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Frei Otto
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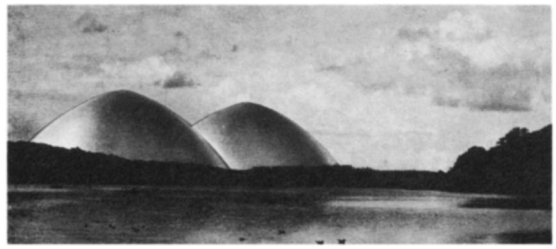
frei otto

Like Buckminster Fuller, Frei Otto is a speculative thinker whose imagination seems to be geared directly to the potentials inherent in the technology of the decade. His interests have led him in various directions but his best known, and most influential work was centered on the studies and experiments in pneumatic structures he conducted in the late '50s and early '60s.

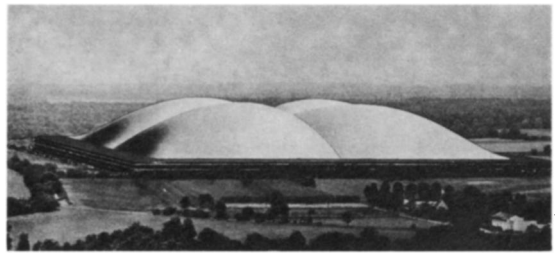
Fuller's tensegrity structures were, as already noted, based on what he called Energetic and Synergetic Geometry. Otto backed up his pneumatic projects with an extensive study of soap bubble formations (the structures of which suggested many parallels with pneumatic bodies) and his concepts seem to have been a logical extension of certain basic premises which he stated at this time, such as "A body can, in principle, be pneumatically supported if it can be inscribed in a dome, i.e. if its sections can be inscribed in circles."

In Frei Otto's work, imagination seems to lie in his ability to conceive a wide variety of uses for essentially simple scientific notions.

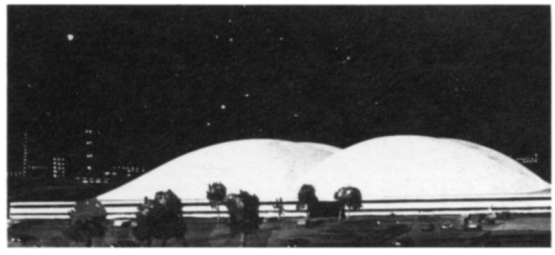
Study for double-domed hall on mountain summit.



Conical pneumatic tower structures.



Study for industrial installation: pneumatic dome on square base.



Study for industrial installation: pneumatic dome on square base.

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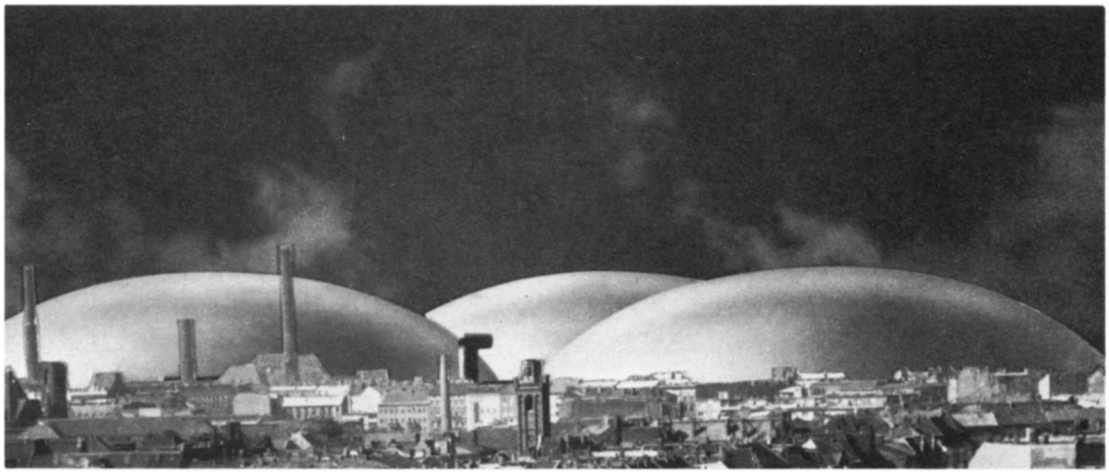
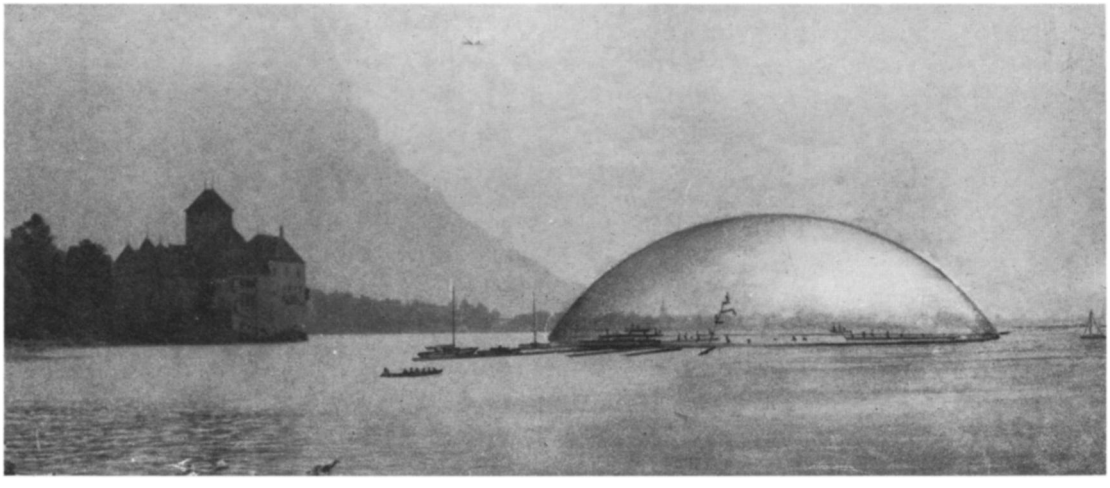
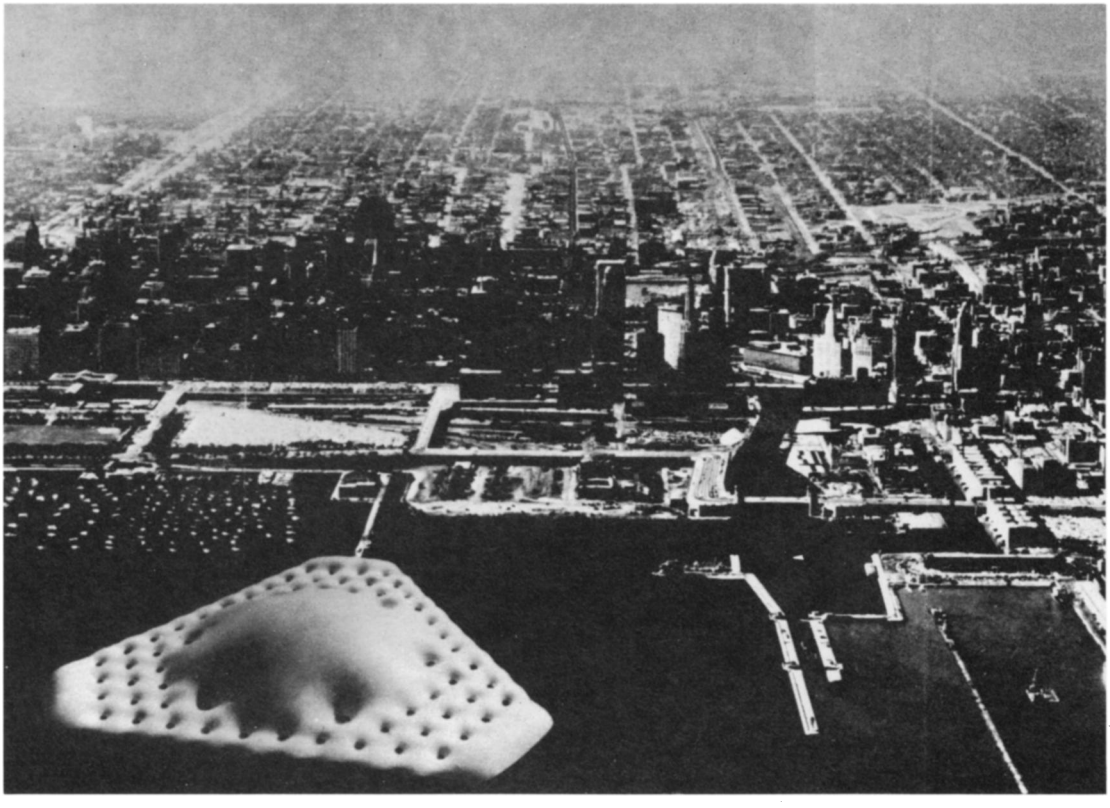
Factory project, 1958: 3 domes of clear, plastic foil, steel-reinforced and aluminum foil covered for temperature control.



Floating sea pool project: transparent dome over floor membrane containing warm water and anchored to a floating pressure ring.



Structural study for congress hall: developed 1960, Yale School of Architecture by Addiss, Kniffin and Childs, under Frei Otto; site: a filled-in, shallow area of Lake Michigan, near downtown Chicago; double-skin, air-supported roof-dome, low around perimeter, with large central hall.



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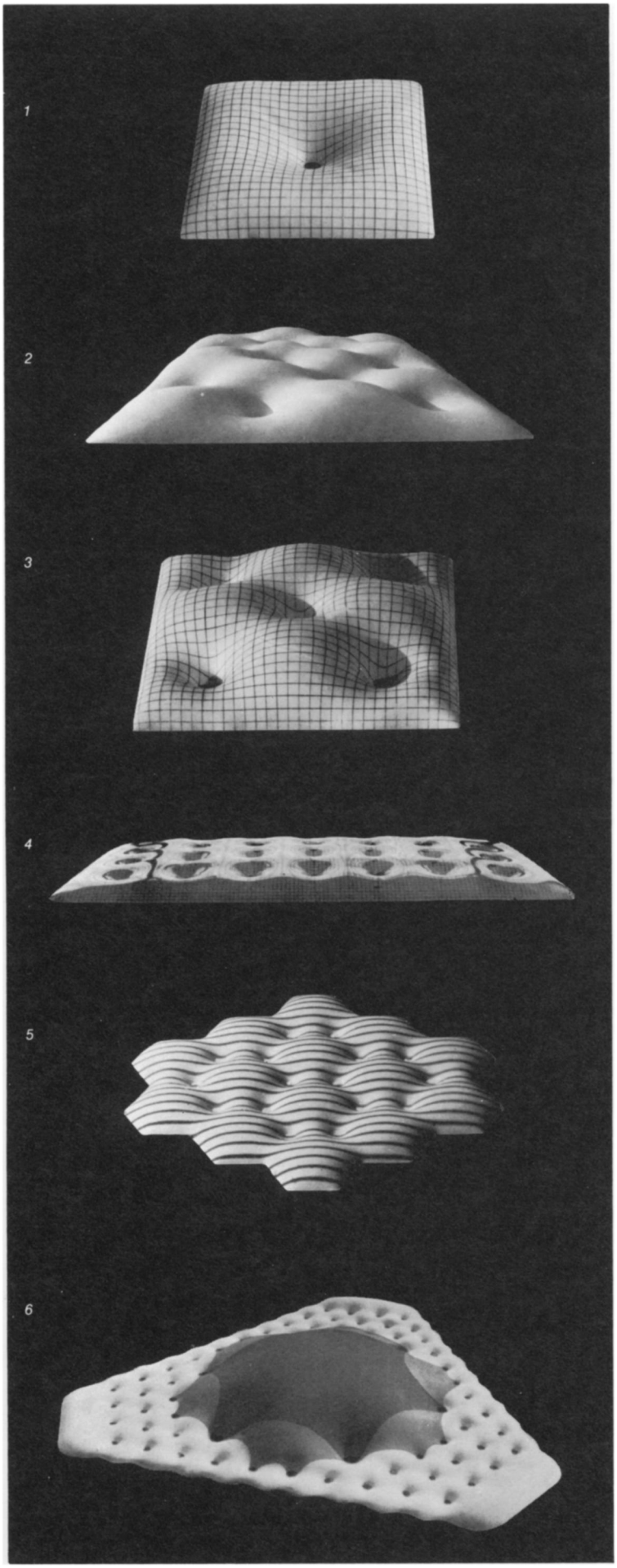

1, 2, 3, 5 and 6.
Various surfaces and spatial forms, derived from experiments with models, pulling inflated rubber membrances down on individual points.

4
Model of greenhouse: roof surface of plastic foil, forming an interior which is vaulted and domed by high-level rainwater points that are hardly discernible due to use of the transparent, light-filled material.

Illustrations from Frei Otto: Spannweiten, *by Conrad Roland, published by Verlag Ullstein, Berlin, 1965. Partial reprint: "Frei Otto's pneumatic structures," by Conrad Roland,* Architectural Design, *July, 1966, pp. 341-360. Reproduced with permission of Dr. Frei Otto, Stuttgart, and* Architectural Design, *London.*

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