

CUBISM AND NON-LINEARITY

Christian Hidaka • Revoir Picasso's symposium • March 25th, 2015

After years of being mesmerized by Picasso's stylistic diversity, I wanted to locate the key to his colour logic. Eventually, I realized that it derives from the ancient Greek *tetrachromatikon*, the once ubiquitous colour mixing system that underpinned all classical European painting up until the Impressionists. Whilst it applies to Picasso's entire painted oeuvre in varying degrees, the archaic logic of the tetrachromatikon is redefined in his cubist works of 1909-1912.

PALM TREES FROM HORTA

To have a dialogue with cubism within my own work, I have appropriated aspects of Picasso's paintings alongside those of Matisse (between 1916-1917) and Gris. By using oblique projection, I am able to isolate parts of cubist paintings so that they can be imported and integrated into my own imagined spaces. Analytical cubism interests me above all other modernist idioms because its space is the most dynamic, complex and suggestive of all modern painting.

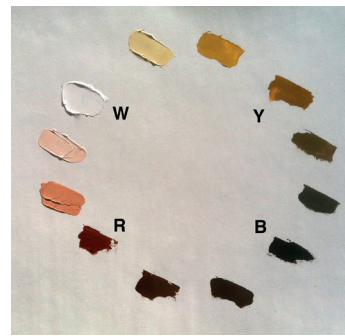
In my painting *Desert Stage* (2015, fig. 1), there is a palm tree taken from Picasso's *Factory in Horta de Ebro* (1909, Hermitage, St Petersburg) and on stage is Harlequin's dop-pelganger from the drop curtain for *Parade* (1917). For me, Harlequin personifies the theme of non-linearity, here surrounded by a cubistic stage set; references such as these have worked like talismans on a quest to understand cubism afresh. In the background, there is a rainbow made of the pigments that constitute the ancient Greek tetrachromatikon.



1. CHRISTIAN HIDAKA
Desert Stage
2015
Oil tempera on linen,
190 x 150 cm
Private collection
Image courtesy of the
artist and Galerie Michel
Rein, Paris

THE TETRACHROME DYNAMIC

It was as a result of hand-making my own paints that I came across the ancient and largely forgotten system of colour use, called the tetrachromatikon,¹ or the 'tetrachrome dynamic.' Invented by the ancient Greeks and reputedly used by Apelles, the system makes use of just four basic pigments: red earth, yellow earth, white and black (fig. 2). As a colour mixing technique specifically used for rendering flesh in classical painting, it was adapted by Picasso and Braque for their analytical cubist works.



2. CHRISTIAN HIDAKA
*Tetrachrome pigments with
intermediary mixtures*

The tetrachrome dynamic functions by contrasting complementary colour temperatures in order to invigorate a flat two-dimensional surface into one that has illusionistic depth. Black and white offer the broadest range of tones, whilst earth pigments such as yellow and red ochre are introduced between the black and the white to create cool and warm colour mixtures. Within the tetrachrome dynamic, black functions in place of blue to complete the triad of primary colours.

Context is crucial in tetrachrome painting. For example, a yellow ochre next to a red ochre appears cool, but yellow ochre placed next to a gray will make the yellow ochre appear warmer in temperature. The success of a painting made in this way depends on the interaction of pigment mixtures working together, in harmony. This is in opposition to modern synthetic pigments which tend to compete with each other because of their high colour saturation. With tetrachrome pigments, individual colour mixtures appear dull when seen in isolation; their strength depends on interaction with other warm and cool mixtures. Through delicate optical vibrations, the otherwise dull grey colour mixtures are miraculously brought to life.

TETRACHROMACY REDISCOVERED

The significance of ochre, charcoal and chalk pigments stretches back at least 70,000 years, seen for example in the engraved stick of red ochre discovered in Blombos Cave in South Africa. In Chauvet Cave 35,000 years ago, our Aurignacian ancestors codified different sections of the cave interior with separate pigments, intended to have symbolic function. The beginning chambers are painted predominantly in red ochre, whilst the deepest recesses are decorated using charcoal and the white of the calcite walls.

Colour use remained schematic until the Ancient Greeks discovered illusionistic painting with the tetrachrome dynamic, which was subsequently used by the Romans. After falling out of use during the Middle Ages, the technique was rediscovered by the artists of the Renaissance, thanks to printed copies of Pliny the Elder's *Natural History*,²² which contains the earliest description of the tetrachromatikon. It was quickly assimilated and put to use by the burgeoning artist workshops, with Titian, for instance, achieving mythic status using the tetrachrome dynamic. Velázquez and Rembrandt followed, adding their own twists to the redevelopment of the technique. Rarer or more expensive pigments such as vermilion, malachite and lapis lazuli were incorporated into the tetrachrome palette in order to increase the colour variety of opulent clothing, foliage and skies. Yet the core logic was always based on that of colour temperature.

It is black which pervades the colour identity of Spanish painting more than any other European school. Resisting the allure of brighter and more sensuous palettes of the Italian masters, El Greco, Ribera, Zurbarán, Velázquez and Goya typify this character, which Picasso inherited. The unequalled depth of black creates the extreme dimensionality and uncompromising solemnity of Spanish painting. On the other hand, paintings made with modern, vivid pigments will tend towards flatness: for example, Matisse's late cut-outs, the apotheosis of his Fauve palette. Thus the identity of most modern colour in painting places an emphasis on saturation and high chroma, epitomized by powerful and concentrated pigments such as the cadmium and phthalocyanine groups.

THE TETRACHROME BRIDGE INTO MODERN TIMES

Together with de Chirico, Duchamp (in 1912), Matisse (between 1916-1917), Braque (between 1908-1914) and Modigliani, Picasso may be seen as part of a tetrachrome bridge into modern times. His role is highly significant, given the intensity of his life-long exploration of the system. Picasso appears to have used it consistently as a framework on which to build colour relationships and especially in its purest form when he needed to regroup his ideas or reinvent his practice. It is clear when looking at a painting such as *The Barefoot Girl* (1895) that the tetrachrome dynamic was most probably knowledge that his father had given to him.

The only reference to Picasso's use of the tetrachromatikon that I have found is in Don Pavey's book, *Colour and Humanism*,³³ which charts a history of the tetrachrome



3. PABLO PICASSO
Self-Portrait with Palette
1906
Oil on canvas,
91,9 x 73,3 cm
Philadelphia Museum
of Art
A. E. Gallatin Collection,
1950. 1950-1-1
© Estate of Pablo Picasso
/ Artists Rights Society
(ARS), New York

palette. Pavey briefly notes Picasso's use of the tetrachrome dynamic, pointing out his display of four blobs of paint in his *Self-Portrait with Palette* of 1906 (fig. 3). I believe that Picasso aimed such an image as a statement of intent not simply towards us, the viewer, but also to Matisse. If Matisse's identity was the Modern Colourist, then here is Picasso, the Modern Tetrachromist. Tetrachromy, it seems, was still a force to be reckoned with. The stage was now set for Picasso to make the critical innovation: to render the tetrachrome dynamic non-linear.

PICASSO'S NON-LINEARITY

Within the tradition of Western painting, Picasso's greatest achievement was to render the tetrachrome dynamic non-linear. Looking at one of the poignant Fayum funerary portraits (such as *Portrait of a Man*, c. 25-75 CE, Ny Carlsberg Glyptotek, Copenhagen), we can see how the tetrachrome dynamic pertains to the "truth" of appearance through its dependence on rays of light that are linear—perhaps here the result of a painter observing an image projected by a parabolic mirror. In classical painting, the light source is always identifiable and the shadows cast by an object must always correspond to this source; there is never an exception to this logic.

Picasso begins to innovate with the tetrachrome dynamic in *Head* (fig. 4) made in the spring of 1908-1909. This work contains at least one earth, cool grays and most importantly black, which is downplayed during 1907 and reinstated during 1908. Moreover, cubist 'faceting' begins, having been extracted from Cézanne's own explorations in colour temperature, albeit with a more extensive colour palette.⁴⁴ By early 1909, Picasso is isolating warm and cool mixtures in *Two Nudes* (1909, Metropolitan of Modern Art - MMA, New York) by making a whole arm in a cool mixture and a whole torso in warm tones, unlike Rembrandt or Velasquez who place many complex colour mixtures within small areas. Picasso's deployment of the tetrachrome dynamic is both very broad and dispersed.

By the time Picasso reaches Horta, the innovation is clearly palpable in works such as *Nude in an Armchair* (1909, MMA, New York). Here is the tetrachrome dynamic: black, white, cool grays and the warm red and yellow earths. The earth colours used here are most probably a transoxide yellow and a transoxide red,⁵⁵ both more powerful and transparent synthetic equivalents to the traditional earths, raw and burnt sienna, thereby modernizing Picasso's tetrachrome palette.⁵⁶ The additional colour, viridian, is another transparent pigment and intensifies the cool grays whilst complementing the fierce transoxide red. If the earths and the grays evoke rock, then the viridian evokes the foliage found in the Horta landscape.

Splitting the dynamic of colour temperature from a linear light source was like splitting the atom, because a more powerful and new energy was released. The light source is fractured and non-linear, and with these multiple sources of light, an inner pictorial light emerges. He has extracted the tetrachrome dynamic from the laws of a linear optical reality to a whole new pictorial order, and with this there is a new type of space, because linear space is being dissolved.

To sum up, the colour identity of analytical cubism is the tetrachrome dynamic separated from the linear light source.

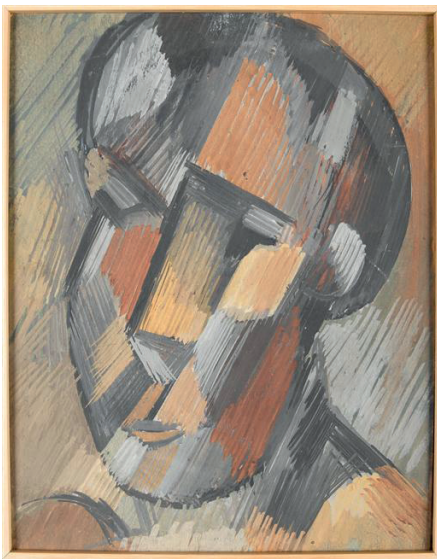
THE THREAD RESPUN

Examining this critical aspect of Picasso's work as a painter might offer an insight into why analytical cubism—when compared with that of other modernist movements—was left largely unexplored by subsequent painters during the twentieth century. The tetrachrome dynamic went into decline because of its association with academic painting, and here there is an interesting dilemma: it was impossible for painters to access the revolutionary colour logic of cubism without an understanding of the tetrachrome dynamic. Consequently, colour in much of twentieth century painting lacks the expansive, non-linear dimensions that Picasso had discovered and explored between 1909 and 1912.

Because the use of tetrachrome pigments extends back to the dawn of our history, they are inextricably entwined with our existence and are therefore timeless. Picasso re-spun our archetypal tetrachrome thread in a very non-linear way, and perhaps herein lies a route forwards for modern image construction: its frugality complements our ever more profuse non-linear age.

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4. PABLO PICASSO
Head of a Man
 Paris, Spring 1908-1909
 Gouache on wood,
 22 x 21 cm
 Musée national Picasso-Paris
 Dation Pablo Picasso, 1979,
 MP29
 © Paris, RMN - Grand Palais /
 Thierry Le Mage
 © Succession Picasso, 2016

One reason often mentioned regarding cubism's reduction of colour is that it had been a necessary step for Picasso and Braque to make in order to explore the new cubist space without the "distraction" of colour. But this cannot be correct: there must have been another logic, otherwise analytical cubism may as well have been made with black and white (monochromy) alone.

Picasso uses the tetrachrome logic of contrasting warm and cool colours, but he does so having extracted it from a linear light source. The tetrachrome dynamic had always obeyed the rules of light and had been synonymous with the laws of linear space and time ever since antiquity. Now that Picasso is beginning to dismantle a linear source of light, he is left more and more to deal with the dynamics of a pictorial surface structure, rather than a recessive, linearly sequential and depictive one.

1. See T. Spurgeon: *Living Craft, Zoetrope, and Middlebury*, Vermont, 2013. This text introduced me to the concept of the tetrachrome palette.

2. Pliny the Elder: Book 36, Chap. 12, Loeb Classics, 1989.

3. *Colour and Humanism: Micro Academy*, London 2009, and p. 213.

4. Rather than the decadent tetrachromy of the French neo-classical schools, was it Cezanne's

youthful and expressive version of the tetrachrome dynamic, (for example, *The Black Clock*, 1869) witnessed at the seminal 1907 retrospective that offered Picasso and Braque the conceptual basis for the colour identity of analytical cubism? Picasso had dispensed with tetrachromy during 1907 and returns to it after Braque's own employment of it in his *Large Nude* of late 1907.

5. Transoxide pigments are made from synthesised iron oxide, the principle ingredient in all mined

ochres that contain natural impurities such as clay deposits.

6. Because they are micronized (which renders them transparent), transoxide pigments emanate an interior light. They are traditionally used to varnish violins, wainscoting and wooden furniture, a synchronicity that accords with Braque and Picasso's cubist still lives of 1912-13.