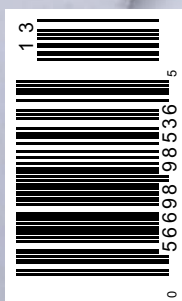


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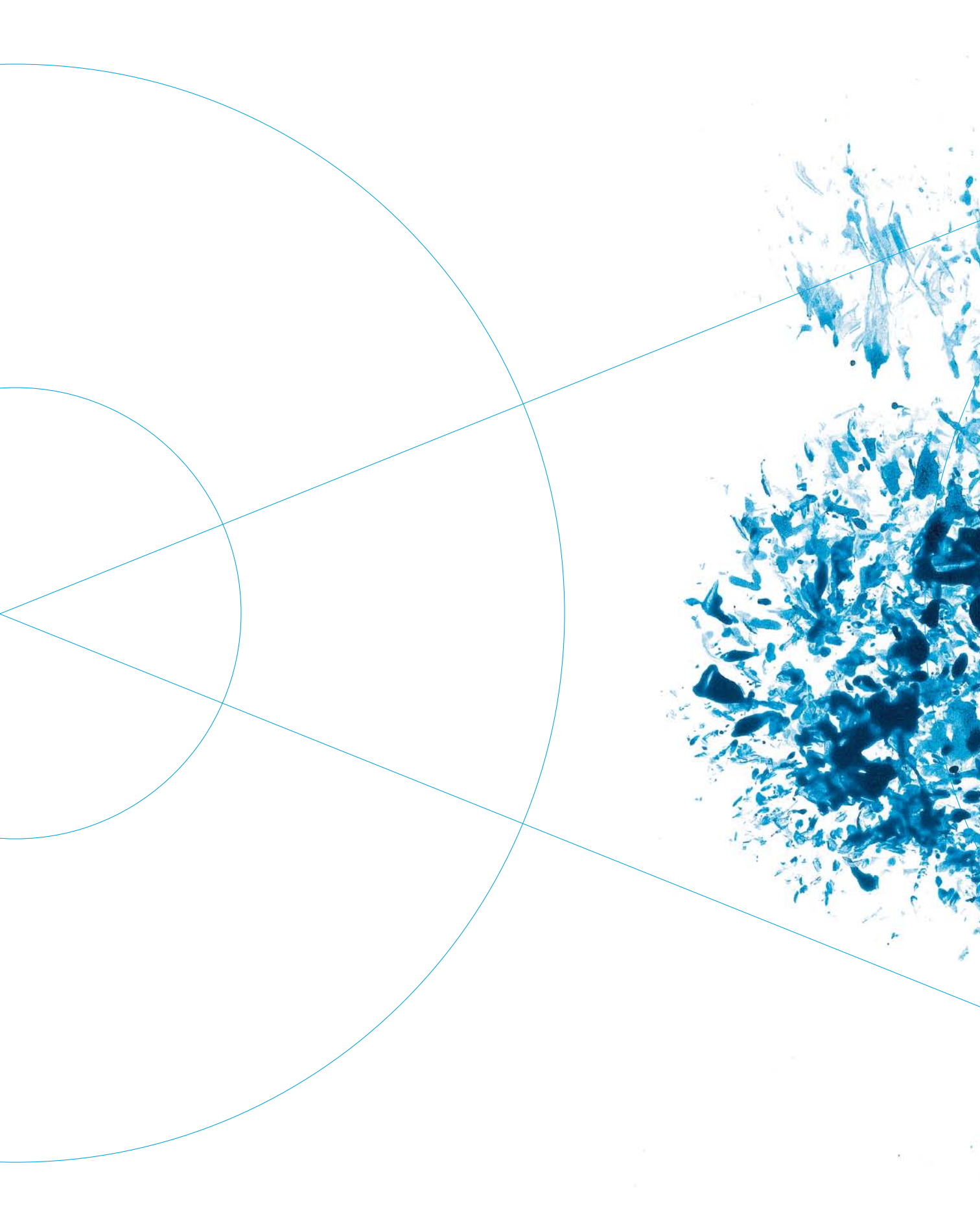


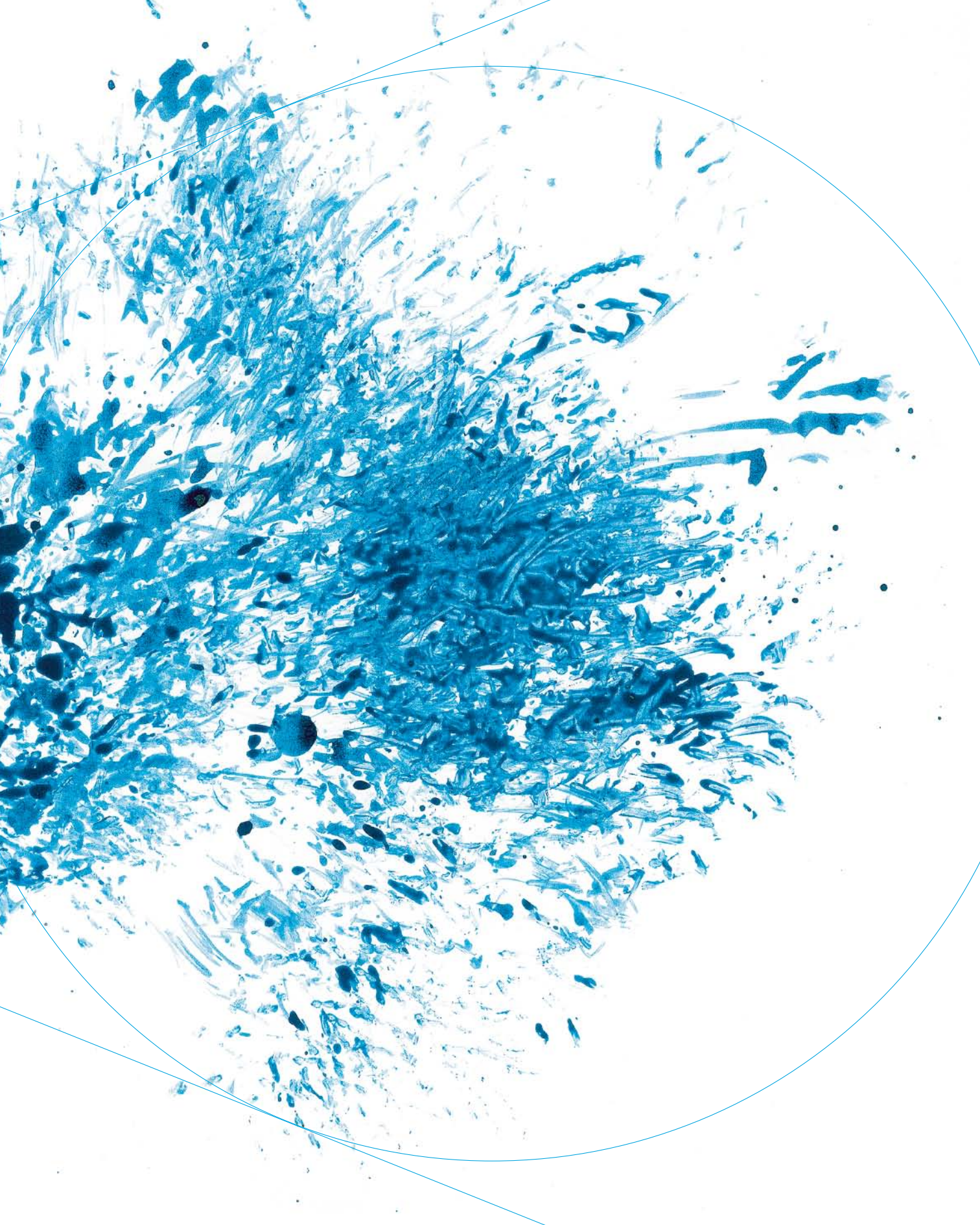
ARTIST PROJECT / ZUGUNRUHE

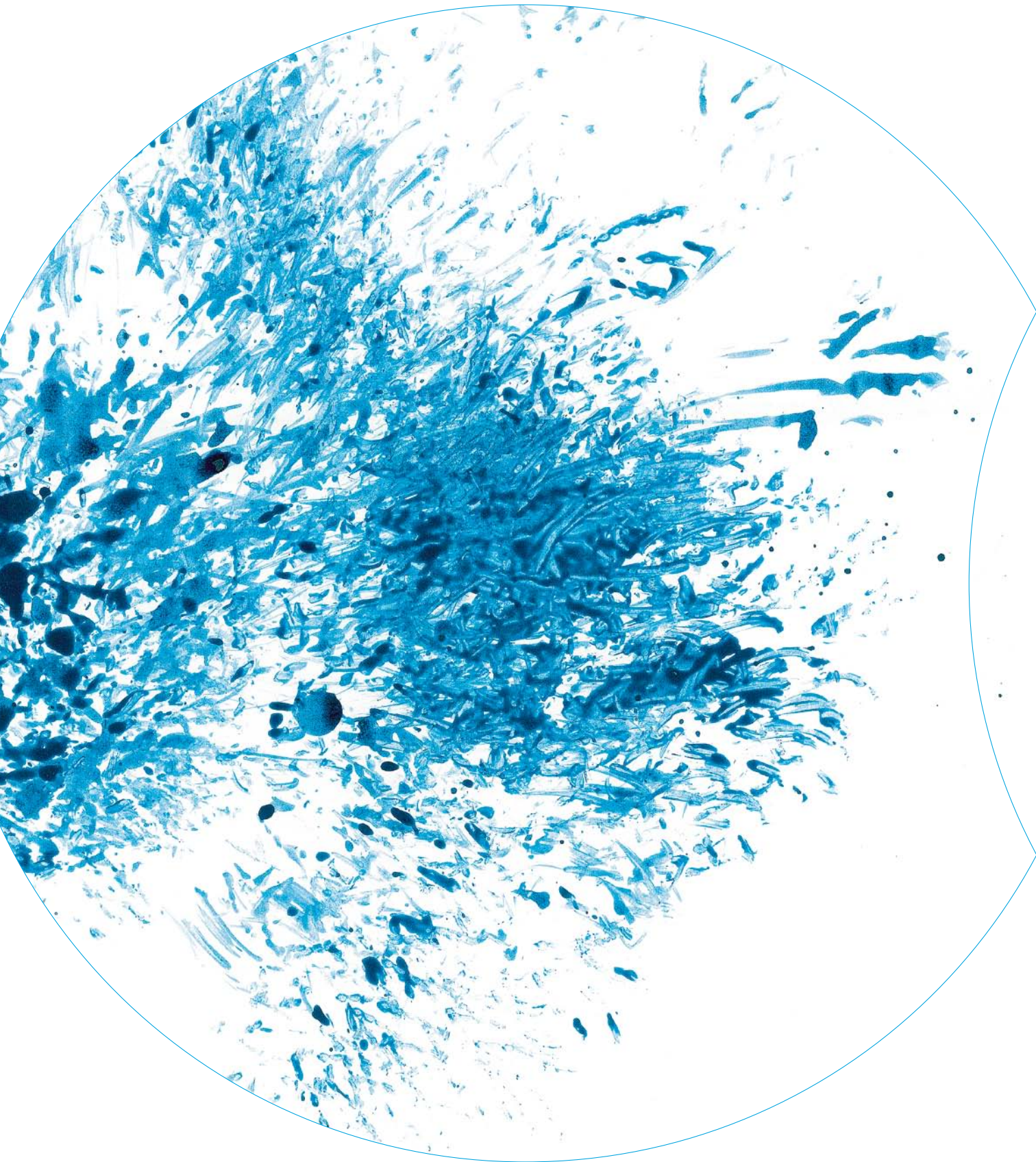
RACHEL BERWICK

An artist who has consistently probed the relationships between nature and culture, Rachel Berwick draws on a range of allied disciplines—from the biological sciences to anthropology and history—to examine the ways in which animals function as both objects and subjects of human inquiry. Her projects have considered the fates of extinct species such as the Tasmanian tiger and the passenger pigeon; the rediscovery of the “living fossil” fish, the coelacanth; and the status of Lonesome George, the last living Pinta Island tortoise in the world. For her project *Zugunruhe*, the artist turns her attention to one of the central mysteries of avian migration.

Berwick would like to thank Jenny Chan/Jack Design for her assistance on the design of the project presented here.







agitation

restlessness

German

desire to migrate

their need to go,

reveal

Indigo Buntings

stars navigate.

see the sky

paper

ink on their feet

marks
sense of orientation.

altered

altered

align with

stars to navigate

compelled

follow
route

quivering rapidly

zugunruhe.

agitated
traveling in place
measure of

attempts to go

compulsion to go

...in the term used to describe the phenomenon and
...that birds exhibit prior to migration. The phenomenon
...was first identified and named by the German
...Gustav Kramer in 1949. He had created a birdcage
...with a glass floor in which he placed migratory birds. Through
...the glass floor he watched the birds' increased agitation during
...times of migration. What he was witnessing was their need to go
...their desire to migrate: *zugunruhe*.

Kramer's discovery of the phenomenon of *zugunruhe* became the
...basis for much of the study of bird migration to follow.

In 1968 Steve Emlen, an ornithologist from Cornell, used the
...phenomenon of *zugunruhe* to create an orientation cage designed to
...reveal the ways in which Indigo Buntings use the stars to navigate.
...The Indigo Bunting (*Passerina cyanea*) is a night time migrator.

His orientation cage was cylindrical with opaque sides and a clear
...top allowing the birds to see the sky. The bottom of the cage was
...funnel shaped and lined with paper surrounding a flat ink-pad in
...the center. The birds were able to hop and flutter within the
...cage, picking up ink on their feet and then leaving marks on the
...paper. These marks became the record of their sense of orientation.

Emlen placed a single bird in each cage, and then put the cages
...in a planetarium. He then altered the orientation of the stars in
...the planetarium by 90 degrees. In response the birds altered
...their movements to align with the adjusted star map, revealing
...that they did in fact use the stars to navigate.

The phenomenon of *zugunruhe* is such that even in captivity birds
...are compelled to migrate. In the orientation cages, the birds
...continued to try to follow what they perceived to be their
...correct migratory route; north for the summer and south for the
...winter. In reality all they could do was to circle the cage with
...head tilted upward, wings partially spread and quivering rapidly.
...movements consistent with descriptions of *zugunruhe* behavior.
...Repeatedly the birds would hop forward onto the sloping paper
...only to slide back down before starting again, pointing, delivering
...and hopping. Their ink stained feet marked the paper floor
...recording their persistent, agitated and futile attempts to go
...birds were, in effect, traveling in place. The accumulation of
...these marks became the measure of their compulsion to go
...*zugunruhe*.

Zugunruhe is the term used to describe the restlessness and agitation that birds exhibit prior to migration. The phenomenon of zugunruhe was first identified and named by the German ornithologist, Gustav Kramer in 1949. He had created a birdcage with a glass floor in which he placed migratory birds. Through the glass floor he watched the birds' increased agitation during times of migration. What he was witnessing was their need to go, their desire to migrate: zugunruhe.

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