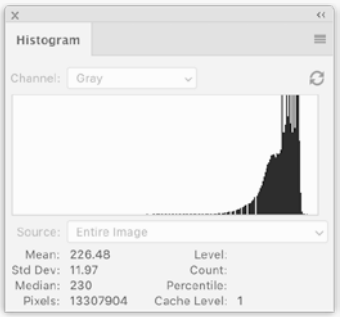
In digital imaging software the histogram is a visualisation of the distribution of color values across the individual pixels that constitute an image. The histogram is presented as a graph, with color values along its X-axis; and their relative representation in the image along its Y-axis. One of Adobe Photoshop's interfaces for changing the color in an image, "Curves," is displayed as a histogram with a linear overlay that can be manipulated by adding and adjusting control points on a Bézier curve. These manipulations, as the name of the tool suggests, smoothly redistribute the balance of color in an image. In this interface, however, the histogram is shown only for reference — no precise what-you-see-is-what-you-get control of the histogram is possible in Photoshop.

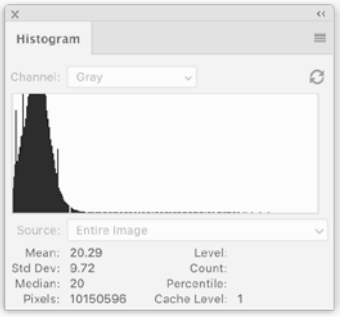
In multi-channel color images interactions between color values are complex, but in a greyscale image the histogram is a simple, legible chart that an experienced software operator can intuitively relate to the visual appearance of an image.

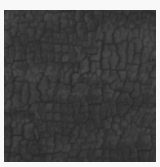
If the histogram registers pixels tending to the right of its range, the image will be relatively light:





If it registers pixels tending to the left of its range, the image will be relatively dark:

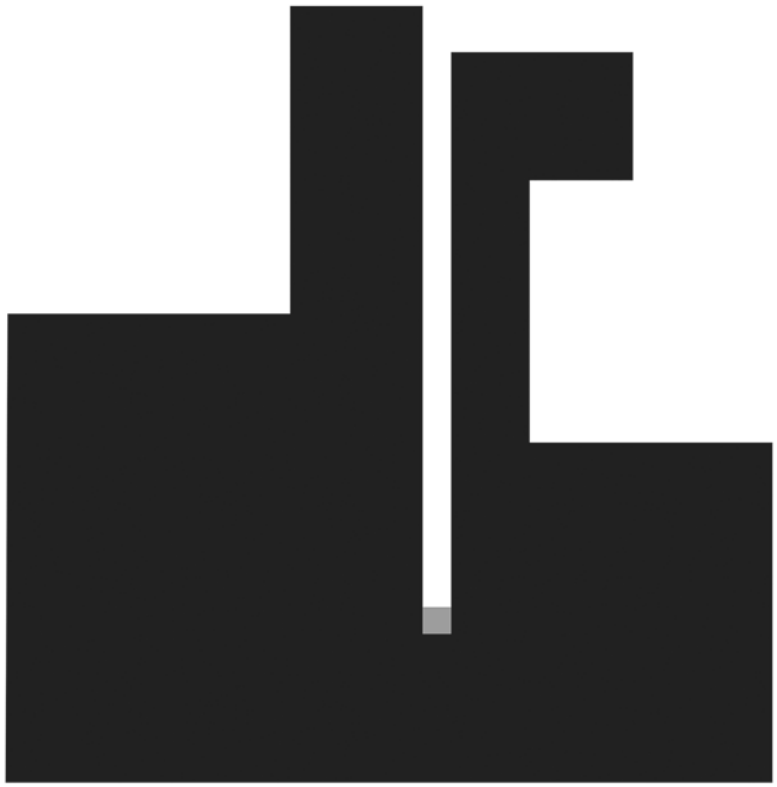




The overall range of the histogram represents the tonal variety of the image. The broader and deeper the histogram, the more greyscale values appear in the



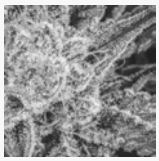
42 NEGATIVE-POSITIVE 1950



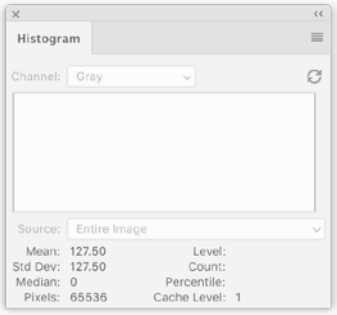
NEGATIVE-POSITIVE 43

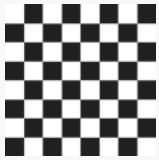
image, and the more visually complex it is likely to be:





The histogram of a chessboard looks like this:





Only pixels at the two extremes of the greyscale range are represented: whites and blacks. The columns at the left and right of this histogram are as thin as they can be — they correspond to the value "0," pure white, and "100," pure black, on the X-axis.

If half of the black squares are sorted to the left of the image, and half to the right, the image begins to resemble its own histogram, which is unchanged, because statistically the relative number of black and white pixels in the sorted image is identical to the original chess-board image.



Sandpit is a JavaScript image processor developed by Simon Knebl and I at HfG Karlsruhe. Sandpit treats the histogram as a meta-image and enables manipulation of its graph for purely visual purposes, while maintaining its effective relation with an original image.

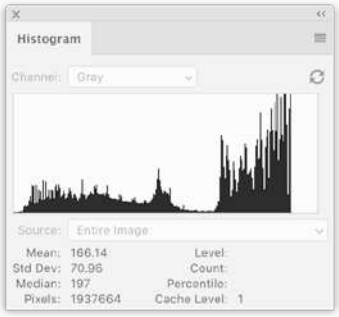
To demonstrate, here is a section of one of Bruno's negative-positive sketches. It looks like a building with two tall chimneys:



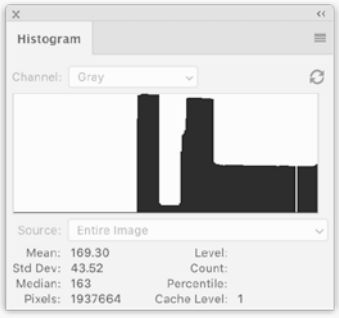
Here is an image found on a stock photography website that has a similar composition, Battersea Power Station:



Here is the histogram of that image:



Here is the histogram again, altered in Sandpit to resemble the sketch:



Here is the consequence of that manipulation for the power station image:



Here is a section of another negative-positive sktech by Bruno. It looks like two bent arms:



One of the earlier negative-positives had been included in the 1951 Salon des Réalités Nouvelles in Paris. An exhibition only devoted to negative-positives was later hosted by the Galleria Bergamini in Milan, in 1952. The fundamental idea in this series is that a work's every element — each shape, each part of the surface — can be considered either as a foreground or as a background. The resulting visual effect — today referred to as OP (optical art) — causes every shape to apparently move, shifting forwards or backwards in the viewer's perceptual space, thereby creating a chromatic dynamic, a visual instability as the viewer's attention focuses on each shape.

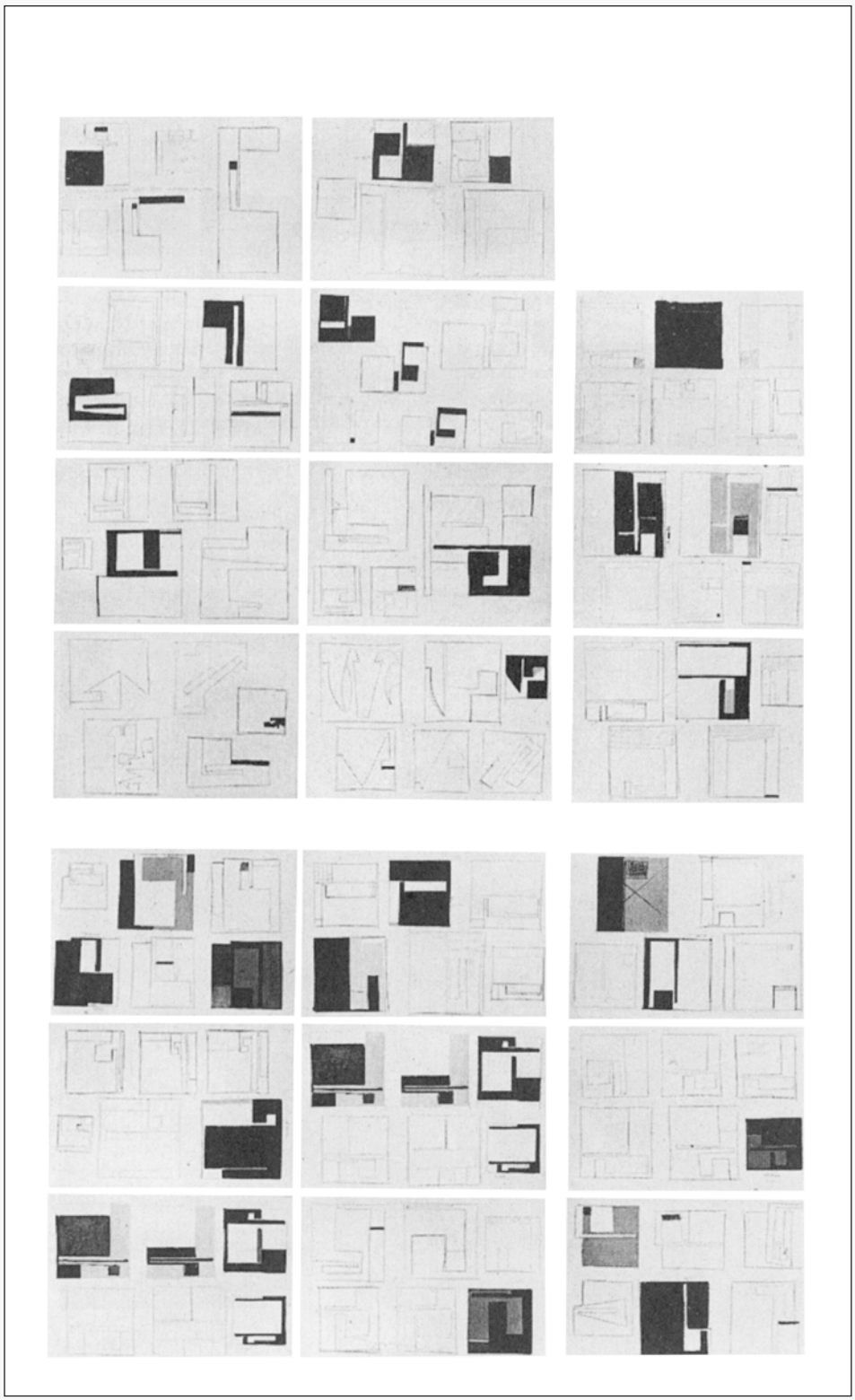
A similar effect, a kind of base-effect, is produced by any chessboard: it's hard to determine whether it's a white surface partially covered in black or vice versa. Whenever we try to focus on one situation, it immediately flips over into the next.

Of course a chessboard is of little aesthetical interest, as black and white are present in equal quantities. In the negative-positives the author tries to generate an aesthetical interest through the disproportion of space and color.

Soon enough in this research, the works' boundaries — initially a square — were altered, and the total shape of the set of shapes composing negative-positives determined an autonomous space, enclosed by a square but with an irregular perimeter, generated by the shapes themselves independently of their supporting frame. Some works had cracks, allowing the wall into the composition.

The later projects featured sets of shapes in complementary colors sharing one edge, as in the prints presented here, further underlining their ambiguous positional effect.

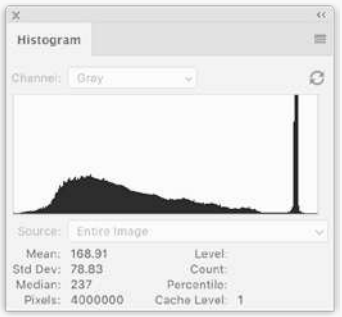
44 NEGATIVE-POSITIVE 1950



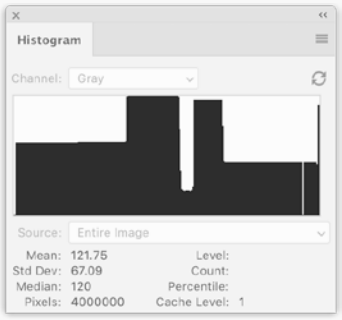
Here is an image found on a stock photography website that has a similar composition, two body-builders:



Here is the histogram of that image:



Here is the histogram again. It has been manipulated in Sandpit to resemble Bruno's composition:



Here is the consequence of that manipulation for the body-builders:



An image that looks like itself *in the abstract.*

(James Langdon)