


















































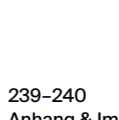


Das sichtbar werdende Unsichtbare

The appearance of the invisible

Index

005–010 Editorial	 039 106 → 161 Nicolas Garner	 056 116 → 178 Justinas Vilutis	 067 122 → 194 Mert Şen & Ruud Van Moorleghe	 080 137 → 206 Sabina Bösch	 093 145 → 223 Christelle Boulé
011–012 Das Blau des Himmels Evolution und Sprache	 040 107 → 162 Sabina Bösch	 057 116 → 181 Jill Senft	 068 123 → 004 Rahel Brochhagen	 081 138 → 208 Christoph Knoth	 094 146 → 224 Pawel Wolowitsch
Sky blue Evolution and language	 044 109 → 165 Offshore Studio	 058 117 → 182 Laetitia Troilo	 069 125 → 195 Laura Zoccarato	 082 139 → 209 Kristina Huber	 095 147 → 227 Aurel Dahlgrün
013 Blau fühlen Die „romantische“ Farbe	 045 110 → 166 Maxime Guyon	 059 118 → 183 Tim Vorbäumen	 070 126 → 196 Johannes Bauer	 084 140 → 211 César Bardoux	 096 147 → 229 Rahel Brochhagen
014–016 Vom Blaumachen Ein historischer Anriss	 046 111 → 168 David Heuer	 060 118 → 184 Laura Zoccarato	 071 128 → 199 Rie Yamada	 085 140 → 212 Aurel Dahlgrün	 097 147 → 230 Kid Cash alias Christian August
018–027 Reproduktion von Farbe Blau in der Kunst	 048 112 → 169 Laetitia Troilo	 061 119 → 187 Justinas Vilutis	 072 129 → 200 Laura Zoccarato	 086 141 → 215 Felix Bork	 198 148 → 231 Massimiliano Audretsch
028–032, 152–153 Intro	 033 102 → 155 Dimitri Bukreev	 049 113 → 170 Laetitia Troilo	 062 120 → 188 Nathalie Heider	 089 143 → 216 Rie Yamada	 099 149 → 232 Aurel Dahlgrün
 035 104 → 004 Johannes Bauer	 050 113 → 173 Offshore Studio	 064 121 → 190 Ricardo Ferrol	 075 133 → 203 Tobias Holzmann	 090 143 → 219 César Bardoux	 100 150 → 235 Björn Giesecke
 037 105 → 156 Johannes Bauer	 053 115 → 174 Clement Tremblot de la Croix	 065 122 → 191 Irene Fernández Arcas	 076 134 → 004 Rahel Brochhagen	 091 144 → 220 Lynn Lehmann	 100 151 → 236 Christelle Boulé
 038 106 → 158 Nicolas Garner	 055 116 → 177 Marvin Leuvrey	 066 122 → 193 Laetitia Troilo	 079 136 → 205 Marvin Leuvrey	 092 145 → 221 César Bardoux	239–240 Anhang & Impressum / Appendix & Colophon

Das International Klein Blue (IKB) ließ er sich im Jahre 1960 schließlich patentieren. Und – seien wir mal ehrlich – sein Blau erfüllt Goethes Hypothese in jedem Fall: „Es zieht uns nach sich.“

EN

If we place ourselves at the edge of a mountain lake shortly before sunset, we can observe rapid changes in the shades of blue above the mountains. The seemingly endless view triggers in us the feeling of relaxation and freedom. This impression increases with our gaze getting lost in the different shades of blue in the far distance.

We mostly associate positive terms with the colour blue, such as harmony, sympathy, infinity, trust, friendliness, reliability, relaxation, stillness or fantasy. At the same time we regard blue as cool (distant) and neutral. It seems like contrast is at the very heart of this colour and indeed, its spectrum spans from nearly black to nearly white.

But where do all these shades of blue, that we almost fail to name in their entirety, stem from? Which of them is sky blue, light blue, pastel blue, medium blue, grey blue, water blue, green blue, cloud blue, fog blue, black blue or night blue?

Blue is the most popular colour in Europe. This is particularly evident in the public sector where blue can be found on flags, billboards or publications of companies. Both artists and designers are keen users of the colour blue.

It is not a big coincidence that we also call the earth ‘the blue planet’. Thanks to its high density of water it appears mostly blue from outer space.

We like to think our world is full of colour even though

we know of its actual absence. Physical processes allow us to see colour: incoming light meets the retina and the seemingly infinite number of photoreceptors situated underneath. Thanks to the collaboration between these we are able to experience our environment visually. It takes three colour cones (one of the two types of photoreceptors) to be able to see in colour. If one of them is missing its associated colour will be impossible for us to see.

We developed our ability to see as part of evolution. It is likely that, many centuries ago, we experienced our environment as rather colourless. However, thanks to evolution we were, for example, able to distinguish and edible fruits, solely based on their colour. In the past and in the present we have used and still use our vision for orientation. It makes our whole life easier.

Seeing colour is dependent on both our eyes and our brain, therefore individual perception of colours can vary significantly. Each individual perceives colour from their own point of view. Factors such as experiences, cultural background, habits and associations – for example similarities to objects previously known to us – play a significant part in the perception of colour and the resulting effect. Thus our visual system does not translate the length of light waves into our experience of colour in a 1:1 ratio.

Whilst other cultures of other countries and continents (such as Japan or Africa) make use of a large spectrum of colours in language, the differentiation between colours in the European territory is relatively limited. We compare shades of colours with objects, moods and characteristics known to us yet. Existing colour systems sit therefore in direct correlation with our lingual habits. In Russian for instance blue comes in multiple shades. It is given that each shade of blue

Unsere Vorstellungskraft und das Erinnerungsvermögen spielen hierbei eine große Rolle. Unweigerlich projizieren wir bestimmte Farbtöne in bestimmte, uns bekannte Situationen und Dinge hinein.

Neben den industriell und chemisch angerührten Farben für die Malerei sind uns heute noch ganz andere Hilfsmittel zur Reproduktion von Blau gegeben. Vor allem technische Medien finden mehr und mehr Einzug in die Reproduktion von Farben. Doch auch technische Hilfsmittel wie die Fotokamera reduzieren die originalen Blauinformationen nur in ihrem Möglichkeitsrahmen. Erstellen wir einen Abzug eines mit unserer Kamera aufgenommenen Bildes, so gehen bereits bei diesem Vorgang viele Farbinformationen verloren. Die Kamera „verfälscht“ die ursprünglich aufgenommenen Farben. Auch unsere Möglichkeiten der Reproduktion durch den Druck sind begrenzt. Denn jeder Drucker, ob Digital oder Offset, druckt anders. Daher sollten man Farbtöne im Andruck testen und eventuelle Veränderungen am Computer vornehmen, falls einem das Ergebnis nicht zusagt: aufhellen oder abdunkeln, mal mehr, mal weniger den Farbtöne verschieben. Es braucht viel Zeit, um einen Farbtönen so genauestens im Druck wiederzugeben. Allein ein Wechsel von einem zum anderen Farbprofil in der Bildbearbeitung kann extreme Auswirkungen und Veränderungen im Farbtönen mit sich bringen. Daher sollten wir uns bewusst sein, dass eine Wiedergabe der blauen Grundfarben bereits eine Verfälschung ist. Zwar entwickeln Wissenschaftler mehr und mehr Sonderfarben für spezielle Druckverfahren, die es ermöglichen, einen intensiveren und meist leuchtstärkeren Farbtönen zu erzielen. Doch existieren auch hier nicht alle Farbtöne exakt so, wie wir sie wahrnehmen können. Die Farbskala der Pantonefarben (eines der existierenden Farb-matching Systeme) weist zum Beispiel nur um die 100 Blaunuanen auf. Es existieren etliche mehr, auch wenn wir ab einem gewissen Punkt Schwierigkeiten haben, sie alle noch wahrzunehmen.

Daher ist die hundertprozentig korrekte Darstellung und Eins-zu-eins-Reproduktion eines Blau-Farbtönen sowohl in der Malerei als auch in der digitalen Welt selbst heute noch nicht möglich. Wir bewegen uns lediglich in einem Raum der immer präziser werdenden Annäherung. Denn allein das Unterscheiden ähnlicher Blautönen mit bloßem Auge erfordert eine enorme Konzentration und gute Beobachtungsgabe – oder schlicht viel Erfahrung. Wie gut unsere eigene Farbwahrnehmung ist, hängt u.a. neben unseren persönlichen Erfahrungen und den kulturellen Hintergründen, überwiegend mit Training und einem professionellen Umgang mit Farbe zusammen. Auf Farbumterscheidungen konditionierte Augen nehmen minimale Unterschiede zwar eher wahr, haben aber auch mit der Schwierigkeit zu kämpfen, das Gesehene perfekt zu reproduzieren.

The usage of blue increased through the centuries not just in fashion but also in the arts. At the same time painters faced practical difficulties to reproduce and vary shades and effects of blue in an adequate way. It so happened that blue paint was rather unstable. Only from the 17th and 18th century onwards the production of paint with more intense and vibrant shades of blue and higher durability was successfully established. None of the priorly known blue paints, which were made of stone or plants, had made it possible or affordable to apply vibrant colours in larger areas. For this reason vibrant blue was only applied occasionally and on the most important details such as parts of Virgin Mary's venerable gown.

Painting was on the forefront in terms of the recognition of blue. In contrast to the low popularity for blue shades in everyday dresses, the art world had already established a certain affinity for blue colour at the beginning of the 12th century. Around this time, paintings of the mourning Virgin Mary dressed in blue emerged instead of black or other dark colours. These would later cause the expensive demand for blue in fashion.

But even in art, blue remained an expensive and precious colour for a long time. It was used with great care and precision. Only the accidental production of Prussian Blue or Berliner Blue in 1709, an synthetic paint made in Berlin, allowed all European artists to use a strong hue of blue. For two centuries it changed the colour palettes of painters like no other. Unfortunately this new blue paint proved to have a rather short durability and was therefore not universally useful. Whilst the textile dye industry made rapid progress, the art world had to be patient until the defects in blue paint were cleared. From mid-18th century, several experiments were conducted to improve the formula of blue paint. Academies and companies held contests, which resulted in larger blue colour palettes but failed to improve the durability of the new blue paint.

Thus when looking at older paintings, we should always consider that they might have potentially changed the colour over time. In addition to this special conditions, such as exposure to sunlight, can fade out hues, just like temperatures and drying processes can alter colours. If we admire a painting or photograph today, for example in a museum, we cannot be certain that it looked exactly this way at the time of its creation. We can only guess which exact hues the artist originally chose. Our imagination and our memory are both playing a part in this. It is inevitable that we project certain hues into certain situations and objects.

Today, next to industrially and chemically produced colours for painting, we have other aids for the reproduction of blue at hand. In particular, technological media plays an increasing role in the reproduction of colour. But even technical aids such as the camera reduce the originally existing information on blue within its limits. It is something we should always be aware of. When we create a printed version of a photograph that we took

with our camera, we lose colour information. Since the camera itself already “distorts” the originally captured colours. Finally, the technical opportunities of reproduction through printing are limited. Each printer, digital or offset, prints differently. We would have to test hues in exact test runs and make eventual changes on the computer in case the result does not satisfy us: lighten, darken, less, more. It takes a tremendous amount of time to recreate a hue as exact as possible. The change from one colour profile to another within the digital picture-editing context can cause extreme impact and changes in a hue. Therefore we should be aware that each reproduction of primary blue or any other colour can already be a distortion. Despite the existence of special colours for specified printing methods, which allow us to create some more vibrant and intense hues, there are still a lot of other colours that can not be recreated in the way we originally experience them. The Pantone colour scale for example (one of all the existing colour matching systems) spans only over roughly a hundred hues of blue even though there are significantly more, some of which we even will struggle to detect.

Thus the exact depiction and one to one reproduction of a certain hue of blue colour remains impossible, both in painting and in the digital world. All we do is to move in a sphere of increasingly exact approximation. Even the differentiation of hues of blue with the bare eye demands enormous amounts of concentration and observation skills, or simply experience. The performance of colour perception depends not only on personal experiences and cultural backgrounds but also mostly on training and professional interaction with colour. Eyes that are conditioned to differences between hues are able to perceive tiny changes but still struggle to reproduce what they have seen exactly.

C100

M87

Y7

K1

C100

M82

Y35

K21



C74

M66

Y45

K42

C73

M45

Y2

K1

C74

M64

Y55

K66

C55

M64

Y42

K38

C50

M39

Y11

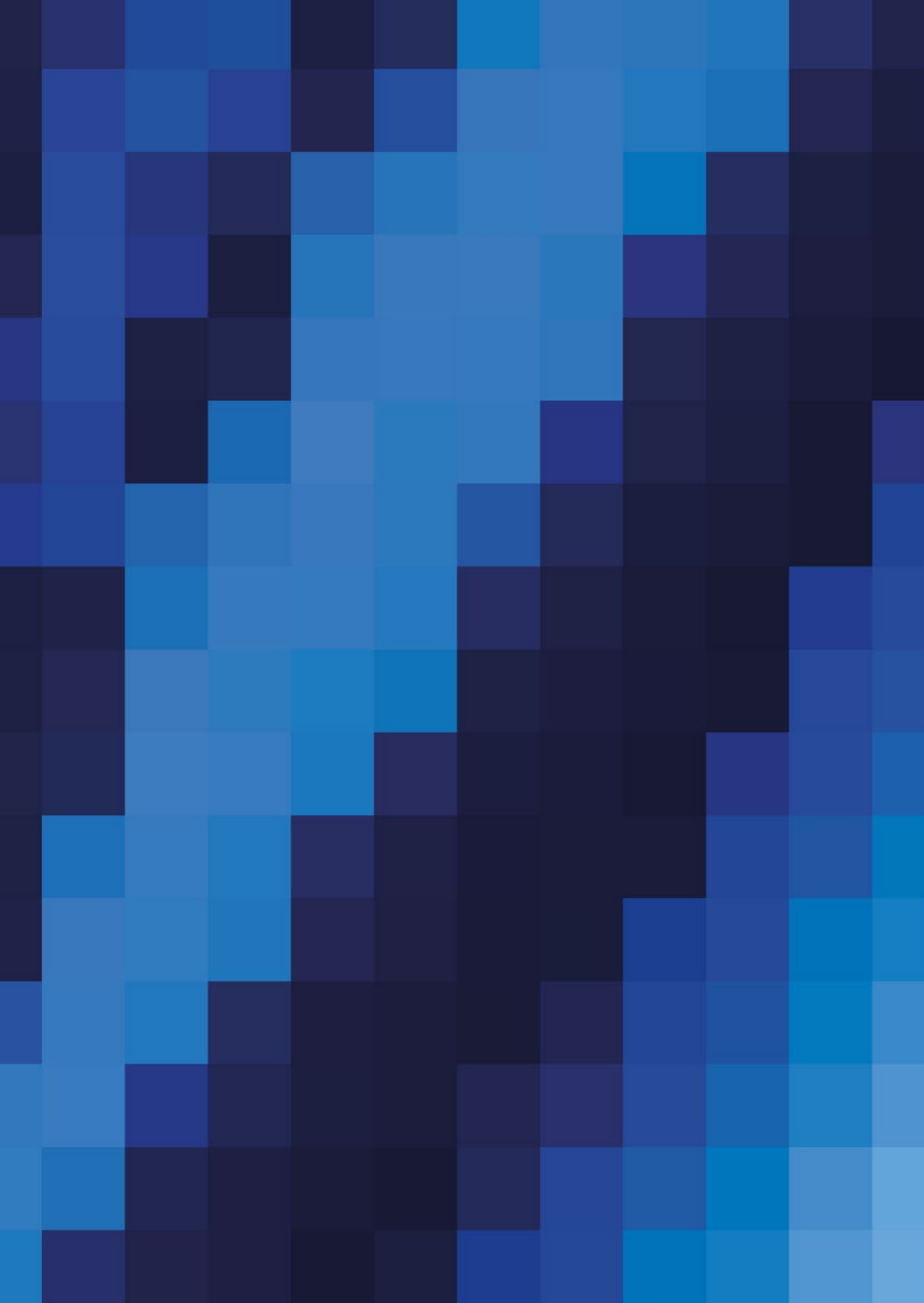
K51

C54

M35

Y44

K18



102 01

102 01

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155 Waves auf 1px

Reduction of image
1595 Waves to 1px

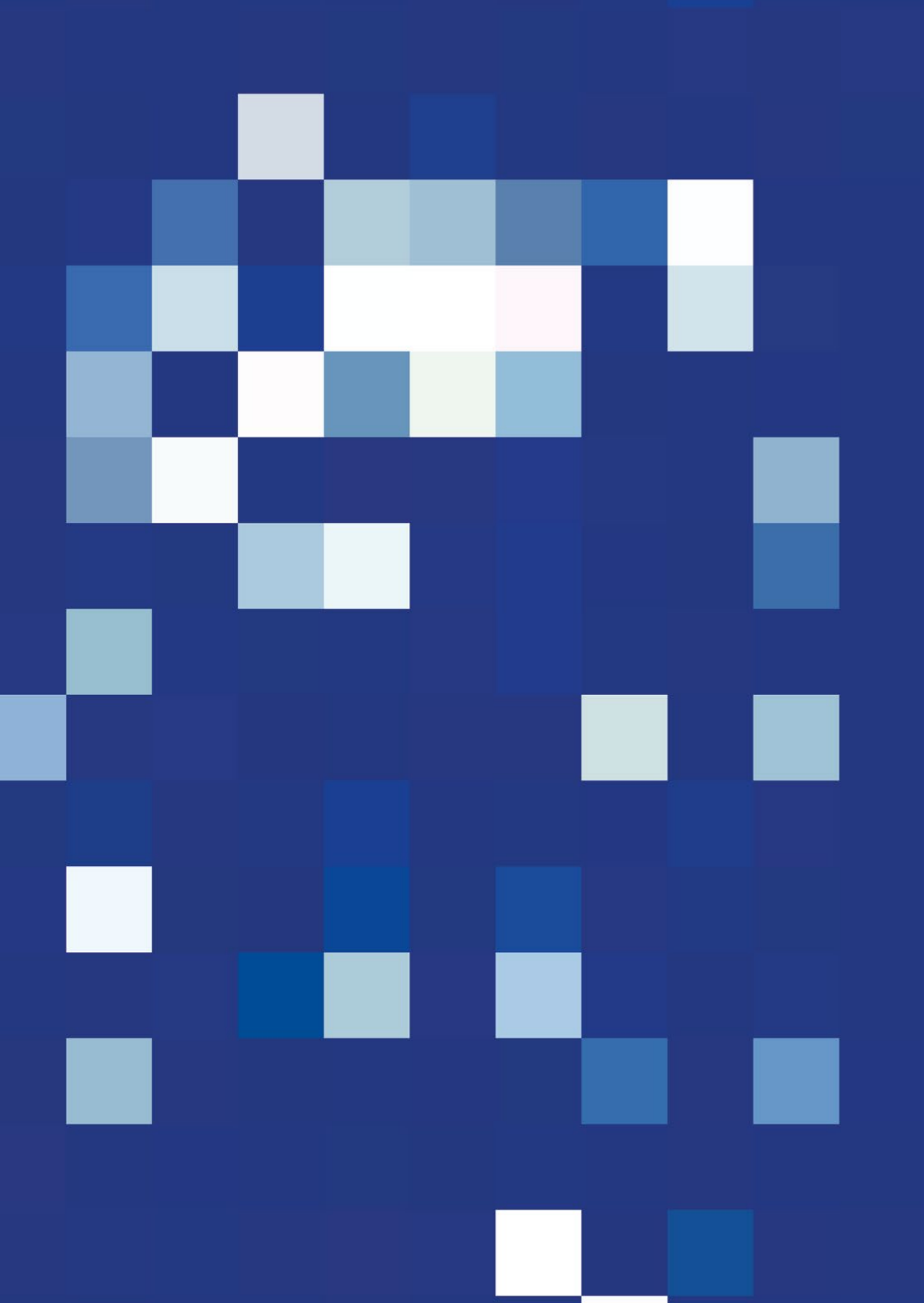
103 01



103 01

Reduktion der Arbeit
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Reduction of image
020 02 Untitled to 1px



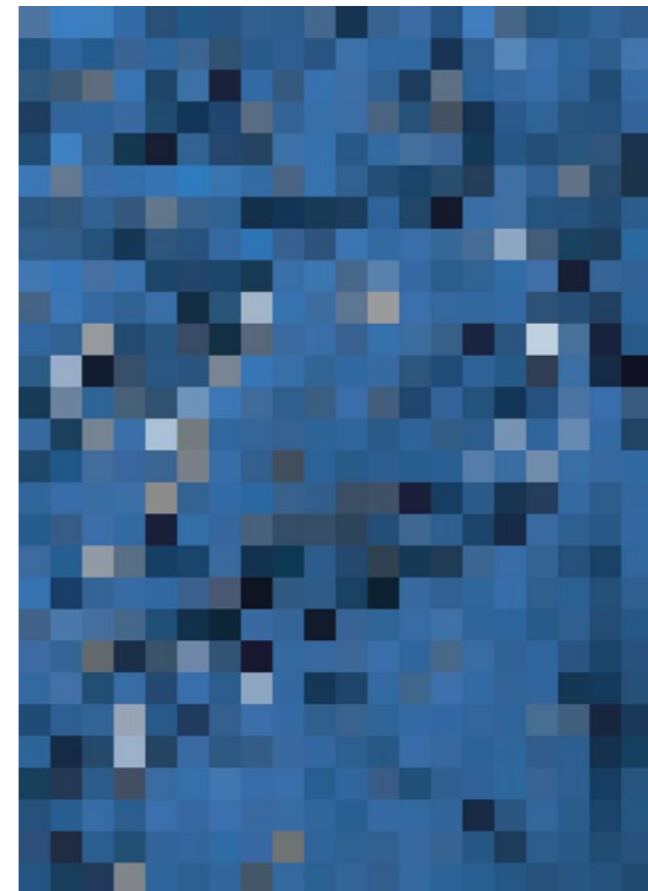
112 01

112 01

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169 Untitled III auf 1px

Reduction of image
169 Untitled III to 1px

113 01



113 02

113 01

Reduktion der Arbeit
170 Untitled I auf 1px

Reduction of image
170 Untitled I to 1px

113 02

Reduktion der Arbeit
173 Liquid Earth II auf 1px

Reduction of image
173 Liquid Earth II to 1px

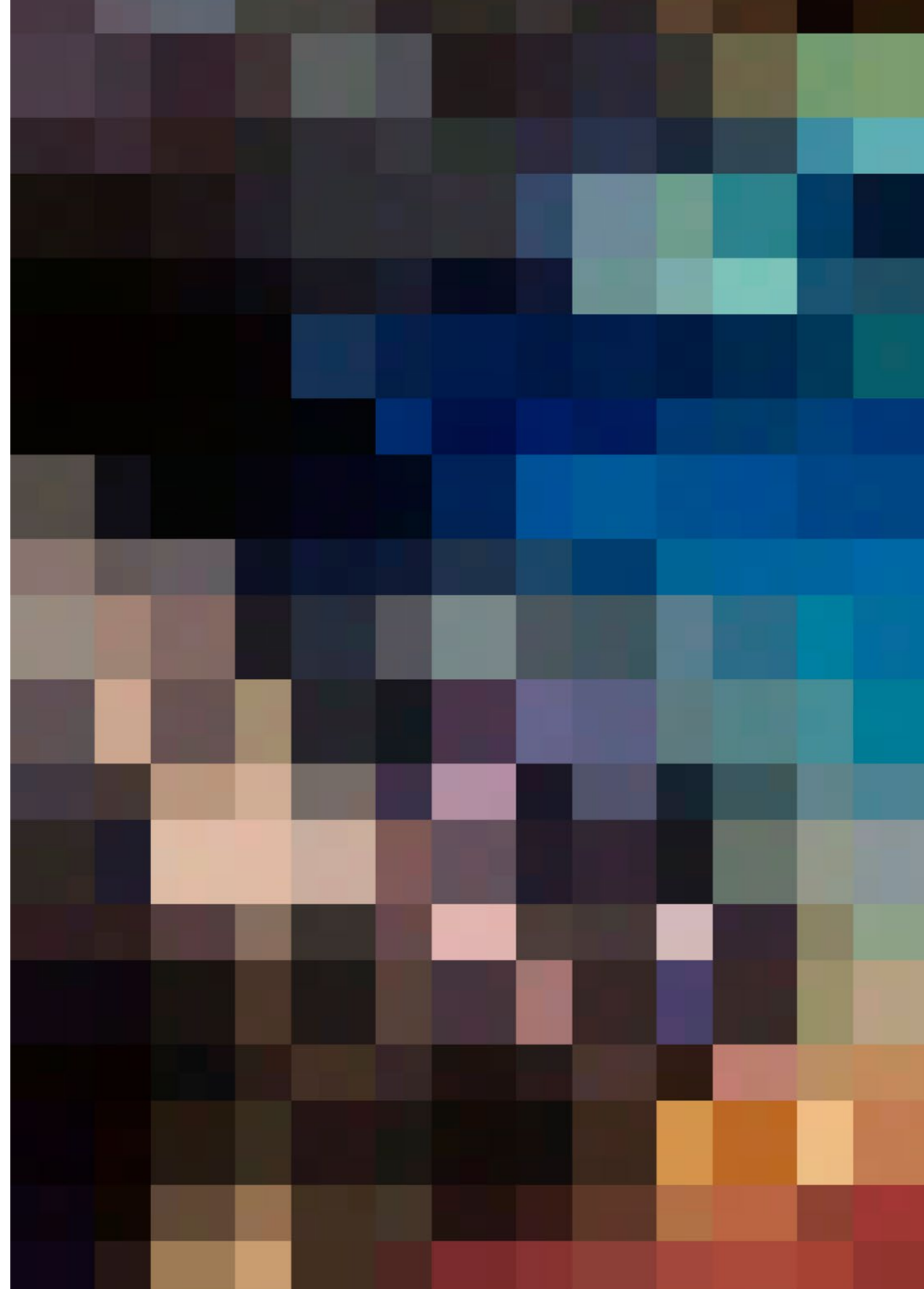
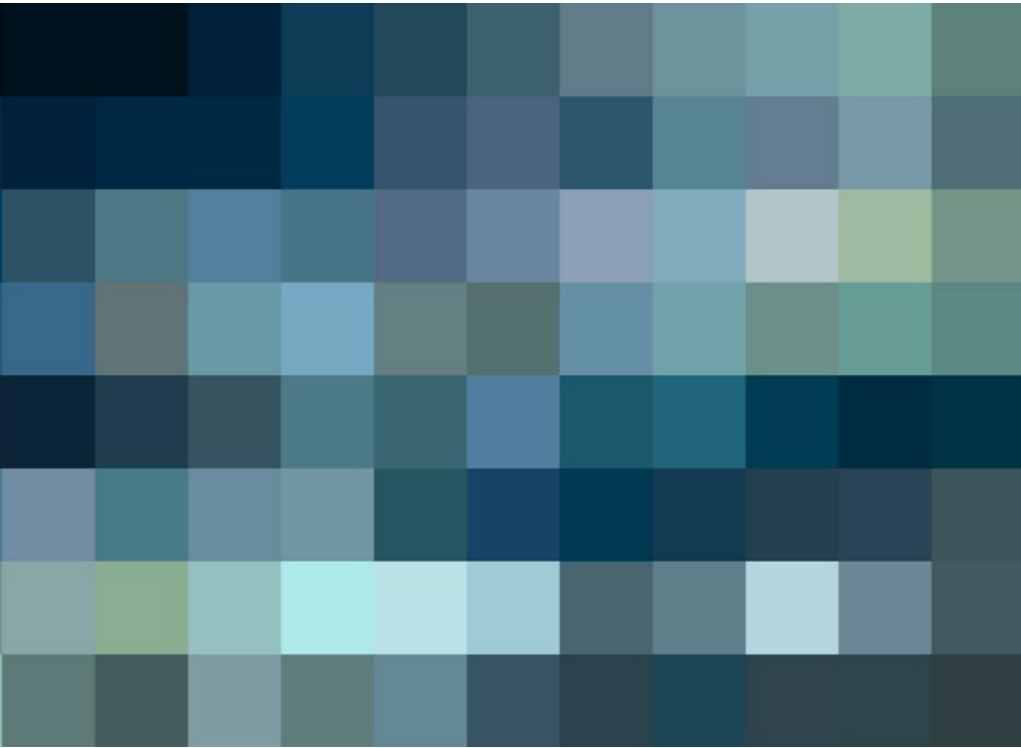
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125 01

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Reduction of image
195 Deep Water I to 1px

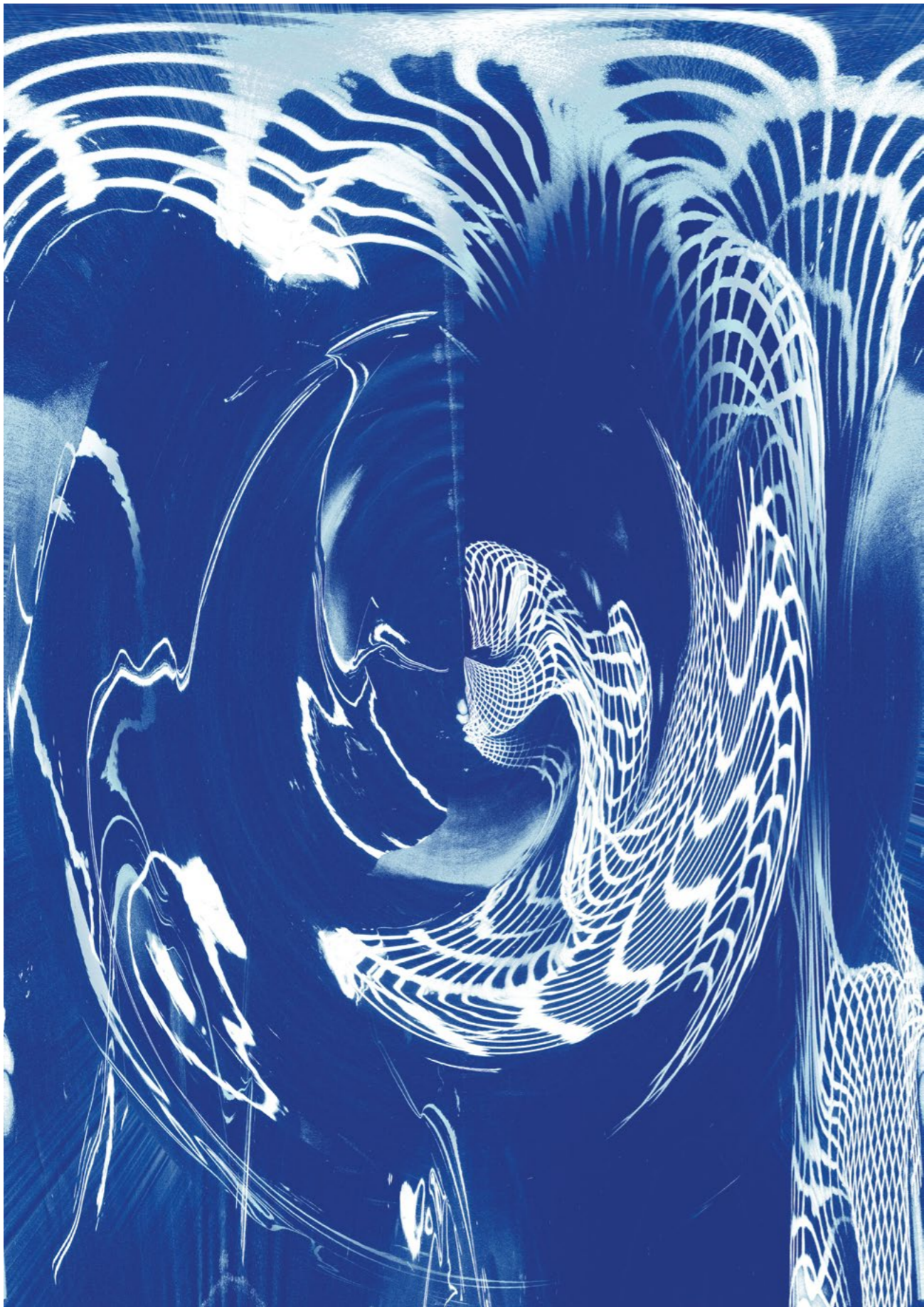
124 01



124 01

Reduktion der Arbeit
018 01 Wave auf 1px

Reduction of image
018 01 Wave to 1px



182
Laetitia Troilo
Untitled II, 2017
Digitale Collage
Digital collage



183
Tim Vorbäumen
Into the blue, 2017
Digitale Collage
Digital collage

