

# THE CENTERING

On the frame that must be destroyed, the dome that needed none, and the one art in which the scaffold may be exhibited beside the arch.

GEVIERT · seed centering-modern-3

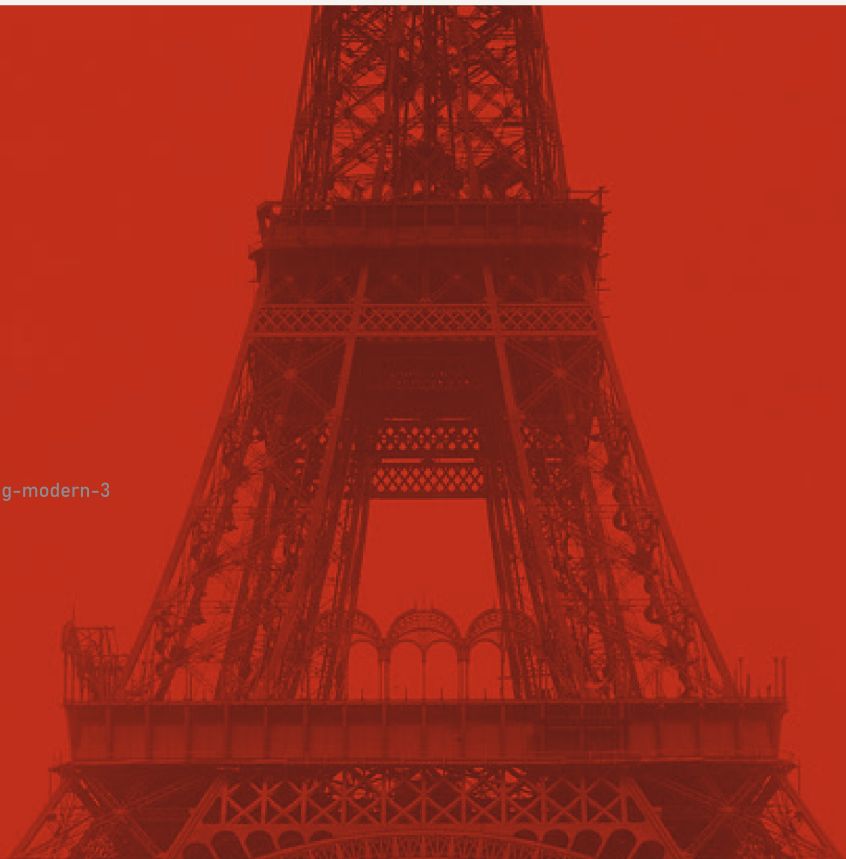




Plate 1 — Falsework: the timber frame of the East River caisson, built in order to be destroyed or buried. Harper's Weekly, 1870.

### I. THE FRAME THAT MUST BE DESTROYED

An arch, until its last stone is in place, has no strength at all. This is not a figure of speech; it is a statement about masonry. Each voussoir in an unfinished arch is a wedge of stone in the act of falling, and it falls unless something holds it exactly where it will one day hold itself. That something is a temporary wooden frame, curved to the intended intrados, built by carpenters and

destined for destruction. The trade calls it the centring, or the centering, and it is the most eloquent object in the history of building. Nobody visits it. It appears in no photograph of the finished bridge. It exists in order to be taken away (Plate 1).

The taking away has its own name, its own tools, and its own long argument. To strike the centering is to drive back the wedges beneath it,

evenly, so that the frame descends by fractions of an inch and the arch, if it is an arch, silently accepts its own weight. The nineteenth-century manuals are unanimous only in their disagreement about when to do it. Some hold that the centre should be struck the moment the spandrels are filled; others that the mortar must be given weeks to harden. The dispute cannot be settled from outside, because both parties are describing the same intolerable condition: you cannot know whether the thing stands until you



Plate 2 — The Washington Monument in its scaffold, mid-century: an unfinished shaft held by wood.

remove what is holding it, and you cannot put the frame back (Plate 2).

Here is the thesis of this essay, and it is not about masonry. Nothing stands, at first, by itself. Every made thing is held, while it becomes itself, by a structure that has no place in the finished thing. The whole art of making is the fate you choose for that structure: to strike it, to dissolve

it into the work, to seal it inside, or to let it stand as the work. Everything else is craft, which is to say, everything else can be taught.

## II. THE DOME THAT NEEDED NONE

In 1418 the wardens of the cathedral of Florence had a hole in their roof one hundred and fifty feet across and no idea how to close it. The vault they wanted could not be centred: no forest in Tuscany held timbers long enough to span it, and no scaffold rising from the cathedral floor could be trusted to carry a masonry heaven. Filippo Brunelleschi won the commission by promising the one thing nobody believed possible. He would build the dome without centering.

The reader will notice that this section of the book has no plate. There is no photograph of Brunelleschi's centring, and there is no engraving of it either, for the excellent reason that it never existed. What he built instead was a dome that supported itself at every instant of its own construction: two shells, one inside the other, tied by ribs, and between the ribs a herringbone brickwork in which each fresh course was pitched so that its weight passed sideways into the vertical ribs rather than downward into empty air. The dome never leaned on anything but itself. It rose in closed rings, and every closed ring was already a compression structure complete in itself, a finished arch, so that at no hour did there exist an unfinished span requiring a frame. It remains the largest masonry dome ever raised.



Plate 4 — The statue under assembly. The scaffold outside will go; the skeleton inside will not.

One should be careful about the moral, because it is not the obvious one. Brunelleschi did not dispense with structure; he moved the structure



Plate 6 — The head, exhibited in a Paris park before shipment: frame and skin visible at once.

inside the work, distributing it into the courses themselves, and paid for it in a complexity of method that he guarded so jealously that



Plate 3 — Paris, 1882: the copper skin rising, plate by plate, on Eiffel's iron armature.

scholars are still reverse-engineering his brickwork today. The scaffold does not vanish when you build without one. It is dissolved into



Plate 5 — Falsework and figure, indistinguishable at this hour.

the thing, and the thing becomes harder to make in exactly the measure that it becomes free to stand. Any artist who has ever replaced a page of

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Plate 7 — The tower rising: a scaffold that carries only itself. Louis-Émile Durandelle, 1888.

rules with a single sufficient idea knows this trade, and knows its price.

### III. THE SCAFFOLD THAT STAYED

Now the third possibility, which the nineteenth century discovered almost absent-mindedly and then could not stop exploiting. In a workshop in Paris in the early 1880s a copper woman was assembled in pieces around an iron skeleton

designed by Gustave Eiffel: a central pylon carrying a secondary armature of flat bars, so that the skin might ride on springs of iron and move in the wind without tearing (Plate 3). The skeleton was scaffolding of a kind, and it was never struck. It is inside her still (Plate 4). Visitors climb through the falsework of a national symbol and photograph it, believing they are looking at the inside of a statue, which they are (Plate 5).



Plate 8 — A scaffold being scaffolded. When the timber came down, nothing changed.

Before she was shipped she was exhibited in pieces, and Paris queued to see a head sitting in a park, at the scale of a house, resting on a plinth of scaffold planks (Plate 6). It is the only moment in the statue's life when her frame and her skin were both visible at once, and the photographs of it are the most disquieting images in this book, because they show a monument in the condition every monument is in before it is finished: held up by wood, indifferent to the crowd.

The same engineer then built, on the Champ de Mars, a structure that is nothing but its own falsework (Plate 7). The tower has no skin at all. It is a scaffold that carries only itself, erected around an absence, and Paris despised it in the manner reserved for jokes that turn out to be serious. Every photograph of its rising is a photograph of a scaffold being scaffolded: the timber falsework at the first platform holds up the iron, which holds up nothing (Plate 8). And



Plate 10 — The Forth cantilevers: self-supporting at every stage, because no centring could be built in that estuary.

when the timber came down, nothing changed. Nothing could change. There was no arch to



Plate 11 — An arm reaching for a partner not yet arrived.

Between these poles the whole history of engineering arranges itself. The caisson of the East River bridge was a pneumatic timber box driven into the mud, with men labouring inside it under compressed air; it was built to be buried, and it is buried still, holding up the tower it was designed to disappear beneath (Plate 9). The Forth Bridge, by contrast, exhibits its reasoning like an anatomical drawing (Plate 10). Its cantilever arms reach from each pier toward a partner not yet arrived, each arm balanced against its own weight, self-supporting at every stage of erection because no centring could ever have been built in that estuary (Plate 11). The bridge is spectacular because you can see the

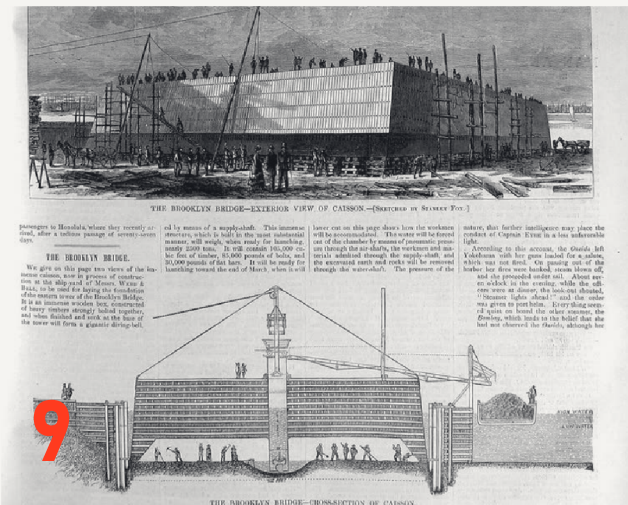


Plate 9 — The caisson driven into the mud, and buried beneath the tower it holds up.

release, only the frame, admitting at last that it had been the building all along.

argument. It looks the way it looks on account of how it had to be made.

#### IV. THROW AWAY THE LADDER

The pattern is older than iron and wider than building. At the end of the *Tractatus*, Wittgenstein instructs the reader who has understood him to recognise his propositions as nonsense, and to throw away the ladder after having climbed up it. The ladder is centring. It carried the reader to a place from which the ladder is visibly unnecessary, and it could not have been dispensed with in advance. Mathematicians perform the same rite constantly and without comment: a construction is introduced, a result obtained, and the construction discarded because the result no longer needs it. The proof stands. The auxiliary circle is erased.

Painters underdraw and paint over. Sculptors build an armature of wire and pipe, pack clay upon it, and then, in casting, burn the whole interior away, so that the bronze which survives is a hollow record of a skin that once had bones. Composers write in a key they abandon. Novelists construct elaborate histories that appear in the finished book as one confident sentence, and the sentence is confident because the history was built. In every case the same law holds: the removed structure is not waste. Its removal is what the finished thing is made of. The arch is the shape of the frame that is gone.

Typography has been rigorous about this for a century. On any page set in the Swiss manner there exists a grid — columns, field rows, a baseline lattice on which every line of type and every edge of every picture is obliged to sit. It governs absolutely and it prints not at all. Müller-Brockmann drew his in red so that it could be seen in the studio, and the red vanishes in the press. The page you are holding was composed on such a grid, by a programme, with no hand upon it; its centring is exact and invisible, and if you cannot see it, that is not a failure of the design. That is the design succeeding.

#### V. THE CENTERING EXHIBITED

And now the turn. Everything above assumes the frame must go, or hide, or become the work by accident. But there is a fourth possibility, very recent, belonging to a kind of artist who did not exist in Brunelleschi's Florence. When the work is generated, the centring is a programme, and a programme can be published.

This is a genuinely new position in the history of making. A generative artist writes the system that produces the image. The system holds every output while it becomes itself, exactly as the wooden frame holds the *voussoirs*; and exactly as the frame does not appear in the arch, the code does not appear in the print. She may strike it: hang the output, discard the process, let the collector believe in the arch. She may seal it inside, as Eiffel sealed his armature, publishing a

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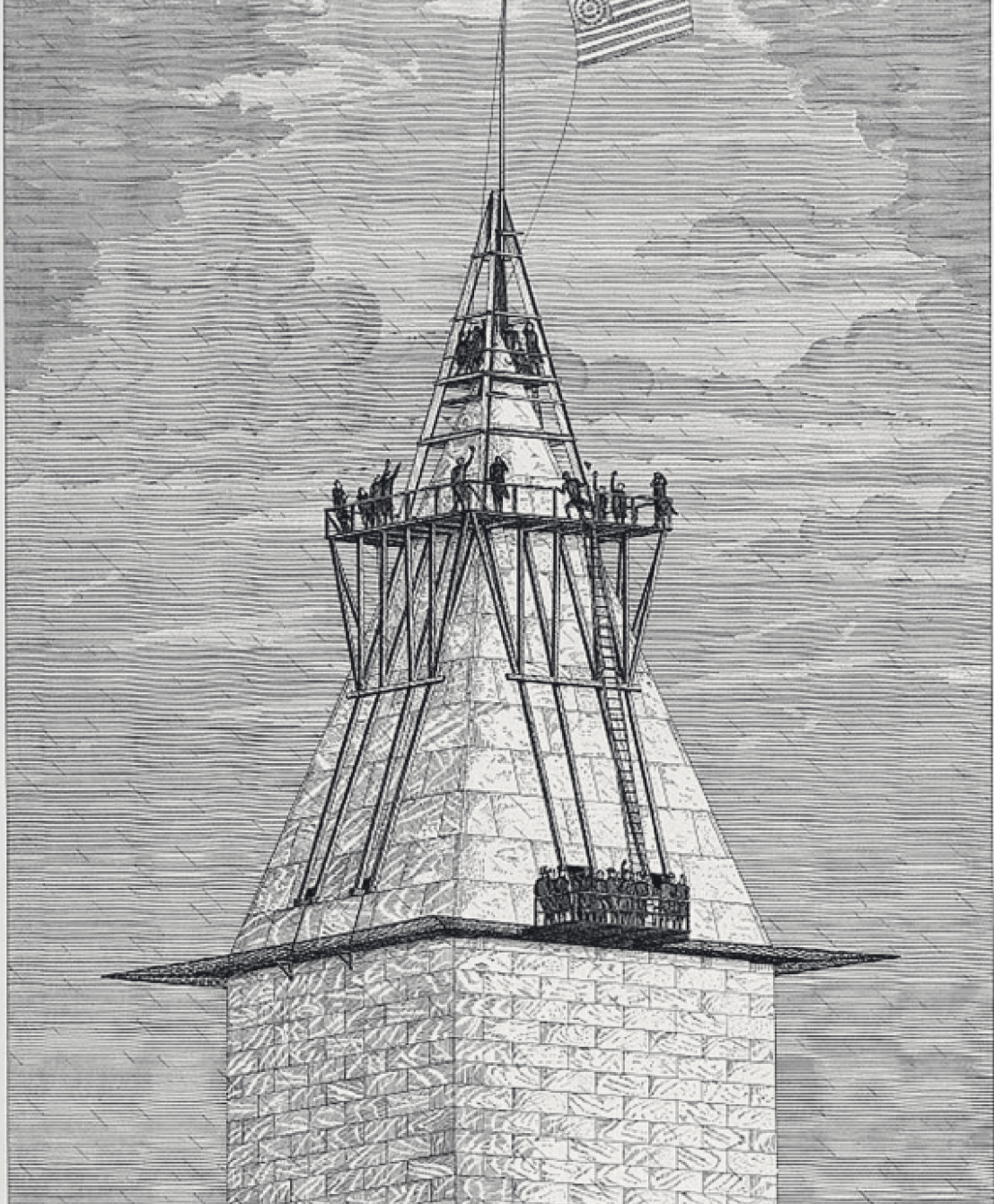


Plate 12 — Setting the capstone. Nothing is added; the frame is merely permitted to come down.

hash and a token and the promise that a structure is in there somewhere. Or she may do the thing no mason and no novelist could ever do — exhibit the centring beside the arch, and invite the audience to watch the wedges being driven back.

The interesting claim is not that this is more honest. Honesty is cheap and the arch does not care. The interesting claim is that when the

frame is exhibited the work stops being the output and becomes the pair: the system, and what it holds. The audience is no longer looking at a stone span. They are looking at the argument that a stone span was possible, together with its demonstration. And the demonstration can be re-run, with another seed, producing another arch, correct in the same way and different in every particular — which is to say that the exhibited centring is not documentation of a

work. It is a work whose outputs are unlimited, and each output is a proof.

So the fate of the frame is the choice that constitutes the art. Strike it and you get mystery: the thing stands and nobody living knows why. Dissolve it into the work and you get mastery: the thing stands and could not have been made otherwise. Seal it inside and you get monument: the thing stands upon a hidden reason. Exhibit it and you get something for which there is no old name — call it a programme — in which the standing and the reason are shown as one object, and the audience is trusted with the wedges.

The masons had a sentence for the hour when the frame comes down, and they said it the way people say things that have killed their colleagues. They said the arch had been struck. Not built, not finished, not blessed. Struck: as though the removal were the making, which of course it is, because until you take the frame away you have a pile of stones resting on timber, and after you take it away you have an arch, and nothing whatever has been added (Plate 12). The keystone does not hold the arch. It only permits the frame to be taken away.

# COLOPHON

Set entirely in Bahnschrift, the Microsoft cut of DIN 1451, 10 on 16, on a grid of six columns and six field rows; the text runs three columns wide, leaving a marginal column for captions and air. Plates are duotoned to one palette and, where they are heroes, carried off the outer edge of the paper. Margins mirror. Composed entirely by programme, seed "centering-modern-3". This is the same essay and the same twelve plates as the first edition of THE CENTERING, and it is a different book. Neither is the original.

Plates, all public domain, from Wikimedia Commons. 1, 9 — the East River (Brooklyn) Bridge caisson, Harper's Weekly and the American Cyclopædia, 1870. 2, 12 — the Washington Monument: scaffolded shaft (Robert N. Dennis stereoscopic collection) and the setting of the capstone, c. 1884 (Alexander Millar). 3–6 — the Statue of Liberty under assembly in Paris, 1882–83, and the head exhibited before shipment (Albert Fernique and unknown photographers). 7–8 — the Eiffel Tower under construction, 1888 (Louis-Émile Durandelle; unknown photographer). 10–11 — the Forth Bridge cantilevers under erection (Philip Phillips). Section II carries no plate: there is no picture of Brunelleschi's centring, because there was none.

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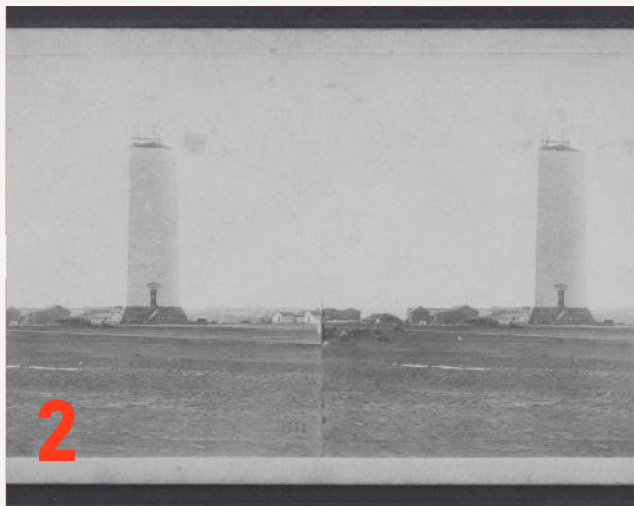


Plate 2 — The Washington Monument in its scaffold, mid-century: an unfinished shaft held by wood.

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