Research Terrain: 2D, 3D, 4D at 1:1

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"A Sahara, a rhinoceros skin, this is the diagram suddenly stretched out. It is like a catastrophe happening unexpectedly to the canvas, inside figurative or probabilistic data. It is like the emergence of another world. ...The diagram is the possibility of fact-it is not the fact itself"

> Gilles Deleuze, "The Diagram", The Deleuze Reader, Constantin V. Boundas, ed. (New York: Moncalli Press, 1993) pp. 194,199.

Diagrams were the essential tools used to transform scientific research into built, inhabitable ice fishing shanties to be used on northern lakes. This was the first design studio course taught to beginning undergraduate students in a brand new six-year design-build program.

The students researched geologic time by considering the physical geography of the school's surrounding landscape: earth crust and tectonic processes; meteorite collisions; gradation, weathering, and mass movement; land sculpture by water; glaciation and glacial landforms.

The initial assignment was to create an outline of their research, thus giving the research a clear, visible structure, not unlike concrete poetry. The research was assembled in a short paper that did not include images. The students were compelled to represent land-sculpting activity and landforms through text alone. The following exercise introduced 2d diagramming of the research as flow charts limiting the representation to lines and text. The next diagrams mixed index and icon. The small scale diagramming process concluded through a series of 3d diagrams, visualizations of these dynamic processes through initially mutable, then static paper models. This formal typological investigation was seen as a continuation of the analytical practice of Colin Rowe on one hand. On the other hand the tactical method allowed for slips and swerves inside the analysis by treating it as a Situationist drift, the research as an open system.

These were group projects - one hut for 5 or 6 students. This collaborative work required negotiating and including individual research into a new collective form. The conceptual modeling began to adapt to human scale and use. These models were refined by the groups to the point where they could build finely crafted basswood models at 1:10 scale, which allowed the students to model structure and form simultaneously. The models were used to begin to think of materials, construction, and details. Precise 3D cad files were made to allow for the fabrication of efficient integrated structural skin panels. These files were used to plot patterns for irregular trapezoidal and triangular forms. Tools were limited to cordless circular saws, jigsaws, and drills. Materials were limited to wood 2x members and plywood, adhesive roofing materials, and plastics for light apertures.

The structures are dynamic. Motion is implied in their sculptural form. Natural lighting of the interiors was conceived and developed for phenomenological effect. These huts are not metaphors for earth forms but are abstract projections, speculations on forces and materials. They are 1:1 for human use, without scale as objects in geologic time.