as much of each as real life requires, which in this case is the warmest of all and the most vibrant, because of the many light rays. To paint it in half-light white is mixed with carbon black as needed. Should it prove somewhat too blue, add some lake. The shadows need carbon black and a little white and light ochre, as much of each as required in real life. The same mix is good for reflections if it contains a little more white and light ochre” (Lehmann and Stumpel, in press: *Beurs*, book 1, chapter 2).

In *Beurs*, the importance of convincingness or the seemingly real in a painting is stressed repeatedly, and, thus, the book’s motto “‘T IS ALLES KOLORYT” (“it’s all colouring” or “it’s all about colouring”) seems to suggest that all painting, or all rendering of the world in paint convincingly, is about colouring. And since the recipes provide colour combinations for glossy objects, soft female skin, furry animals and airy skies, one could safely assume that, here, ‘colouring’ translates to material depiction specifically.

As becomes clear from the various examples, the terminology is often the same or similar in the literature, but it is not fixed. ‘Colouring’ can, however, be considered an early-modern synonym for material depiction. For even when its use varies within a text, ‘colouring’ predominantly relates to painting surfaces (or ‘skins’) of things and beings. For example, in Gerard de Lairese’s *Groot Schilder-boek* [1707; translated as *Great Book of Painting* (de Lairese, 2011)], colouring is said to entail both colour harmony and material depiction, but the painter states that after working on a composition (a detailed drawing of figures in this case) “you will have to find your colouring (‘coloriet’) [...] in reality. Paint flesh tones as natural as you can; make it fair and beautiful where needed, yellow or reddish when that is appropriate, but beware of irrational preferences in this respect” (de Lairese, 2011, p. 10) Throughout the book, ‘colouring’ primarily points at the various shades of complexions, the surface of water etc. as these are found in nature and should be copied, and it is juxtaposed to composition or design, lighting, harmony and narrative.

3. Colouring’s Objectives: Deceit and Tribute

Convincing imitation or representation of material has long been an obvious objective for figurative art forms and Jan van Eyck (c. 1390–1441) is viewed upon as one of the first post-antiquity painters to depict objects and their material properties successfully in Western art, using oil paint. Van Eyck’s and, for instance, Rogier van der Weyden’s (1399/1400–1464) paintings are well

known for their treatment of skin, hair, fabrics and for the interiors in which religious scenes are set, adorned with salient glass flasks, brass and stoneware, flora, and edibles even, placed on equally elaborate shelves, mantelpieces, table tops, cabinets, and in window sills. Oil proved to be an excellent medium to achieve an array of visual effects in painting (Bol, 2012; Duijn, 2013; Vandivere, 2013). The growing competence with oil paint is believed to have spurred the style of the seemingly real in Northern Europe, spreading quickly and intermixing with Italian conceptions of *colore*. Material depiction's florescence coincides with the (long) Dutch Golden Age, but is just as well a Southern Netherlandish phenomenon, and perhaps even a wider Baroque or *clairobscur* one. Below, Southern and Northern Netherlandish sources, or sources referring to Netherlandish paintings, are discussed.

3.1. Tangibility

“Especially Jan de Heem was praised for his desire to imitate gold and silver, as for plates and dishes etc. so natural that it seemed to be real gold and silver” (Houbraken, 1718, p. 211) (Fig. 3).

Lovers of painting appreciated convincings and for painters delivering a convincing illusion had become a target in itself, aroused by Franciscus Junius treating, among others, Pliny's stories in his widely read *De Pictura Veterum* (1637, issued in English in 1639 and in Dutch in 1641). In 1662, the Dutch painter Gerrit Dou was hailed as the ‘Netherlandish Parrhasius’ for his illusionistic-optical tricks by Dirck Traudenius:

“If Zeuxis were to see this feast, he'd be deceived likewise. / On this panel lies no paint, but only life and spirit. / Dou does not paint, oh no, he takes his brush and conjures with it” (Kwak, 2002, p. 248).

But painters did not aim for admiration alone: their convincingly painted goods were to fool beholders. Many are the anecdotes of people being tricked into believing that something they saw was real, whereas it was actually a painted illusion. Both art connoisseurs and royals were deceived by painters from the Low Countries such as Peter Paul Rubens and Samuel van Hoogstraten. Perspective is an important and efficacious optics to create a convincing illusion, but for a *trompe-l'oeil*-effect a necessary method is that of suggested tangibility:

“I was forced again and again to put my finger to it to feel whether my eyes were deceived or not” (Pepys, 1669; Note 9).

wrote Samuel Pepys, after beholding a flower still life by Simon Verelst in 1669. Verelst's flowers are extremely delicate, as though a touch could make



Figure 3. Jan Davidsz. de Heem, *Still Life with a Lobster* (detail), late 1640s, oil on canvas, 63.5 × 84.5 cm, Toledo Museum of Art, purchased with funds from the Libbey Endowment, Gift of Edward Drummond Libbey (inv. no. 1952.25).

the petals drop instantly (Fig. 4). Engagement was considered an important aspect of painting, emphasized by Junius. To achieve this, a painting was to stimulate all senses, resulting in the beholder ‘acting out the evoked scene’ by adding imagination to the artist’s mimesis. The art work’s degree of ‘possibility and truth’ (or ‘lifelikeness’, as Thijs Weststeijn has explained this) would determine whether that could happen (Weststeijn, 2016).

A good drawing and lighting design result in an inviting virtual reality, but it is the depiction of all separate objects’ materials which elicits touch and corporeal presence on its most basic level. This is not elaborated upon by Junius, but key in the practical and artistically more mysterious act of ‘colouring’. Willem Beurs describes how a rose is painted, including the suggestion of its frailty:

“the white rose [...] is painted with colors similar to those of the white lily, except that the fully lit parts have less pure white; for the rest it consists entirely of glowing colors, especially near the heart of the blossom, which is why it must be made with white, black, light ochre, and vermilion. The outermost petals



Figure 4. Simon Verelst, *Flowers in a Vase*, 1669, oil on canvas, 44 × 35 cm, Museum Bredius (inv. no. 124-1946).

should have a little more carbon black and white to render their softness” (Lehmann and Stumpel, in press: *Beurs*, book 1, chapter 2).

A reason for pursuing convincing material depiction, or colouring, would be to arouse a sensorial experience: the suggestion of a tangible material. As is known from the ‘colore’ (colour) versus ‘disegno’ (design or drawing) *paragone* (Note 10), ‘disegno’ was thought to activate the mind, but ‘colore’ caused affections. Together with older theories on colour and its influence on temper, this stance was incorporated by Samuel van Hoogstraten in 1678, who thought colours (or paint) contributed more to the establishment of an illusion than the design could (van Hoogstraten, 1678; Weststeijn, 2005, chapter V.2). Indeed, it is colour that animates surfaces and materials within their outlines, from being able to sense a breeze on a warm evening in the air of a landscape to the temperature and weight of a metal bowl in a still-life painting.

In both the real world and the depicted one, colour (here: ‘verw’) “feasts the hungry eyes, that look around in the world’s kitchen looking for more vision food” (van Mander, 1604; Note 11). And an additional feature of seemingly tangible edibles is that taste can be stimulated and that, thus, the deceit of tangibility turns into whetting appetite. As Pliny told us, the Greek painter Zeuxis took pride in fooling birds into mistaking his painted grapes for

real food. In praising *Pictura* (the personification of painting) in his *Gulden Cabinet vande Edel Vry Schilder-Const* (*Golden Cabinet of Painting*, 1661), art lover Cornelis de Bie describes how painted fruit (among animals, nights, flowers, landscapes, sea and churches and more) is painted from life and able to allure, even though “[painting] is without soul and taste, and the herbs do not scent.” But painting can tempt the eyes, making people “yearn for the fruits on the canvas” (de Bie, 1661, p. 34; Note 12). Willem Beurs, who also states that a painting of a nice meal can inspire the uninspired cook, deemed ‘appetizing appeal’ (as it was called by Jeroen Stumpel; Note 13) the intended result of his colour recipes for nutriment:

“... We shall select just a few [fish] that are in common use and that vary in color and tend to be mouthwatering when painted well... And this should be fish enough for treating a large group” (Lehmann and Stumpel, in press: *Beurs*, book 3, chapter 2).

Appetizing appeal is why Gerrit Dou received the praise that was cited at the beginning of this subsection. The painting that was admired in this ode by Traudenius is unknown to us, unfortunately, but edibles in the window of a herring seller give an impression of Dou’s abilities (Fig. 5). Including its dedication and description, the first stanzas of the poem read:

“TO A PEASANT KITCHEN, / Very artfully depicted by the Dutch Parrhasius, Gerrit Dou. / The peasant cook thus serves his food when banqueting’s in sight. / Come here, you townfolk, taste the fare and chew it with your eyes. / It’s roasted game, as you can see, dished up for your delight” (Kwak, 2002, p. 248).

3.2. *Creation*

Painters wished to demonstrate their skill, but to trick spectators into believing that their painted goods were real was not their only game. Cornelis de Bie compares the painter’s work with god’s creation — which the painter does not equal, but approximates:

“The painter counterfeits the human being so wonderfully / As if he were alive and was created: / But the eye is deceived, for he is without life / That only god can give him. / The flower blooms so lively on the canvas / Herbs are very pleasing without scent / Fruits flaunt their vividness on panel / And seem tempting to your eye / The grape, pear, apricot, apples, cherry and nut / The peach, fish and meat, radishes and carrot, / The wine fresh in the glass, it is remarkable to notice / That these are all without taste, all being the painter’s work / The Big Painter God is superior / The human being just a copy, God knows” (de Bie, 1661, p. 35; Note 14)

Truthful appearance was a means to show the world in all its grandeur and detail. As a motivation, a tribute to creation is evident (Note 15). According to



Figure 5. Gerrit Dou, *Herring Seller and Boy*, ca. 1664, oil on panel, 43.5 × 34.5 cm, Image courtesy of The Leiden Collection, New York (inv. no. GD-106).

Willem Beurs and to Cornelis de Bie a painter is the best artist to offer this (Note 16). Connected to this tribute might be a changing idea regarding painting: an emphasis on observation resulted in several Baroque painters stating that nature was to be depicted by showing its most beautiful appearance, but to emulate it (a Renaissance painter's objective) would be in vain (Note 17). And in the opinion of Gerard de Lairese, especially colouring "should be found in reality only":

"But now I have to interrupt myself with a remark on a misjudgement of colouring that I fail to understand although it is extremely widespread among painters. They aspire to Art, not knowing Nature; their laborious investigations are useless and ineffective; they torment themselves with the self-imposed delusion of

traversing the world, although they do not advance as much as one foot. Since Titian and Giorgione had a beautiful colouring, we should imitate their behaviour. They chose Nature as their mistress, not the imitation of other masters. [...] Although Nature is imperfect in all respects in comparison with Art, it is not so regarding colouring. For this reason, there is no better model for this aspect of art than reality itself. Anything not resembling nature perfectly in this respect remains fundamentally false and worthless, however pleasing it may be to the eye.

The foolishness of some painters, mentioned before, is no lesser evil than that of some others. They delusively think that they can improve nature through their art, although she is unsurpassable in this respect. Their lost labour is incredibly cumbersome when they go to extremes in the pursuit of their phantasms. Meanwhile they do not even notice that the right, true, and essential expedient is at hand, disdaining however to use it" (de Lairese, 2011, pp. 36–37).

We read that nature must be followed, not other masters' paintings. It makes sense: when imitating an imitation, the study of the real material's appearance is omitted. De Lairese writes that copying led to misleading paintings and that true beauty is found in reality. Although a painter was able to fabricate appealing colours, nature's colouring could not be surpassed, nor should one aim to do so.

3.3. *Colouring and Empiricism*

It is important to note that depicting creation's colouring benefitted from empiricism and that, according to some authors, colouring was explicitly aimed at showing a thorough, or scientific even, observation: to scrutinize god's creation, knowledge was considered key. Depicting details such as flower petals and insects was enhanced by the development of optical instruments: lenses and microscopes made a whole new world visible, known and admirable. Interestingly, several authors treat optics and other branches of natural philosophy to support their art theories. René Descartes, Francis Bacon and Kenelm Digby are discussed by artist Samuel van Hoogstraten in his *Introduction to the High School of Painting* (1678, subtitle: *The Visible World*), studied extensively by Thijs Weststeijn (Weststeijn, 2005, chapter VII). Willem Beurs puts forward some optics theorists too and, additionally, natural philosophers Robert Boyle, Christiaan Huygens and Isaac Newton, who had been researching larger phenomena and explained colour principles — in the case of Boyle this was partially inspired by artistic practice, as well as several entomologists and botanists. In doing so, Beurs seems to endorse Samuel van Hoogstraten's statement that a painter should be familiar with all arts and sciences. Van Hoogstraten believed deceit was achieved because painting *is* a

field of knowledge and a mirror of nature (or: the visible world) (van Hoogstraten, 1678, fol. 2v and pp. 24–25; Weststeijn, 2005, chapters VI.2 and VI.3) (Note 18). A view which is supported by several artists becoming empiricist natural philosophers themselves over the course of the century, contributing to botany and entomology by observing and drawing with scientific precision. Van Hoogstraten was a learned painter himself, who employed theory for practice, especially regarding rendering of space in carefully composed interior paintings. He did, however, not only produce perspectival *trompe-l'oeils*: some impressive still lifes remain, depicting personal belongings arranged behind leather straps against a wall (Fig. 6).

We will have to turn to Willem Beurs for a scholarly justification or corroboration for rendering materials, for van Hoogstraten does not throw light on this painterly aspect especially. Beurs is occupied exclusively with the practical side of the job and aware of some (useful) scientific advancements as well. Though concise, Beurs gives examples of processing scientific discoveries for material depiction. He explicitly invokes natural philosophers on



Figure 6. Samuel van Hoogstraten, *Trompe-l'oeil Still-Life*, 1664, oil on canvas, 45.5 × 57.5 cm, Dordrechts Museum, bought with support of the Vereniging Rembrandt and the Ministerie van WVC 1992 (inv. no. DM/992/691).

several occasions in *The Big World Painted Small*, a book which he opens with a print of Pallas Athena or Minerva, the goddess of wisdom, and not with the more common personification of Pictura, as was noted by Jeroen Stumpel (Stumpel and Lehmann, in press). In 1643, Crispijn van de Passe had pupils drawing a Pallas on his book's title print, posing with a burning torch and seated on a pedestal that reads "HIC OPUS HIC LABOR" (Passe, 1643) (Note 19). On Beurs' account it is not her presence that is guiding: she actually points her finger at the palette of a paintress, conducting artistic practice with theory actively (Fig. 7). Learning from natural philosophy would help to establish a truthful and convincing depiction, but Beurs expects his encouragements are partially given in vain and (therefore?) his explanations are limited (Note 20).

In some cases, it might seem as though name-dropping philosophers merely serves to boost the status of the book, but I do think the references are a part of Beurs' general and genuine advice to broaden one's knowledge for purposes of observation and painting. For instance, microscopy had led to wonderful descriptions and imagery of insects and small animals' anatomy that could serve as examples for artists (Jan Swammerdam's illustrated *Historia Insectorum Generalis*, 1669, for instance). Beurs only gives the names of scholars whose work was apparently sufficiently known. Perhaps he thought familiarity with these illustrations and studies would help painters to be more perceptive to details when they retrieved real examples from nature themselves (Note 21). Several topics are described more extensively than entomology is (Note 22). For a slightly more practical application of theory, we have to turn to a passage where Christiaan Huygens' work on light waves is referred to, which is brought up twice. The first time it is discussed under the paragraph heading '*Knowledge Painters Lack*':

"If a painter adequately understood the nature of reflections and refractions — about which Sir Huygens, after Descartes, has written better and more understandably with his theory that rays from the light source are propagated as spherical waves equally in all directions — it would give him great satisfaction and certainty. Yet such a person will never be found. Indeed many of them barely understand the basics of perspective, knowledge so necessary for painters" (Lehmann and Stumpel, in press: *Beurs*, book 1, chapter 7).

Christiaan Huygens' ideas on light reflection and refraction are referred to again when a glass is to be painted. Again, the theory is mentioned, but not explained properly: the painter paints from life (Note 23). Glasses filled with wine were painted convincingly in the 17th century long before Huygens understood light waves.

Omitting the natural philosophers and their works would however have passed the point. By taking contemporary science into consideration for the



Figure 7. Willem Beurs (?), Title print *De Grootte Waereld in 't Klein Geschildert*, 1692, Published by Johannes en Gillis Janssonius van Waesberge, Amsterdam.

art of painting, one could say a new field of knowledge was added for the *pic-tor doctus* to study. The inconsistency of stressed relevance and irrelevance of natural philosophy for material depiction is nevertheless intriguing. Beurs makes his readership aware of the relevance of natural philosophy for observation and art production, while stating (or lamenting) that it is not absolutely necessary to know your science to be a good observer: a painter is to apply colour convincingly and the depiction of materials is a matter of good, interpretative, observation.

The prevalence of observation over study is most evident in the elaborate instructions that are forwarded to painting sky: the colouring is based on very detailed observations, but meteorology is not its foundation. Combinations of certain clouds in air that is visibly warm or cold due to its colouring, lead to discernable weather circumstances in painting. Thus air, protagonist in land- and seascapes, has its own material depiction: different properties can trick the spectator into sensing specific kinds of weather. Here is a stormy sky:

“One can [...] render a storm that has brought its rain to the immediate surroundings by using lake, black, and white at the horizon, after that a little less lake, while the third part will then need lake, smalt, and white, with everything somewhat darker in the highest section. And the more the storm has spent itself, the less black should be added, especially towards the highest point, and the clouds painted thinner and lighter. Lastly, to depict lightning, both as sheet lightning and as flashes, it would not be bad to make the clouds a little darker in order to make the light glow more brightly. Sheet lightning has a broader radiance and occurs most often at the horizon, while flashes occur all over and appear as more hollow and jagged and more penetrating to our eye.” (Lehmann Stumpel, in press: *Beurs*, book 2, chapter 8)

The instructions are rather specific and meticulous, but no explicit references to advancements in meteorology are made. The instructions for painting skies illustrate that understanding contemporary natural philosophy is not necessary in itself, but that its observational disposition is. Honouring the visible world in painting benefitted from empiricist practices and the growing tendency towards observation in general. All (artist-)authors seem to endorse this.

4. Implications of Skill and Tribute: Larger than Life?

4.1. The Appeal of the Seemingly Real

Observation and imitation yielded beautiful, convincing paintings. But reality is not always appealing: observation alone should lead to paintings of dull objects or decaying fruit — not exactly the best version of reality. Consequently, Baroque still-life images cannot just be a copy of the world: although he

considered it important to observe life, Willem Beurs, and authors before him, provides formulas that enable his readership to paint the best version of reality — not to be confused with an emulated version. In his introduction Beurs writes that painting, above all arts, is able to show the world in its most perfect form. With ideal colours an object is painted only in part from observation: its shape and lighting can be taken from reality, but the subscribed colours allow for its appeal in paint. In other words, a painter shows what he has seen in front of him, without having painted what he actually saw. The depiction can be considered a combination of painting *naer het leven* (from life, from observation) and *uyt den gheest* (from imagination, distinguished by Karel van Mander in 1604), thus giving the best possible tribute to the visible world. To give a simple example: when Beurs gives a recipe for a pomegranate, it is neatly opened. The real pomegranate might have suffered from a clumsy crack or cut that made seeds bleeding all over the interior: just one ruptured scarlet seed can fleck the whitish rind dramatically. A fresh and clean piece of fruit, with some ornamental damage at most, is what Baroque paintings present. Additionally, the light in which we see Mignon's grapes (Fig. 2) is quite difficult to mimic, albeit possible (Note 24). When viewed under these specific conditions, the fruit shows every thinkable material property it can hold: from opacity to gloss and translucency, and with glowing inner reflections. All these properties are listed in the Beurs recipe for grapes (see Di Cicco *et al.*, this issue). We can conclude that a 17th-century painter was expected to paint materials in and under perfect condition(s) that were fiction, but not fantasy.

4.2. Conclusion

It appears that in 17th-century art theory, the word 'colouring' had a more specific meaning than filling planes. The elaborate depiction of materials that it entailed contributed extensively to the perceived convincingness of images. It played (and plays still) a significant part in tricking beholders into believing that an image was three-dimensional and that the imagery was part of their own world. Moreover, it served to prompt interaction, both practically, up to the point where appetite and emotions were felt, and mentally, arousing admiration for and enjoyment of nature and creation by sublime representation: the sensorial wonderment 17th-century paintings could evoke (and can still evoke today) are the admirable result of painting the world's materials in their most spectacular, beautiful and tangible way. As speaks from various sources, convincing material depiction was an objective, enlarging life, but not exaggerating it up to the point where it would go beyond (a possible) reality. This was achieved through thorough observation, inspired at least by the emerging natural philosophy's empiricism and observation, and a colour palette that allowed for an appealing depiction.

Notes

1. Real curtains were hung in front of paintings to protect them in the early-modern period, making the trompe-l'oeil all the more amusing and popular (for a study of illusionistic curtain pieces, see Fucci, 2015).
2. No direct synonym is used in early-modern art theory. For instance, 'stof' is used by Willem Beurs in the treatise *De Grootte Waerelt in't Kleen Geschildert* (Beurs, 1692) on a rare occasion when referring to material that is to be depicted by means of a recipe. Since the word does not return in this sense, one cannot regard this as a part of terminology. Throughout the book, the word 'stof' (or 'stoffen') is used for pigments and for other painter's materials and tools, fabrics and as a word for content (Beurs, 1692, p. 3).
3. Possibly Johanna van Deventer (1869–1959), painter of landscapes, genre, still lifes and portraits in The Hague. <https://rkd.nl/explore/artists/22371>, accessed 14 November 2019.
4. It is the oldest result in a Google search among its book, journal and newspaper collections on the web, accessed 18 February 2019. Art reviews in *De Maasbode* (Rotterdam: G.W. van Belle) mention 'stofuitdrukking' several times from 11 December 1895 onward, which is the date for the oldest search result for 'stofuitdrukking' in the (Dutch) Delpher newspaper database (accessed November 2019). Donkeys, horses and sheep are discussed for which the 'stofuitdrukking' is not very well painted by August Legras. On May 28th, 1896 in an exhibition at Frans Buffa and sons, the objects and people in a painting by Lawrence Alma-Tadema are called "heerlijk van stofuitdrukking" ("delightful depiction of materials"), "although these are treated as a still life" ("Alles is als stilleven behandeld, doch het geheel is heerlijk van stofuitdrukking").

From the above-mentioned Google collection, it appears that the use of the German 'Stoffausdruck' in this sense (and not a religious one) is post-1900. And, interestingly, the emergence of the term 'stofuitdrukking' is related to the discussion of contemporary art of around 1900.

5. 'Colour' or the old Dutch 'koleur' (or a variation) was often used for painted colours. When discerned as such, 'verw' (very similar to the present-day Dutch 'verf', which nowadays indicates paint) is used for the colours of the world (e.g. Beurs, 1692). But these words were just as well used the 'right' way around, for Crispijn van de Passe writes: "Beschrijvinghe van de couleuren der vier deelen des Bloem-boecx, ende hoemen de selve met hare eyghen Verven sal moghen schilderen ofte afsetten" ("Description of the colours for the four parts of the Flower book, and how one can paint these with one's own paints") (Van de Passe, 1614, no page number).

6. In Van de Passe's colouring book, which shows prints of flowers to be filled with watercolours, both 'painting' ('schilderen') is used and its equivalent for watercolouring: to illuminate ("illumineren ofte afsetten") (Van de Passe, 1614, title page).
7. I.e. colours that do and do not go well together, colours to make the narrative stand out or that allow for the background to recede. In the case of van Mander this is described in the preceding and subsequent chapter.
8. The treatise on watercolouring was written by Geerard ter Brugge.
9. See also Liedtke (1991). For many more examples on the popularity of mathematics and optics among artists, see Ziemba (2017), pp. 43–44.
10. The preference of 'disegno' over 'colore' in a painting (the emphasis on either a very precisely made drawing or design for a painting, or a composition of less explicitly outlined shapes, connected or divided by dabs of colour) or *vice versa* in 16th-century Italian art discourse.
11. "[Verw] sticht en blust oock dat hongherighe loeren der ooghen die in s'weereelts ruyme keucken nae t'voedtsel van meer sien eenparich jeucken." (van Mander, 1604, fol. 50, vol. 8 / 1973, pp. 268–269) For more on van Mander, eyes feeding on painting and parallels drawn between cooking and painting in the early-modern period, see Kwak, 2002.
12. The stanzas read (in Dutch): "Dees Const heeft boven dit een liefelijck vermaeck / Den mensch ghebreckt daer in alleen maer sijne spraeck / De beesten, keucken goet, de nachten en de branden / De blommen en het fruyt, landschappen en waranden / Prospect en metselry, compartiment, ovael / Zee, water en Ruwien, grot, Kercken ende sael / 'T wordt al wat datter is naer't leven uyt ghetrocken / En menich staende werck de Menschen aen can locken, / T'Is sonder siel en smaeck, t'is sonder reuck het cruyt / Al wercktmen dese Const soo wesentlijcken uyt, / Maer speelt soo vlijtelijck in d'oogen vande menschen. / Die dickwils van't pineel oft doeck de vruchten wenschen, / Wie derst dan eenich Ampt ghelijcken aen del' Const / Die door haer edelheydt verwint een jeders jonst."
13. 'Appetizing appeal' was coined to describe the manner in which material properties were painted in the 17th century by Prof. Dr. Jeroen Stumpel (Utrecht University), project leader of *Recipes and Realities, An analysis of texture rendering in still-life painting and the pictorial procedures of Willem Beurs*, a Netherlands Institute for Conservation, Art and Science (NICAS) project funded by the Netherlands Organization for Scientific Research (NWO).
14. The original stanzas read: "Den Schilder Conterfeyt den Mensch soo wonder naer / Oft hy het leven had en soo gheschappen waer: / Maer d'oogh bedrogen valt hy is staegh sonder leven / Dan de Algever Godt hem maer

alleen can gheven. / De bloem staet op den doeck soo levendich in fleur / Het cruyt heel aengenaem en sonder reuck oft geur / De vruchten op pineel soo geestich staen en proncken / En schijnen voor de oogh u stadich toe te loncken / De druyf, peér, abricock, de appels krieck en noót / De pers, vis en het vlees, radijsen en caroot, Den wijn vers in het glas, t'is wonder aen te mercken / Al sijn sy sonder smaeck, het sijn al Schilders wercken / Den Grooten Schilder Godt hier af is't Principael / Den Mensch alleen Copy, Godt weet het altemael.”

15. This motivation was not new in the 17th century. From Erasmus' Colloquies (1518): "tis a double pleasure, to see a painted flower vie with the life; and in one we contemplate the artifice of nature, in the other the skill of the painter; and in both, the goodness of god, who gives all things for our use, in every thing equally admirable and amiable." 'The religious treat', in *The colloquies of Erasmus*, transl. N. Bailey, Vol. 1, London, 1878, p. 163, in Ziemba, 2017, p. 41.
16. "The ability to draw is a very useful and sophisticated art — to be able with black and white, as dark and light, to present things in a largely recognizable way, and by means of signs, letters, and lines to propagate all the arts and sciences, laws and religion, and moreover to preserve for posterity all manner of things for centuries. But the art of painting surpasses all this, also imitates life more precisely and naturally, and renders everything with incomparably greater perfection, presenting to the eye most powerfully the virtuous, useful, and pleasing qualities of the human race." (Lehmann and Stumpel, in press: *Beurs*, no page number). In another poem in de Bie's book, the paragone between sculpture and painting is settled in favour of painting (Bie 1661, pp. 21–22).
17. During the Renaissance, emulatio was the last stage of three of the artist's abilities: translatio, imitatio, emulatio. Cornelis de Bie rhymes: "The honourable Pictura who is true and sensible / Does not obtain her honour by harming anyone else / Although she teases Nature, diligence provides her with goodwill / Since life is absent in art." ("De Edele Pictur' die suyver is en teer / En treckt uy niemants schad' haer hooch verheven eer, / Al teregt sy den Natuer, den jever wint haer gunst / Wanneer alleen ontbreckt het leven inde Cunst"; de Bie, 1661, p. 24).
18. Less embedded, but possibly related might be the quotation of a Latin saying in Cornelis de Bie, 1661: "Ars nullium habet inimicum nisi jgnorantem", which he translates as "only the ignorant is art's enemy" ("de[...] onwetende[...] alleen [is] vyandt vande Const"). And: "the noble and liberal art of painting is gifted with great knowledge" ("de edel vry Schilder-Const [is] met groote wetenschap begaeft"). Both statements stem from his foreword to the studios ('nieu-lustighen', 'weet-lievenden' and 'leer-gierighe') reader (de Bie, 1661, p. 13).

19. The epigraph is probably a variation of “Hoc opus, hic labor est” (“This is the task, this is the hard work”), spoken by the Cumaean Sibyl to Aeneas when guiding him to the underworld (Publius Vergilius Naso, *Aeneid*, 6.126–129).
20. Regarding theory painters are, in Beurs’ experience, lazy. The implementation of science remains somewhat out of habit and is not very persistent at least. Although scientific knowledge is incorporated in *The Big World Painted Small*, Willem Beurs meets the necessity of being informed with ambivalence. On the one hand, he refers to philosophers and their contribution to understanding things that painters depict, on the other hand he finds a painter could do with just observing reality attentively himself — which is what painters do and are good at.
21. “Large numbers of the small winged creatures described by Goedart, Swammerdam, Blankaart, and others can gradually be collected by oneself for the purpose of painting them. The most colorful ones can be found in our country, as far as I know” (Lehmann and Stumpel, in press: *Beurs*, book 3, chapter 7).
22. For instance, not regarding the act of colouring directly, but concerning colours: when discussing the basics concerning black, white and the three primary colours, Beurs credits Robert Boyle for this shift from an Aristotelian colour theory to a modern one. In his understanding of colour theory Beurs seems to incorporate findings by Robert Hooke and Isaac Newton as well, but he does not mention them. Boyle was inspired by colour mixing by artists when researching the importance of yellow, red and blue. Older colour systems, derived from the antique, did not distinguish primary colours from additive ones. Generally speaking, four colours were considered ‘strong’ or deemed important because these were found in nature. During the 17th century, yellow, red and blue slowly gained importance in painting, but, apart from some initial colour shading exercises, the relevance of this theory is not endorsed any further in *The Big World Painted Small*’s colour recipes.
23. Also, the author might not have dared to paraphrase a theory that, however supportive to art theory and the observation of visual phenomena, he did not quite grasp himself any further.
24. In her perceptual intelligence lab, Prof. Dr. Sylvia Pont (University of Technology, Delft, The Netherlands) set up these lighting conditions for a bunch of grapes (spring 2018). One, very bright light positioned rather low on the left caused a similar effect.

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