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Thinking Colours

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Reviewed Book

Bogushevskaya, Victoria and Elisabetta Colla, eds. *Thinking Colours: Perception, Translation and Representation*. Newcastle: Cambridge Scholars Publishing, 2015. ISBN 978-1-4438-7529-5.

Abstract

The editors state that ‘The place where science meets the humanities is cognitive culture studies ... and this is where our book begins ...’¹. The outcome of a gathering of scholars and artists in Lisbon, the book offers very different approaches to colour, each following a theme and offering a bibliography. The contributions range from state-of-the-art disputes about theoretical aspects of studying colour to the use of colour in modern literature and advertising. The editors have created a sequence classifying the various contributions under headings related to ‘Cognition,’ ‘Language and Translation,’ ‘Literature,’ ‘Art,’ and ‘Space’. This review uses a different system.

¹ Victoria Bogushevskaya and Elisabetta Colla, ‘Introduction,’ xvi. The footnotes follow the same format when referring to each essay: Names of authors, titles of essays, relevant page numbers.



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The vocabulary of colour

Bogushevskaya's² discussion deals with the confusing Chinese word *qing* 青, frequently understood either (a) as a colour (blue, grey or green) or (b) as a fundamentally insoluble problem defying

categorisation. She begins by discussing precisely those exceptions to the Berlin and Kay dogma in other languages which reveal that languages push people in certain directions, for example French where several words are required to supply the meaning summarised in the Berlin and Kay English 'Basic Color Term' (BCT) 'brown'³. Seemingly to avoid confusion, at the outset Bogushevskaya declares herself in favour of *qing* 青 meaning 'green' – and then goes on to pursue her argument and present what is in the sources.

She reviews the evidence from the earliest inscriptions to the contemporary printed dictionaries, and her conclusion is that – although the word may originally have been related to the mineral malachite – what it means depends upon the context. She stresses that explaining why the word came to mean 'black' or 'dark' on occasion is a challenge which has hitherto been neglected. Ultimately, therefore, she does not really confirm that it means 'green' – but can at least illustrate a conundrum surrounding a word which 'should' have been replaced by the many words which actually cover its role (e.g. 綠 *lù*, 'green'; 藍 *lán*, 'blue'; or 黑 *hēi*, 'black') – but still remains in use, with vague and precise meanings. It is clearly not the colour visible in the world which determines the selection of the word used in daily life, but rather the word which is attached to phenomena in the world⁴.

² Victoria Bogushevskaya, 'Grue in Chinese: On the Original Meaning and Evolution of Qīng 青,' 26–44.

³ For those to whom this is foreign, there is a brief discussion at the close of this review. Oversimplified, but in principle still correct, the problem is to what degree perception determines the understanding of colour (following Berlin and Kay) as opposed to language determining perception (following Sapir-Whorf).

⁴ Bogushevskaya does not go into it, but the same Chinese character (青) is read *ao* in Japanese and causes similar confusion in that language, which is part of the same cultural sphere, although the language is different. In this case, it is the Chinese term and character which determine the usage – and create the confusion. Confusion

Colla⁵ continues with Chinese colours in literature. Her approach is radically Whorfian, assuming that colour naming is determined by culture. After a lengthy prelude she goes straight to the importance of colour as an aspect of civilisation and intellectual thought in China of the mid-first millennium AD. By this time, colour had become pivotal to Chinese thought: fundamental to the five-phase system, colour was a means of categorising the world.

Saito⁶ takes a number of terms meaning ‘dark’ from Homer, linking some to the elevated and divine (*kelainós*, κελαινός), some to the Netherworld and death (*zóphos*, ζόφος, *skótos*, σκότος), or time (*knéphas*, κνέφας). She indicates that Homer had overcome the dichotomy of ‘black’ and ‘white,’ demonstrating that there is far more than ‘grey’ (*políos*, πολίος). That the beyond could be hinted at with the passage of time, the setting sun, darkness and death is certainly no novelty – but that Homer was consistent in his usage is important. Cruz⁷ draws on near universals and literature to reveal the importance of black colour as an aspect of racism. Although specifying that her cases are drawn only from modern Portuguese fiction, others will recognize the reality of ‘colour’ meaning ‘black’. The most disturbing aspect of this discourse in language is that contradiction pointed out by black poets long ago: that people with light (occasionally bronzed, occasionally pale) ‘white’ skins, rosy cheeks, red noses, yellow and red hair, green and blue eyes refer to ‘blacks’ as ‘coloured’.

Visualising colour

The issue of using images of human ‘blacks’ to stress social questions also arises in Marques⁸ discussion of Hogarth’s paintings and engravings. David Hogarth (1697–1794) was an aspiring London

arises because the underlying concept is part of the Chinese concept of the five phase system which is also understood in Japan.

⁵ Elisabetta Colla “‘The Sensuous Colours of Physical Things’: Liu Xie and Chinese Traditional Literary Theory and Criticism (Sixth Century),’ 74–94.

⁶ Yukiko Saito ‘The Uncertain World of Darkness in the Iliad,’ 95–117.

⁷ Amélia Cruz ‘The Colour of the Other in the Modern Portuguese Youth Novel: A Reading of the Books *Uma Questão De Cor*, by Ana Saldanha and *Baunilha e Chocolate*, by Ana Meireles,’ 118–130.

⁸ Marcia Marques, ‘Reading Colour in William Hogarth’s *Noon*,’ 162–177.

craftsman and artist who also wrote philosophically about colour; self-consciously, and drawing on Newton, one of Hogarth's main concerns was understanding and using the 'original' and 'compound' colours. In an age of Early Modern Western urbanism, issues ranging from sexuality to slavery could be addressed using black and white – and in Hogarth's mind, he associated colours with beauty. Rukodelnikova⁹ reveals that the colours red, yellow and black were particularly important in assessing the beauty of Chinese women. Strangely, red plays a prominent role in relation to beauty for both the Chinese and Hogarth (although Hogarth would also use red blotches to hint at the unhealthy).

Red is also prominent in Görling's¹⁰ 'Screaming Red' where Görling discusses work by Charles Sanders Peirce (1839–1914), who viewed 'redness' as an 'absolute'¹¹. Yet Gilles Deleuze (1925–1995) went on to state that in his reading of Peirce, 'colour is not a sensation'¹².

By contrast, Mendes¹³ reminds us that for Goethe¹⁴ (1749–1832) colours were sensual and that judgement impeded recognition and understanding – a point which comes strikingly to one's mind when reflecting that in this project, Goethe's German was at once pithier and more refined than any English rendering can be. Goethe's originals were neither Plato's ideal prototypes nor related to his understanding of light and far from Newton's optics: 'there was no separation ... between gazing ... and reflecting'; 'no disarticulation' between 'the production and reception of colour'. The question was 'how colours could reveal themselves'. Yet, paradoxically, when reading, it would appear that Goethe was unaware that his pure colours appeared more real to him when magnified by mists and the waters of the depths.

⁹ Maria Rukodelnikova, 'Colour and the Emotional Estimation of Female Appearances in Chinese,' 17–23.

¹⁰ Reinhold Görling, 'Screaming Red: Colour, Affect, and Cinema,' 147–161.

¹¹ Görling, 'Screaming Red,' 149.

¹² Görling, 'Screaming Red,' 149.

¹³ Anabela Mendes, "'The Bottom of the Sea Appears of a Purple Colour to Divers in Bright Sunshine": Brief Reflections on the Idea of Colour in Goethe, Kandinsky and Klee,' 178–188.

¹⁴ Mendes, 'Bottom of the Sea,' 181–183.

Peculiarly, while recognising the influence of Goethe, Klee consciously acknowledged the power of moisture. While unavowedly following Goethe's passive absorption of colour, Kandinsky perceived colour as impulse. For all three, art was eternal and colour essential, being both perception and expression.

Calapez¹⁵ is an artist offering descriptions and reproductions. One piece called *Parade 3*¹⁶ is described as being executed with 'more and much thicker paint and using different colours in different layers'¹⁷. From the photo, one can see that the same effect could have been achieved with less paint and more detail.

Calapez associates these paintings with Sousa Pinto (1856–1939, a younger contemporary of van Gogh). Calapez was 'absorbed by the luminosity of Sousa Pinto's backgrounds'¹⁸. Neither the panels nor the colour spectrum overlap with or resemble Pinto's work; in hue, the luminosity has shifted from green to red and brown, with only the vaguest of contacts in marginal yellows common to both. That brightness or luminosity are more important than hue should bring forth a collective shudder among scholars; philological approaches cannot overcome such disparities.

Görling¹⁹ goes into marginalisation of colour through the 'deconceptualisation of seeing' in the nineteenth and twentieth centuries; with specific meaning discarded, colour became quality (Görling with Walter Benjamin). Deconstruction rends our understanding of colour: 'The wavelength we consider as red is practically beyond the sensitivity of our eyes. Our eyes never see red!'²⁰. Görling also stresses that one could manipulate green in the same fashion as red, so that 'Every colour screams and every scream is a colour'²¹. In this essay, Peirce, Merleau-Ponty, Matisse, Ingmar

¹⁵ Pedro Calapez, 'On Colour,' 132–146.

¹⁶ Pedro Calapez, 'On Colour,' figure 6, among the full-colour unnumbered plates following, 146.

¹⁷ Pedro Calapez, 'On Colour,' 141.

¹⁸ Pedro Calapez, 'On Colour,' 141.

¹⁹ Reinhold Görling, 'Screaming Red: Colour, Affect, and Cinema,' 147–161.

²⁰ Görling, 'Screaming Red,' 153.

²¹ Görling, 'Screaming Red,' 160.

Bergman and others serve as the handmaidens of a movement which – paradoxically – was struck by the intensity and vividness of red. We nevertheless reach the nonsensical ‘There is no such thing as colour’²². This error eliminated the importance of colour, with the contemporary deconstruction as much a social construct as the long-enduring original partition of the spectrum into words used in language and pigments in art.

Even if one could dismiss the concept of denying colour, one can recognise the celebration of the banalisation of colour in contemporary culture, as Anishchanka et al.²³ measure the diversity of colour in advertising. Collecting more than 40,000 samples, they explore the ingenuity applied to inventing colour names and using colours, seeking material where ‘names’ are associated with visual samples and associated with categories of marketable goods.

Using complicated statistical analyses, they produce simple graphs demonstrating²⁴ that the variety of colour terms used in paints is surprisingly more than twice that in clothes, with make-up trailing paints and automobiles. Curiously, the variety of colour terms in make-up is thus slightly greater than in clothing, but ultimately closer to clothes than paints. To the naïve observer, this seems to mark some characteristic of the decoration of the body as opposed to the variety used in the built world. Re-use of colour names in the domains of automobiles and clothes becomes more common as the sample size increases; this contrasts with paints and make-up where policies of redundant abundance prevail in smaller samples. This latter phenomenon must be related to marketing strategies – and probably offers some hints about the cognitive understanding of how ‘applied colours’ share some inherent trait which differs from the use of colours in appearance (as in clothes and make-up).

In terms of the use of the colours corresponding to Berlin and Kay’s BCTs²⁵, pink seems the most popular and black the least, with the warm

²² Görling, ‘Screaming Red,’ 154.

²³ Alena Anishchanka, Dirk Speelman, and Dirk Geeraerts ‘Measuring the Diversity of Colour Naming in Advertising,’ 45–72.

²⁴ Anishchanka, ‘Measuring,’ 53.

²⁵ Anishchanka, ‘Measuring,’ 54.

and cold colours each respectively grouped together between the two (the colder group, including grey and white, being less popular). Purple automobiles are among the rarest, blue among the most common; in make-up, purple trails while red and pink lead. Thus, this study maintains that one can analyse advertising by colour, but is one really surprised that mascara is frequently black or that paints reveal the widest range?

Landscape and architecture

Chakravarty and Ball²⁶ throw light on the discrepancy between emerging Western misconceptions of colour (e.g. Görling) and traditional attitudes. They use architecture in the United Arab Emirates where the oldest traditional colours were beige and brown. Modern construction allowed Islamic Green and the widely appreciated blue; a backlash projected beige onto modern buildings, now being superseded with whites, modern greens and golds. These synthetic colours are understood as ‘modern’, while the others are ‘heritage’. Colour in the Gulf is lagging far behind the contemporary approach elsewhere since (a) modern Western architecture has generally neglected colour and (b) western attitudes to synthetic colours are fraying.

Cordeiro²⁷ tugs in the opposite direction, recognizing that mediation is a façade rendering reality irrelevant. Here, blue betrays its peculiar cognitive advantage, with different hues being used by Facebook and Twitter. This withdrawal reaches its zenith in the fictional world of tourism: imagined and virtual beaches with their blue skies and turquoise waters are promising liminal zones.

The seascape once belonged to battles and storms. The transformation into the rich blues of the romantic and imaginary ‘South’ is recent; it required nineteenth century Romanticism followed by the creation of French Riviera. Blue is innate to this, with van Gogh at the forefront, transforming the sea from stormy grey to celebratory blue.

One aspect of this narrative about paradisiacal blue in our

²⁶ Surajit Chakravarty, Patricia Ball ‘Beige Heritage/Golden Towers: Colour, Culture and Aspiration in UAE,’ 190–205.

²⁷ Maria João Cordeiro, ‘The Colour Blue: Perceptions and Representations in Travel and Tourism,’ 206–216.

contemporary world is the denial of blue in the ancient world. Cordeiro cites Pastoureau as arguing ‘that the contemporary preference for this colour (i.e. blue) is related to its banality and neutrality’²⁸ – yet Pastoureau recognized that in Antiquity blue was used for backgrounds²⁹, as it is today; whether the ‘f’ of Facebook, the golden stars of the EU, or the UN flag, blue is but background, raising spirits. This frivolous blue may be an attribute not of banality, but of civilisation. Paradoxically, more than half a century ago, in a discussion of ancient art, Groenewegen-Frankfort observed that ‘Only the colour blue will, for obvious reasons, invariably suggest sheer depth’³⁰. Thus, from being ‘profound depth,’ blue became a ‘trivial background’.

Premier’s³¹ contribution follows perfectly, demonstrating the success of polyvalent colours in contemporary metallic architecture breaking the skyline. Dazzling banality and blinding shock are sought, with variations in form and colour an integral feature of projects aimed at distraction. Zennaro and Gasparini³² exploit colour in a kindergarten for improving ‘learning and student achievements’³³. Guided by hygienic regulations, lighting and psychological studies, they chose blue and blue-green for classrooms to calm hyperactive students and dark red to make the environment more serious; orange for the entrance hall, intended to enhance the inherent social interaction; green was for teachers’ offices. Other parts were white; doors were colour-coded. Theirs is clearly a work in progress ‘aimed at a new approach for colour usage in schools’³⁴.

The contribution by Zorzi³⁵ on colours in military architecture veers jarringly between representations of architecture and fortifications,

²⁸ Cordeiro, ‘The Colour Blue,’ 206.

²⁹ M. Pastoureau, *Histoire d’une couleur* (Paris: Seuil, 2002), 23.

³⁰ H. Groenewegen-Frankfort, *Arrest and Movement* (London: Faber & Faber, 1951), 5.

³¹ Alessandro Premier ‘The Colour of Metal Surfaces in the Architectural Environment,’ 217–225.

³² Pietro Zennaro, Katia Gasparini ‘Kindergarten Colour Designs,’ 226–232.

³³ Zennaro, ‘Kindergarten,’ 226.

³⁴ Zennaro, ‘Kindergarten,’ 232.

³⁵ Manuela Zorzi, ‘The Colours of Military Between Architecture and Pictorial Representation: Notes for Research,’ 233–247.

with the colours receding into the distance. The grey and brown of the fortifications are enlivened by the occasional white church³⁶ thrown in. The city of Jerusalem is a glorious city of gold and precious stones, but the colours must be extrapolated as they are not on offer here. Sienna is indeed, exceptionally, ‘reddish’³⁷ – but colours are otherwise strikingly lacking.

Thus, the remarks and the bibliography would offer an occasion for a scholar to elaborate on the use of colour that is unfortunately missing here. It is likewise unfortunate that – remaining in the Renaissance and Middle Ages – she misses Herodotus’s (I: 98) description of the colours of the different walls of the citadel at Ecbatana and the cities on the Byzantine mosaic map at Madaba.

In the case of the Ecbatana fortifications, the colours are described in a text and the adjective *sandarákinos*, σανδαράκινοϛ is used as a colour (presumably orange or red), but in this case the word is derived from the material realgar/orpiment. Significantly, the Egyptians used this same material in artwork to depict what they intended to be understood as representing gold to the eye. In Herodotus’s text, the word ‘gold’ is used for yet another element of the architectural scheme, meaning that the colour was visually different (in some fashion) for the Greeks and the Egyptians. This means that the language and the colours used in architecture are highly significant in terms of understanding. There is a project here.

Thought theory

Although ostensibly dedicated to colour in the performing arts, at the start, Görling’s challenge to our way of ‘thinking colours’ (mentioned above) deals with Claude Monet’s ‘waves’ in the early days of Impressionism, noting that ‘Monet’s problem was not how to depict movement [...but...] how to depict the interruption and discontinuousness in it.’³⁸ This is highly reminiscent of Benjamin Lee Whorf’s opposite point that in reality an ocean ‘wave’ does not exist, and thus the Hopi ‘slosh’ is a more suitable designation for the

³⁶ Zorzi, ‘Colours of Military,’ 234.

³⁷ Zorzi, ‘Colours of Military,’ 242.

³⁸ Zorzi, ‘Colours of Military,’ 149.

phenomenon than the English ‘wave’³⁹. Therefore, the issue is really whether Monet is correct in giving the impression of the ‘broken’ nature of ‘waves’ or whether his thinking was misled by our language whereas the Hopi is closer to the reality of the relativity of ‘waves’ – as was Whorf’s contention.

Reboul⁴⁰, in the first chapter of the book reviewed here, takes us to the core of the debate about the nature of language and its relationship to thought. With the Sapir-Whorf hypothesis, Reboul deals with half of the most important conflict in colour studies, namely that between the patchwork Berlin and Kay dogma and the apparently vague Sapir-Whorf hypothesis. For the moment, these are the only two recognised alternative paths to the general theoretical analysis of colour vocabulary: the one assuming a universalist evolutionary scheme and the other making colour language-and-culture-specific. With an (only slightly modified) universalist approach, Berlin and Kay still dominate colour studies⁴¹. By contrast, Whorf has until recently been largely marginalised⁴².

The Berlin and Kay theory is a combination of (a) an acquisition sequence (black and white + red + green or yellow, etc., i.e. first ‘light and dark,’ then ‘cold’ and ‘warm,’ etc.) and (b) a list of 11 Basic Color Terms (BCTs) which are all abstract and salient in any given language. It presupposes that in each and every language a similar sequence can be traced, with the maximum number of terms being present in industrially advanced countries and the minimum number of terms found among what were once called ‘primitive’ peoples. The

³⁹ Pointed out by Chase in B.L. Whorf, *Language, Thought and Reality* (Cambridge MA: MIT, 1956), viii.

⁴⁰ Anne Reboul, ‘A New Look on the Sapir-Whorf Hypothesis on Colours, Based on Neuroscientific Data,’ 2–16.

⁴¹ B. Berlin and P. Kay, *Basic Color Terms* (Stanford: CSLI, 1992); Generally enthusiastically supported by e.g., C.L. Hardin, ‘Berlin and Kay Theory,’ *Encyclopedia of Color Science and Technology* (New York: Springer, 2013), DOI 10.1007/978-3-642-27851-8_62-2; for a balanced cognitive approach, cf. also D. Dedrick *Naming the Rainbow: Colour Language, Colour Science, and Culture*, Vol. 274 (Dordrecht: Kluwer, 1998).

⁴² Although people like this reviewer and, e.g., J. Davidoff, *Cognition Through Color* (Cambridge Mass.: MIT, 1991) tend find this approach more satisfying; see also, e.g., J. Fagot et al., ‘Cross-Species Differences in Color Categorization,’ *Psychonomic Bulletin & Review* 13, (2006): 275–280.

fundamental demand is ‘abstraction’. The criticism has been directed at the order of sequences and the number and nature of the BCTs.

The Sapir-Whorf model is less concerned with abstraction and acquisition sequences than stressing the way languages work and how the use of a particular language influences thought. This approach of ‘cultural relativism’ has fallen out of favour in our ‘multi-culti’ world, and thus the difference between the two approaches ends up being one of a dispute about ‘universalism’ as opposed to ‘cultural specificness’. Rather than going into these polemics, Reboul attempts to analytically dismantle the Sapir-Whorf hypothesis.

Reboul uses evidence from infants, incapable of language, and assumes that this voids the non-trivial claims favouring the Sapir-Whorf hypothesis. She also adduces evidence concerning ‘space’ and ‘counting’ whereby she can dismiss the evidence of lateralisation, where the right visualisation field implies the importance of linguistic encoding being dominant in the left hemisphere of the brain⁴³.

This allows her to argue that the results of scientific testing ‘do not provide any justification for considering that all colour perception is categorical perception and language dependent’⁴⁴. Ultimately, none of the evidence ‘seems to establish the foundations for a strong (non-trivial) interpretation of the Sapir-Whorf hypothesis’⁴⁵. Yet, even Reboul concedes that some evidence ‘is certainly consistent with the non-trivial variety of the Sapir-Whorf hypothesis,’⁴⁶ while concluding, that ‘they do not verify the absence of discrimination without categorical perception’⁴⁷.

With her insistency on finishing off what is widely regarded as a relic of old thinking, Reboul seems to seek to derail in advance a possible change of direction, possibly at least partially influenced by the ragged nature of the Berlin and Kay Theory after decades of minor and major criticism. Thus, Reboul’s endeavour cautiously argues that Sapir-Whorf can only be established as valid via a non-trivial affirmation

⁴³ Reboul, ‘New Look,’ 9.

⁴⁴ Reboul, ‘New Look,’ 10.

⁴⁵ Reboul, ‘New Look,’ 15.

⁴⁶ Reboul, ‘New Look,’ 9.

⁴⁷ Reboul, ‘New Look,’ 10.

of the theory. One pillar of the argument is based on responses about colour naming. The second pillar is a hypothesis teased out of a terse quote from Whorf having expressly said that thinking is done ‘*largely by the linguistic systems in our minds*’⁴⁸. Reboul proposes that according to Whorf, without language there is no thought but rather ‘only a medley of sensations’⁴⁹. Reboul’s method of ‘refuting’ a non-trivial interpretation of the Sapir-Whorf hypothesis means formulating it as: ‘no linguistic category means no discrimination’⁵⁰.

Yet, this version omits the ‘largely’ quoted above, and cited by Reboul herself. In fact, Whorf stated explicitly that ‘Some have supposed thinking to be entirely linguistic’⁵¹, meaning that he was not among them. For Whorf, ‘thinking [i]s the function which is to a large extent linguistic’⁵². Thus Whorf’s take on his work differed from Reboul’s claims. In this sense, she is debunking a straw figure of her own invention.

In his foreword to a selection of Whorf’s writings, Chase wrote:

Whorf as I read him makes two cardinal hypotheses:
First, that all higher levels of thinking are dependent on language.
Second, that the structure of the language one habitually uses influences the manner in which one understands his environment⁵³.

Thus, obviously, other readers of Whorf understand that infants without language cannot be used as evidence against his claims because Whorf’s claims concern the cognition of people habitually using languages, and that these ‘higher levels’ of thought are his concern. In this sense, the debunking is unsuccessful as Whorf’s hypotheses are fundamentally oriented towards aiding us in understanding human thought where languages are present (not understanding how thought is performed without language).

The difference between humans and the rest is that humans have language – and Whorf did indeed claim that language influenced

⁴⁸ Whorf, *Language*, 213; as cited in Reboul, ‘New Look,’ 2.

⁴⁹ Reboul, ‘New Look,’ 2.

⁵⁰ Reboul, ‘New Look,’ 9.

⁵¹ Whorf, *Language*, 66n.

⁵² Whorf, *Language*, 66n.

⁵³ Chase in Whorf, *Language*, vi.

human thought. Yet, obviously, animals can ‘think’ – and some can see colours and by general consensus all without language. In this sense, brains process a *‘kaleidoscopic flux of impressions’*⁵⁴ and draw conclusions. Other species lack languages which influence thought – and this is the most important argument advanced by Sapir and Whorf: that language can ‘distort’ thought (in my extreme reformulation). Yet Whorf understood this quite differently than I put it here. He argued, e.g., that Mesoamerican languages were superior to English in linguistically expressing the reality of Einstein’s Theory of Relativity in daily life. Thus Whorf’s claim is that language not only facilitates thought, but influences and determines its form – with logical outcomes being unconsciously expressed, *by virtue of the language itself*. Dealing with colours, perception and verbal representation are closely linked and these are ‘thought colours’.

Significantly, the evidence from the civilisations with the earliest known languages (Egypt, Mesopotamia, China, and Mycenaean Greece) demonstrates that these cultures employed more colours in art than they unequivocally identified in language, confirming that *even among adults*, representation and perception of colour took place beyond language. Yet perversely, we know that many of our modern thoughts about specific colours in our modern languages were largely distilled from a treatment of materials which gradually entered language in the form of vocabulary⁵⁵. Thus, non-linguistically influenced thoughts directed by the use of materials channelled the formulation of linguistically determined thoughts – and these thoughts influence our understanding. The challenge of understanding the emergence of ‘thinking colours’ is far more complicated than either Whorf or Berlin and Kay conceived. In this sense, one must not only bring Sapir-Whorf up to date, but

⁵⁴ Whorf, *Language*; as cited in Reboul, ‘New Look’.

⁵⁵ This is argued in several chapters of R. Goldman, *Essays in Global Color History* (Piscataway, NJ: Gorgias Press, 2016); e.g., in the passage from Herodotus (I: 98) mentioned above, the Greek word *kyáneos*, *κυάνεος* is used to describe the ‘blue’ colour of a ring of the fortifications; this word was originally derived from *uqnû*, the Akkadian word for lapis lazuli, as noted in Goldman’s volume (p. 71). This illustrates how the name for a material in one language can travel to another language and become a name for a colour – and how one can link this phenomenon of precious materials being related to the origins of colour terminology.

also Berlin and Kay. Plato's (*Tímaios*, Τίμαιος, 67c-69a) discussion of colours inevitably revolves around his colour vocabulary – and significantly, for Plato, 'bright' (*lamprón*, λαμπρόν) and 'brilliant' (*stílbon*, στίλβον) formed a colour category of their own, placed in line with red (*erouthrón*, ἐρυθρόν), following white (*leukón*, λευκόν, from which 'bright' is clearly separate) and black (*mélan*, μέλαν)⁵⁶. Thus the myriad of impressions left some traces, but the language actually determined the discourse, as we know since 'dazzling,' 'brilliant,' and 'bright' are no longer colours, but rather adjectives used to modify 'real' colours (such as 'white,' 'red,' and 'green'). Yet Berlin and Kay do not allow a 'bright' category; nor do Berlin and Kay allow a Chinese 红 *hóng* (meaning 'red' today) to mean 'pink' and then only later to assume that role as 'red' that it has today (as Bogushevskaya argues was the case)⁵⁷. One consequence of this is appreciating the importance of the fact that the early word 赤 *chì* for red is not salient, meaning that 'red' was once present in the language at an early level, but that the word for 'red' has not remained stable. The Berlin and Kay scheme is punctured with numerous such allegedly exceptional cases. By contrast, the Sapir-Whorf system seems largely compatible with the evidence – but it is far from being a complete theory of colour.

A preliminary final remark

Sapir-Whorf remains a theory of language where colours are encountered – but not a theory of the origins of words selected to correspond to colours, so much as their effect. And here, the impact of language itself on colours as part of the forms of expression can be seen in many languages. Most students of colour will react negatively to the dismissal of colour argued by Peirce and prefer to follow Goethe enthusiastically and seriously.

Through Hogarth (1697–1764), Marques confirms that colours served in art and thought through the eighteenth century, and Mendes that

⁵⁶ As observed by K. Ierodiakonou, 'Plato's Theory of the Colours in the *Timaieus*,' *Rhizai* 2, (2005): 219–233.

⁵⁷ Victoria Bogushevskaya, 'Semantico-Structural Patterns of Chinese Monosyllabic Colour Terms' Development,' Paper presented at the Progress in Colour Studies (PICS) Conference, UCL, London, 2016.

through Kandinsky and Klee, the inquiring and perceiving spirits of Newton and Goethe did indeed survive into the twentieth century. Reboul's state-of-the-art theoretical discussion takes us to the heart of contemporary debate just as Anishchanka et al.'s discussion of advertising opens new vistas. This small book pulls in very different directions, offers many useful insights and above all looks both forward and back to the neglected paths of the ancient world. That so much remains to be done is both inspiring and intimidating.

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