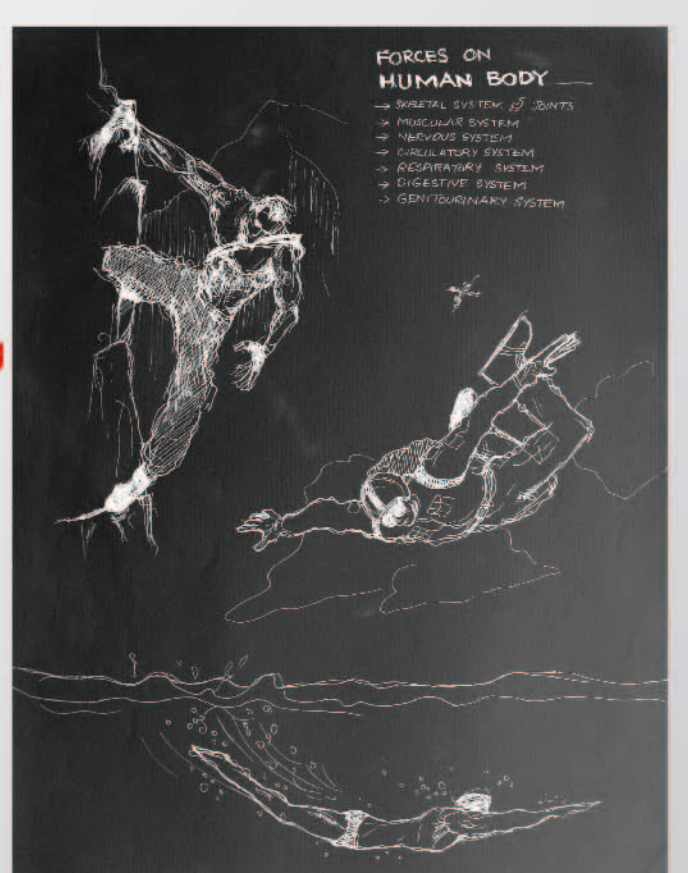
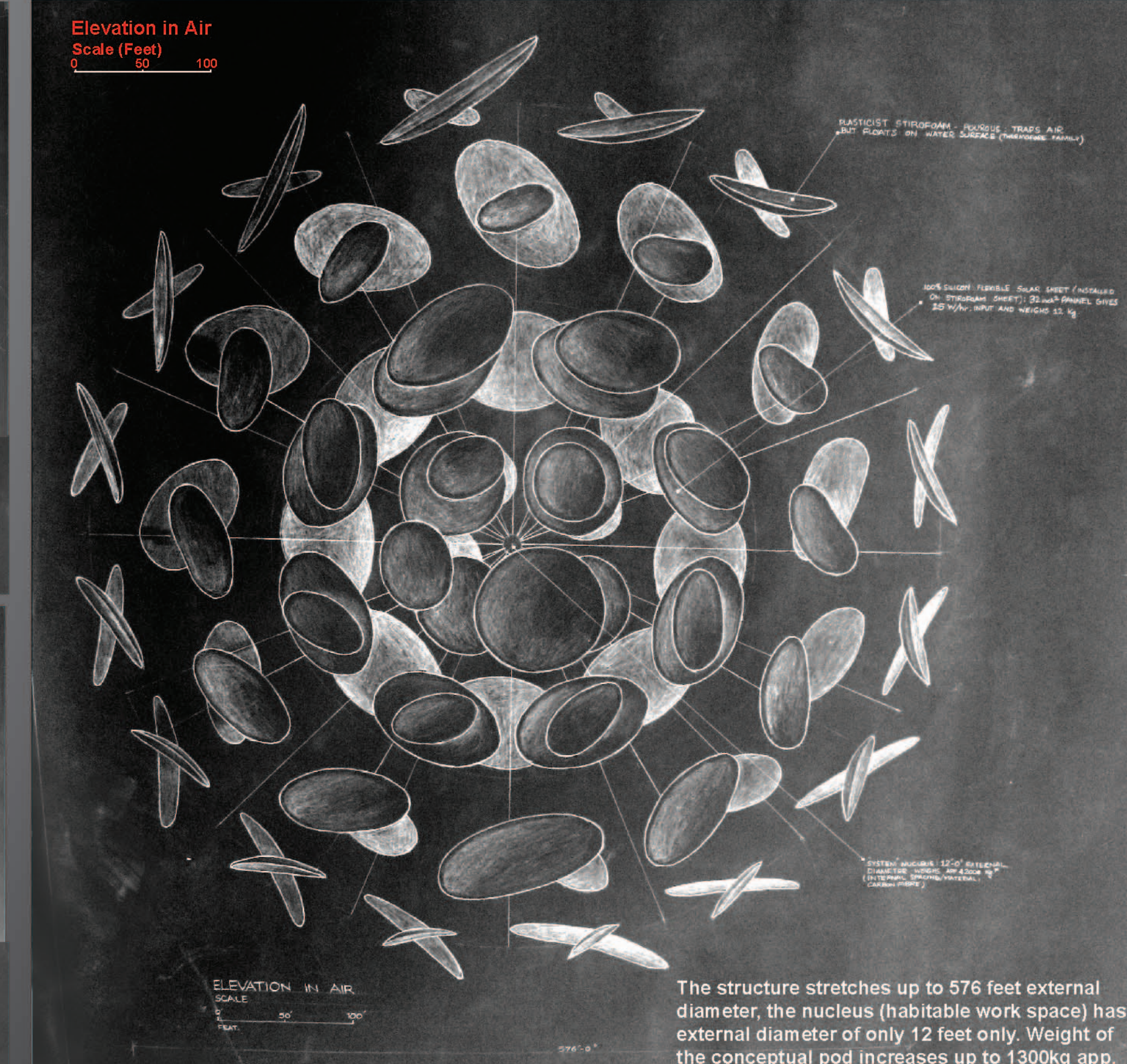
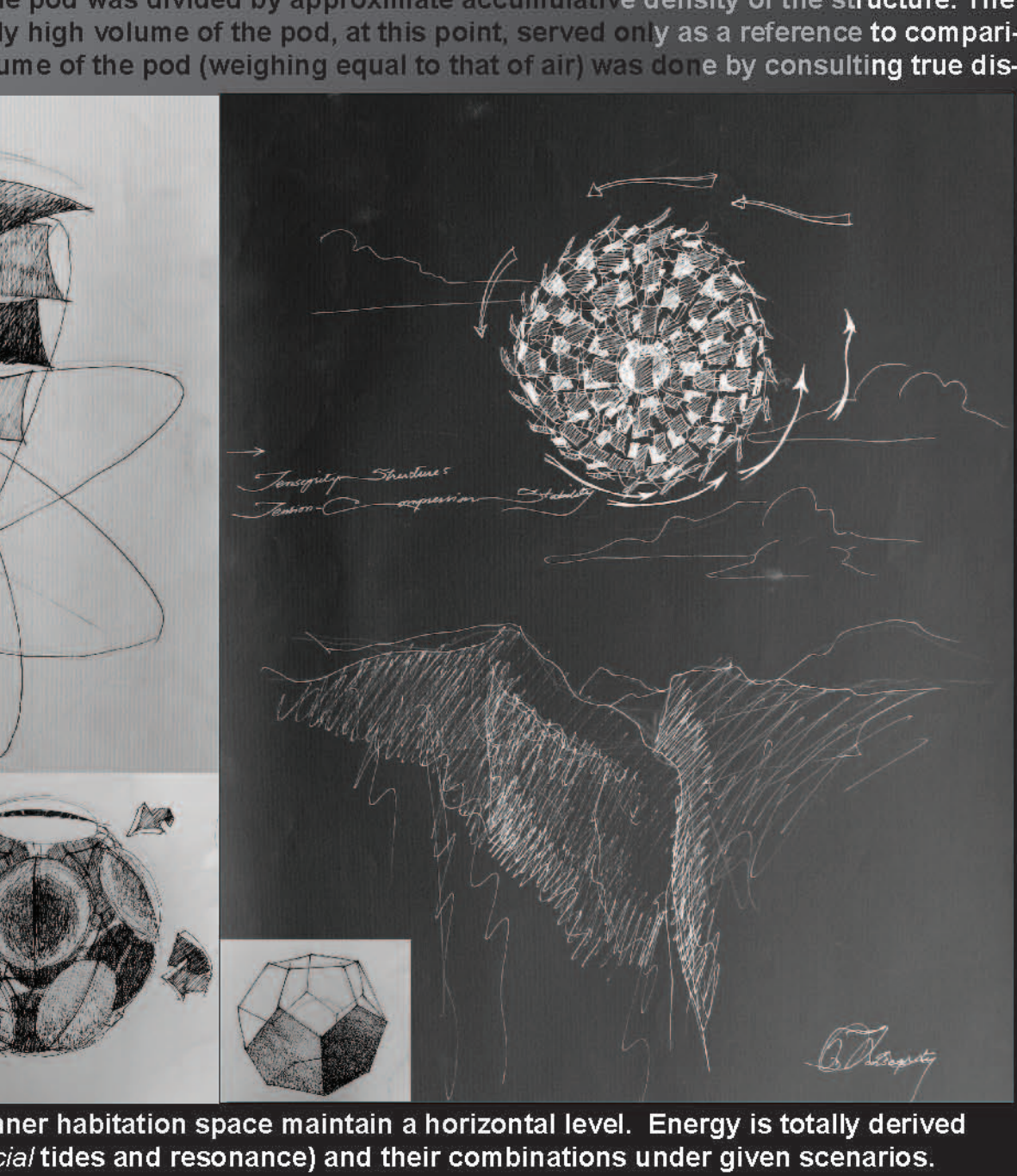
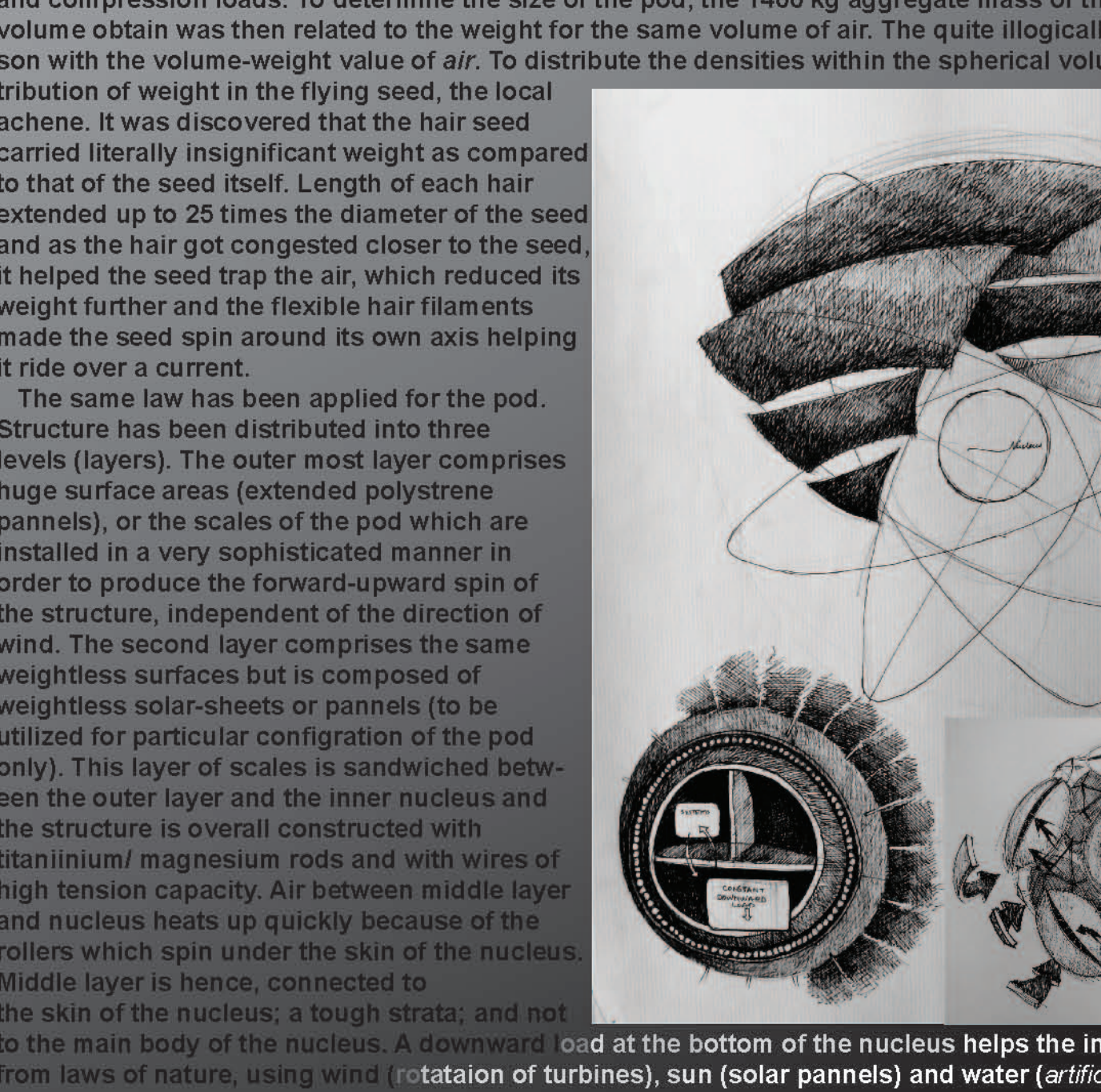
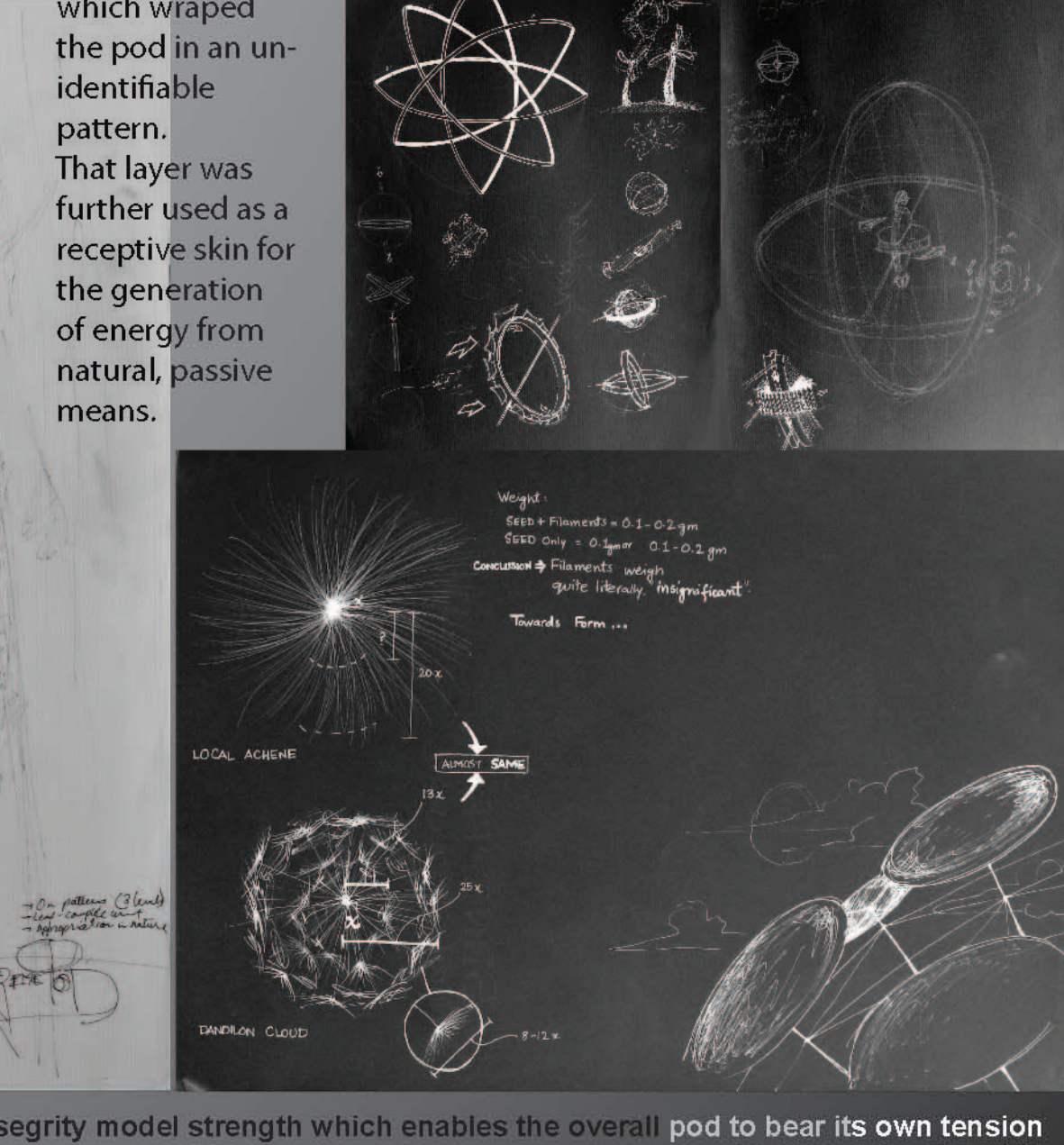
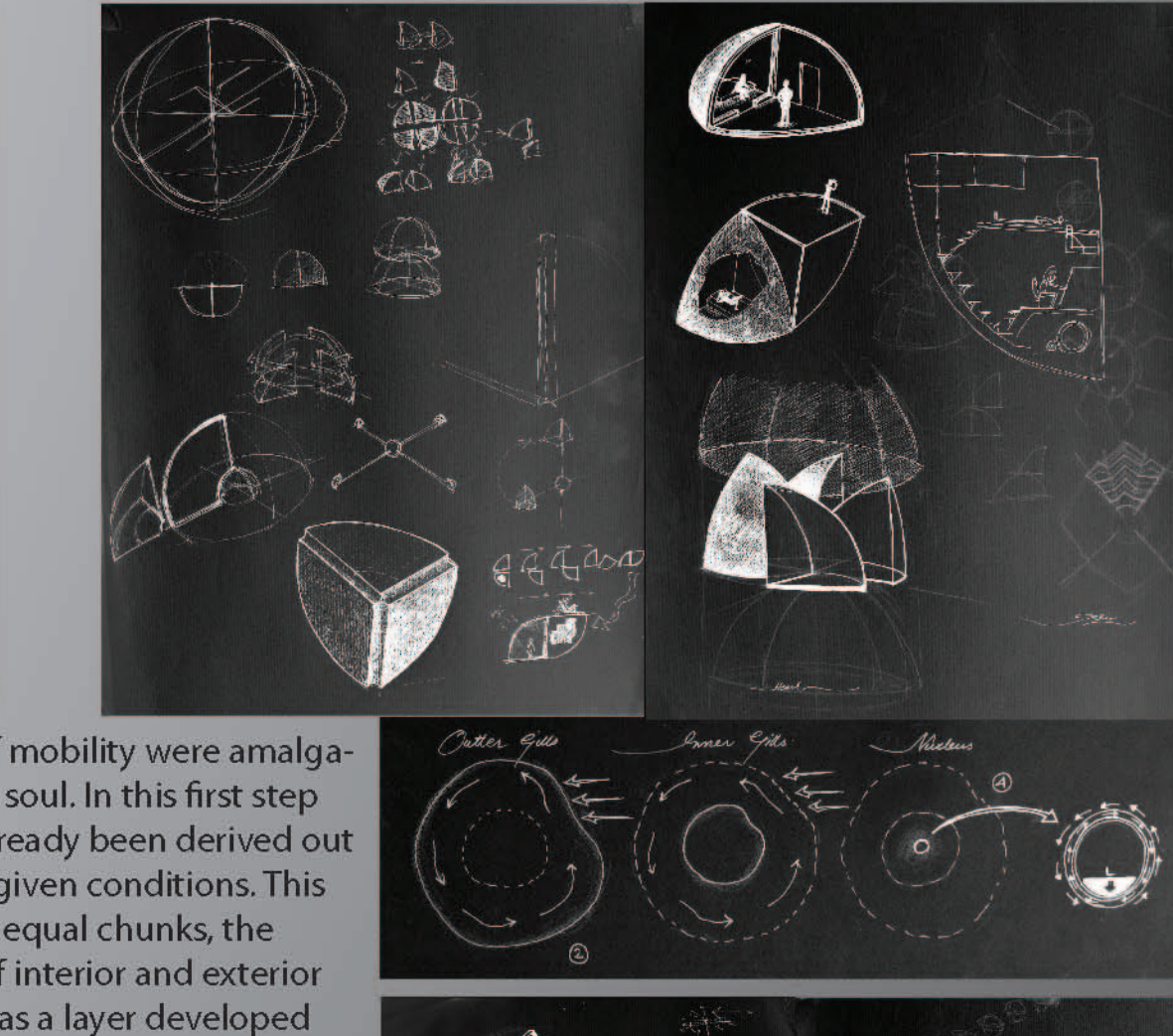
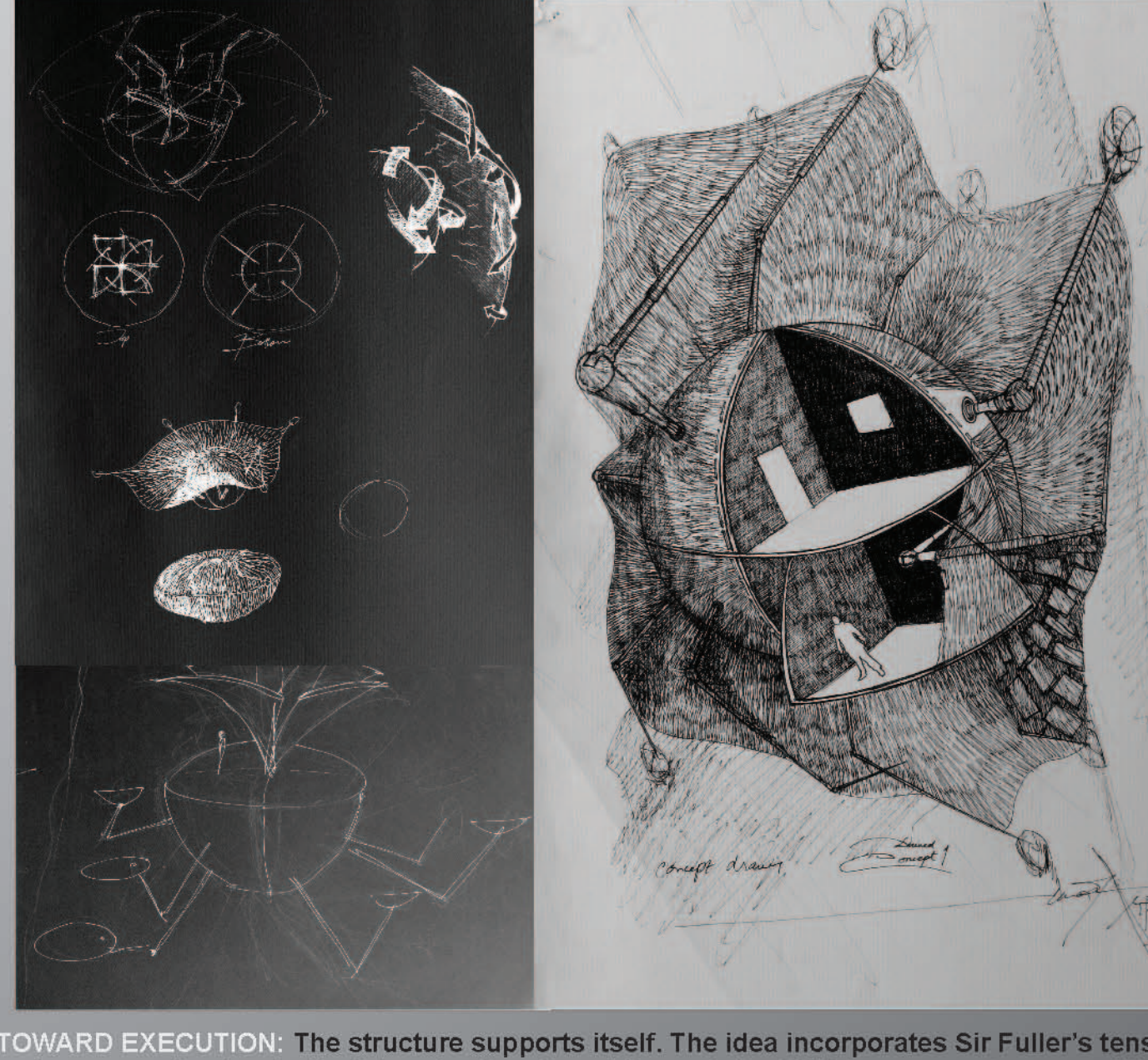
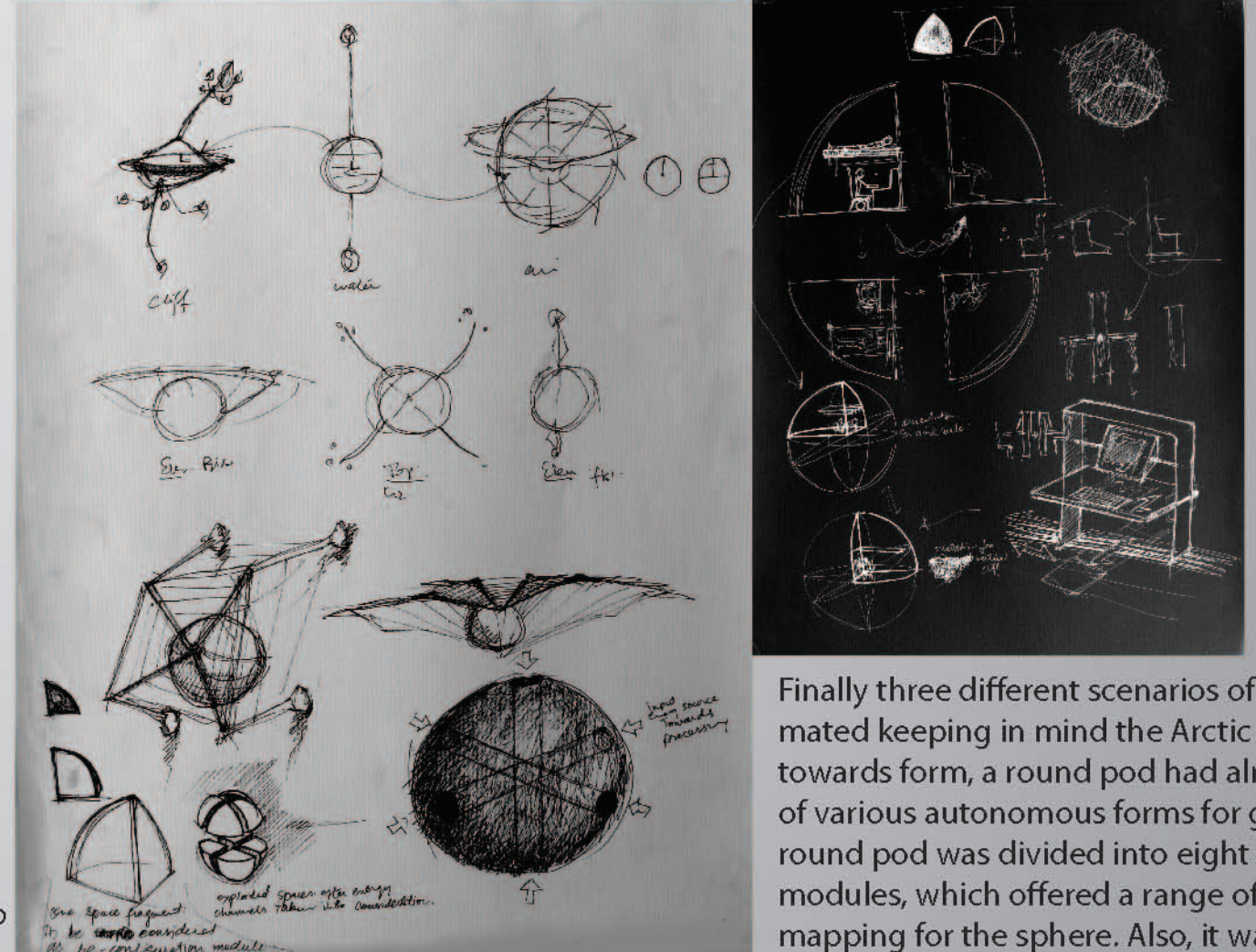
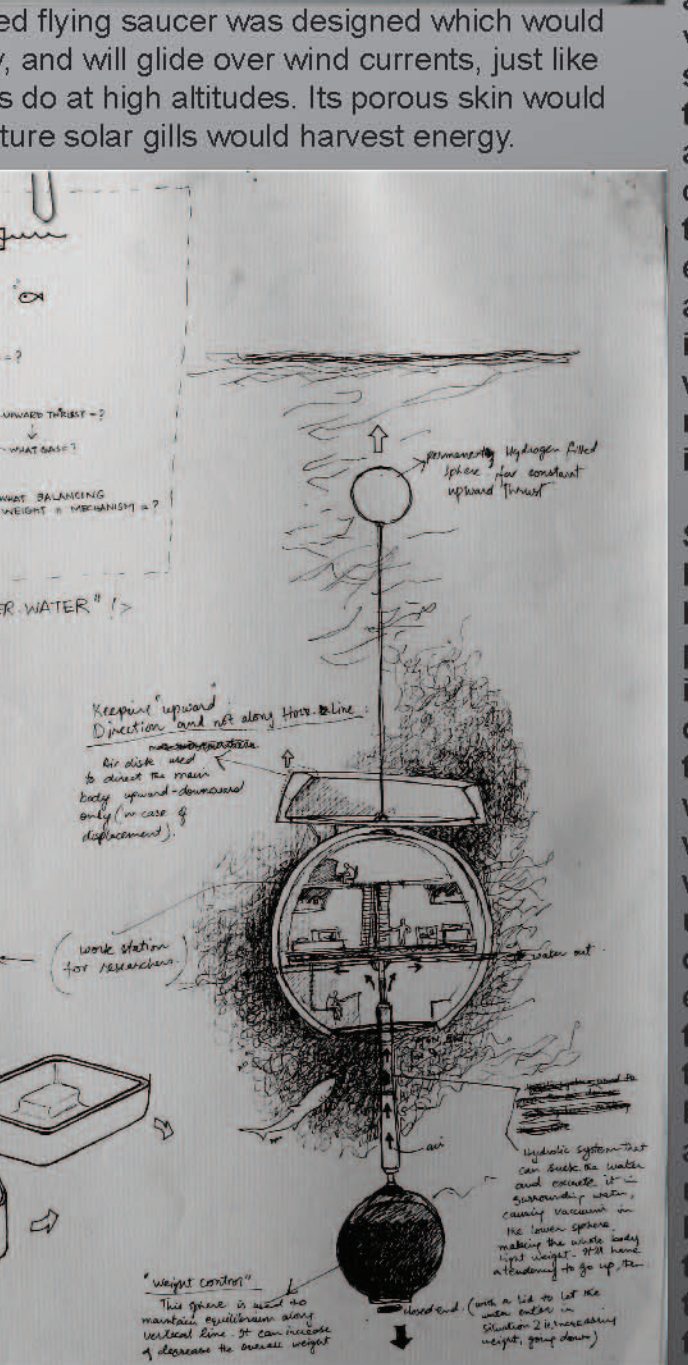
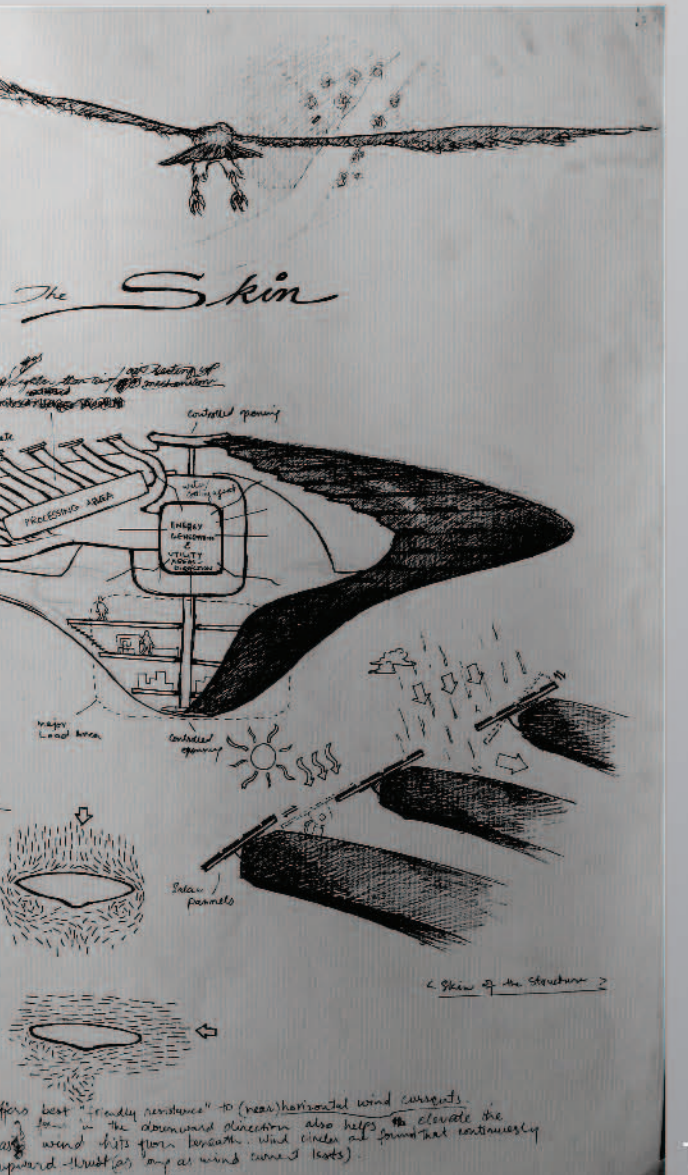
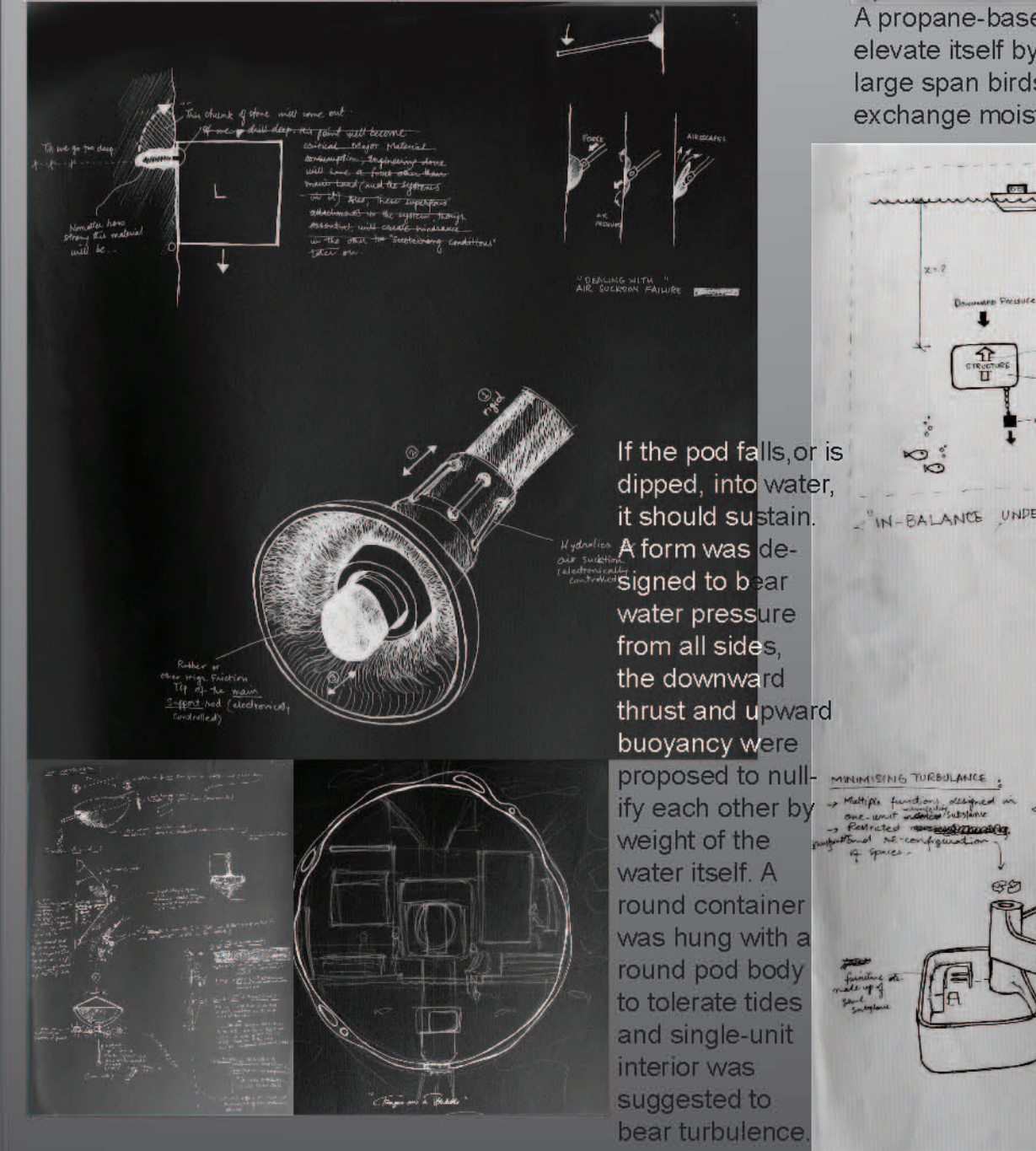
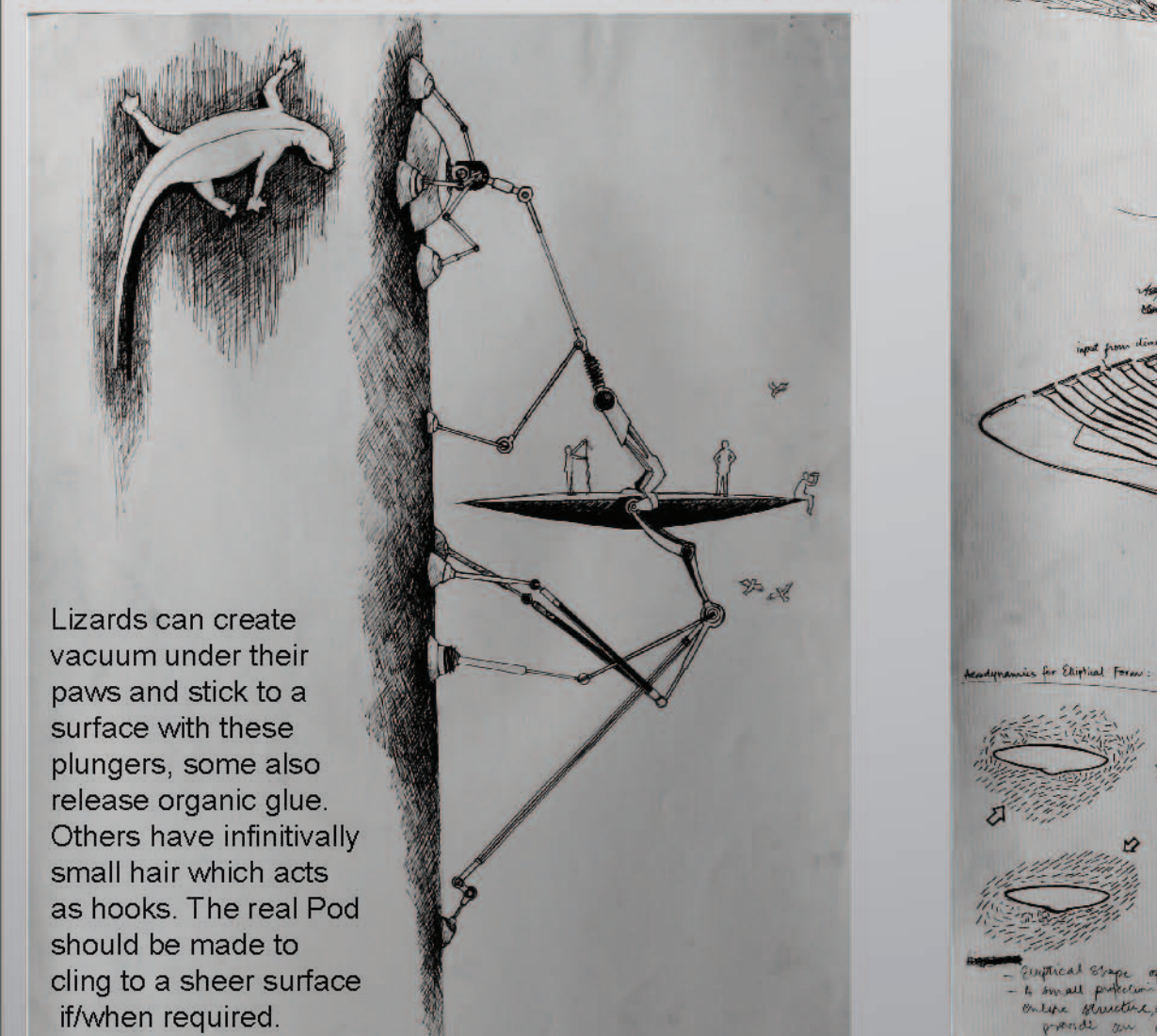


When I thought of a mobile media centric facility for research and tasks i.e. a kind of habitation which could stand myriads of climatic challenges, I broke down the problem into discrete puzzles. It was only by addressing one problem at a time and accentuating the overlapping answers, and flaws, in the end, that I found myself erecting the final idea for this project. As I listed down the issues; the hostile Arctic climate, the energy activity and sustainability factor, and above everything else, the worth of human lives habiting the design; their safety, this sort of concerns, I asked myself if the project was indeed pragmatic. No, was the answer. I had actually stopped working till I saw, one day as I walked down my home, a local achene (flying seed) with its dense, puff-like cluster of white hair covering and protecting a little black brown seed, helping it disperse to large distances. That little plant species was carried away into atmosphere simply by wind currents. There was a friendly bond, a very healthy relationship between the flying seed and the invisible currents. Little white hairy, weightless seed revolved, accelerated, orbited with eddies and in a moment was carried away by the wind to a new place...

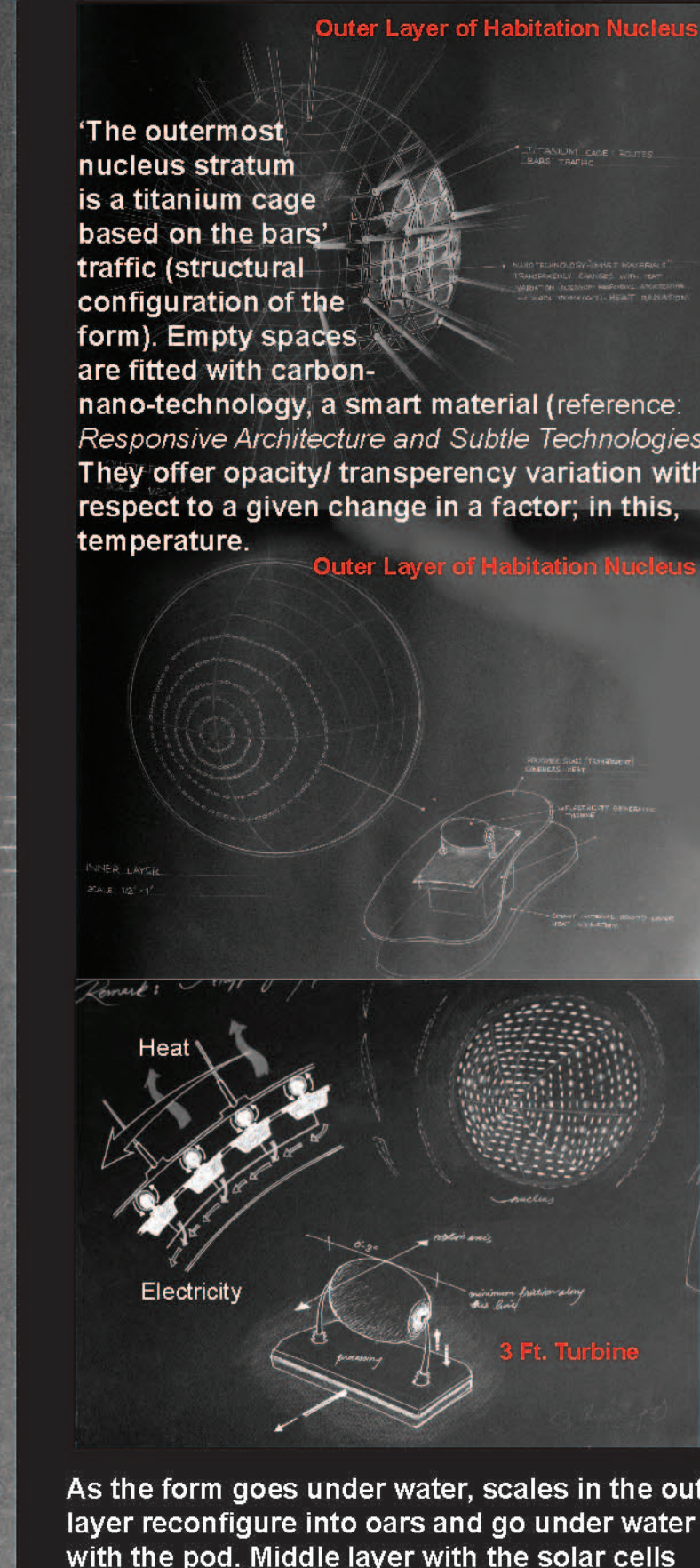
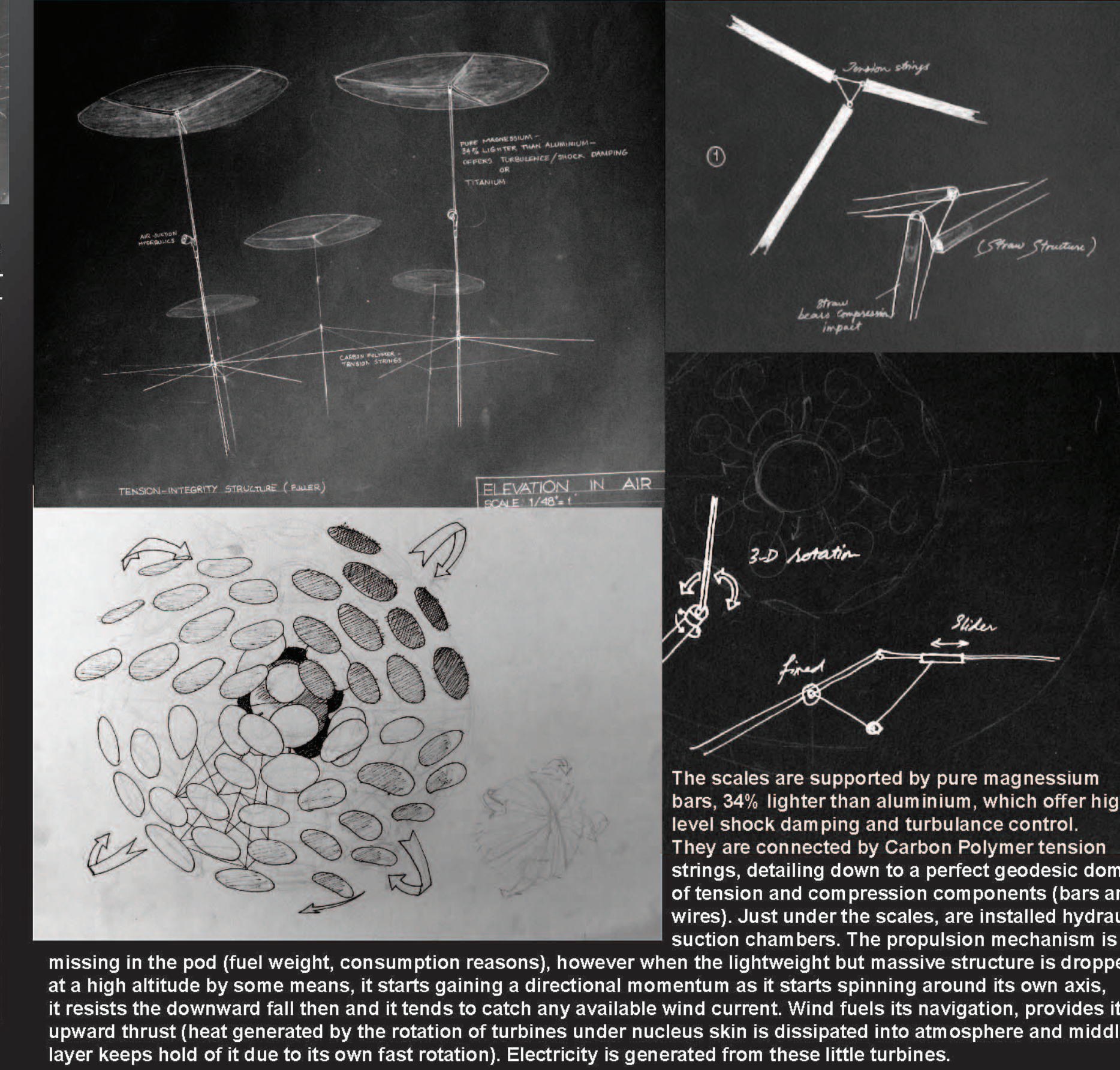


I started off with human anatomy; the way limbs movement helps navigate through the air when sky diving, the way skeletal joints help distribute forces when climbing a steep cliff, And how does the skin and lungs perform when same body is immersed under water...

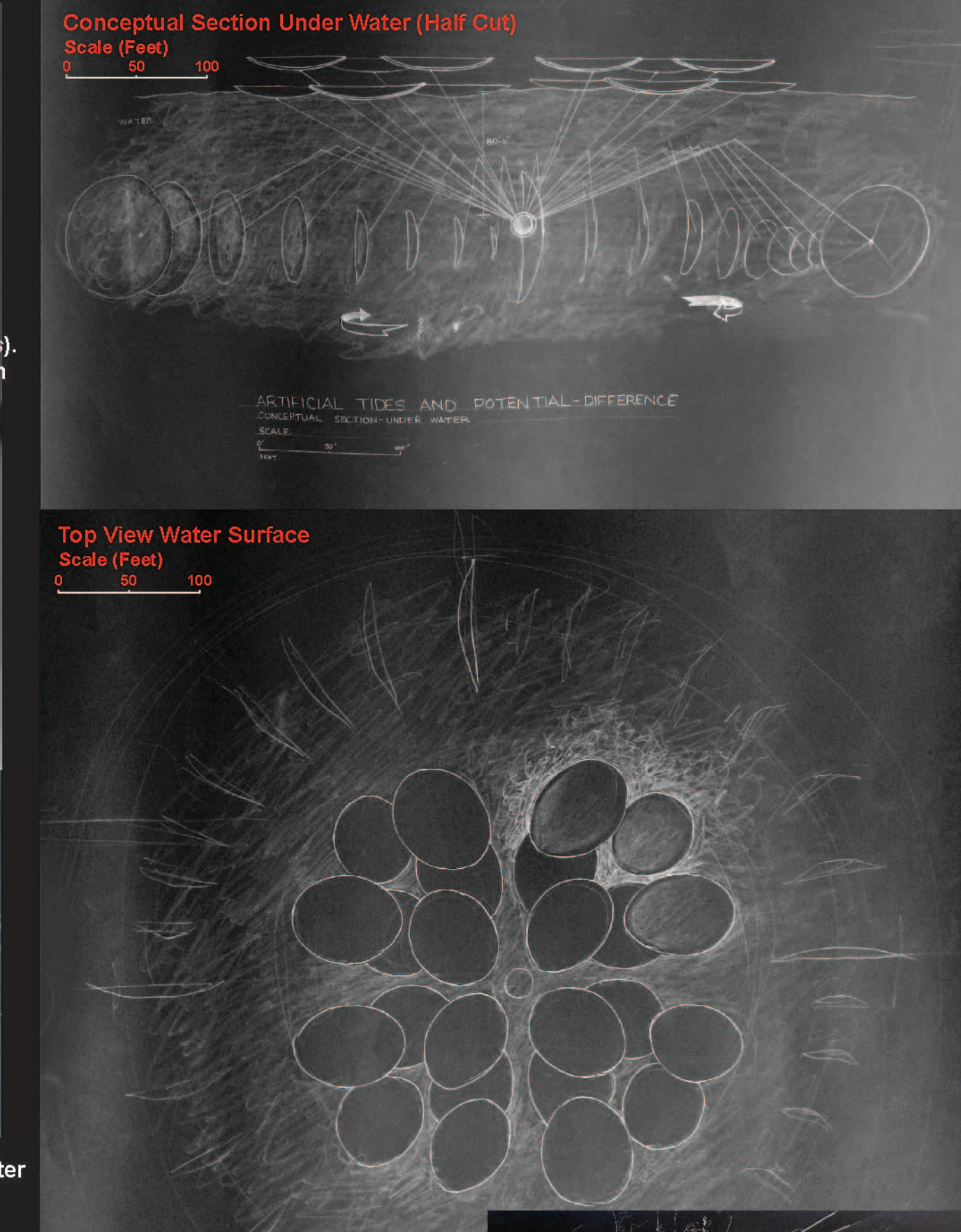
Do we really need to resist to climate, do we need to challenge its aggression? How do various species of this planet manage to stand the hostile climates they live in, what are the mechanisms they possess, what laws do they toy with? And then, can we actually amalgamate the characteristics derived from those species and create a form which will not resist to the challenges of nature, but will instead nurture itself from nature; which will show it respect. And will get some in return.



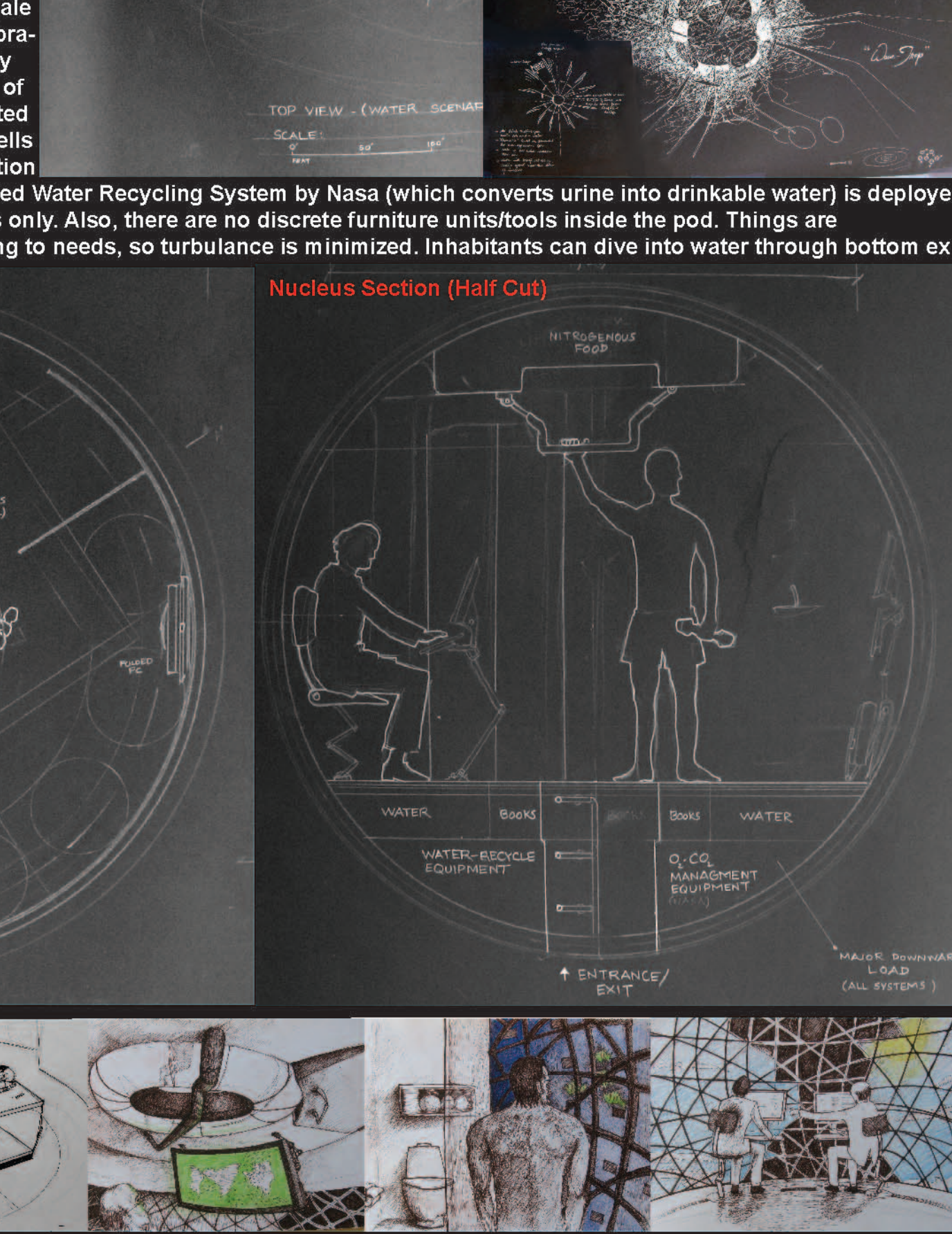
The structure stretches up to 576 feet external diameter, the nucleus (habitable work space) has external diameter of only 12 feet only. Weight of the conceptual pod increases up to 1300kg app or more. Curved fascades in the outermost layer are proposed to be made up of expanded polystyrene (density 35kg/m³, water absorption 0.15% immersion, flexural strength 110 psi, thermal resistance 5.85 F.ft²/Btu and Water Vapor Permeance 0.3 mg/m²). Inner layer has solar panel sheets installed over the extended-styroform 'scales' of this layer. Electricity, in air, is produced by the rotation of whole structure around a heavy nucleus (the turbines sandwiched in between).



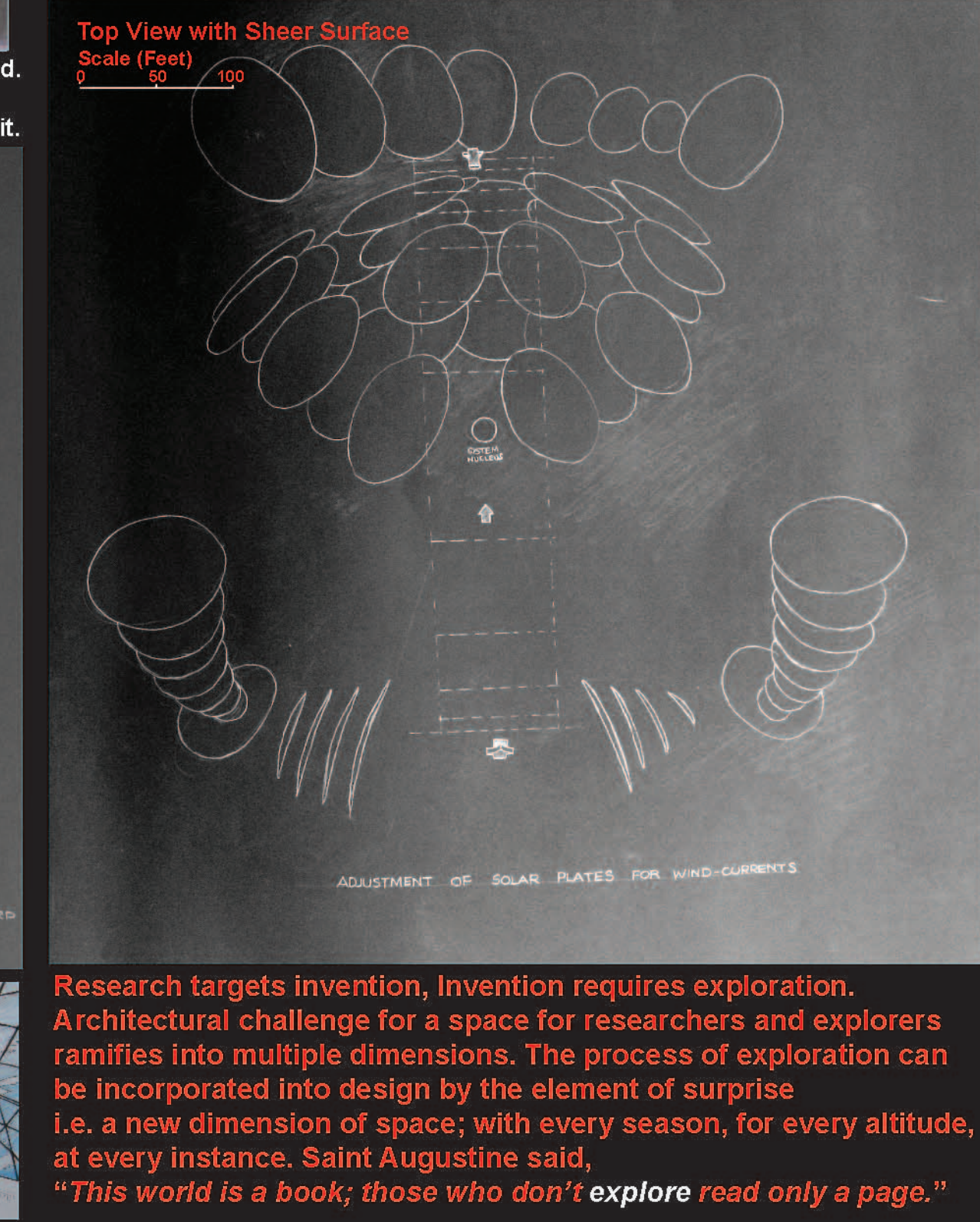
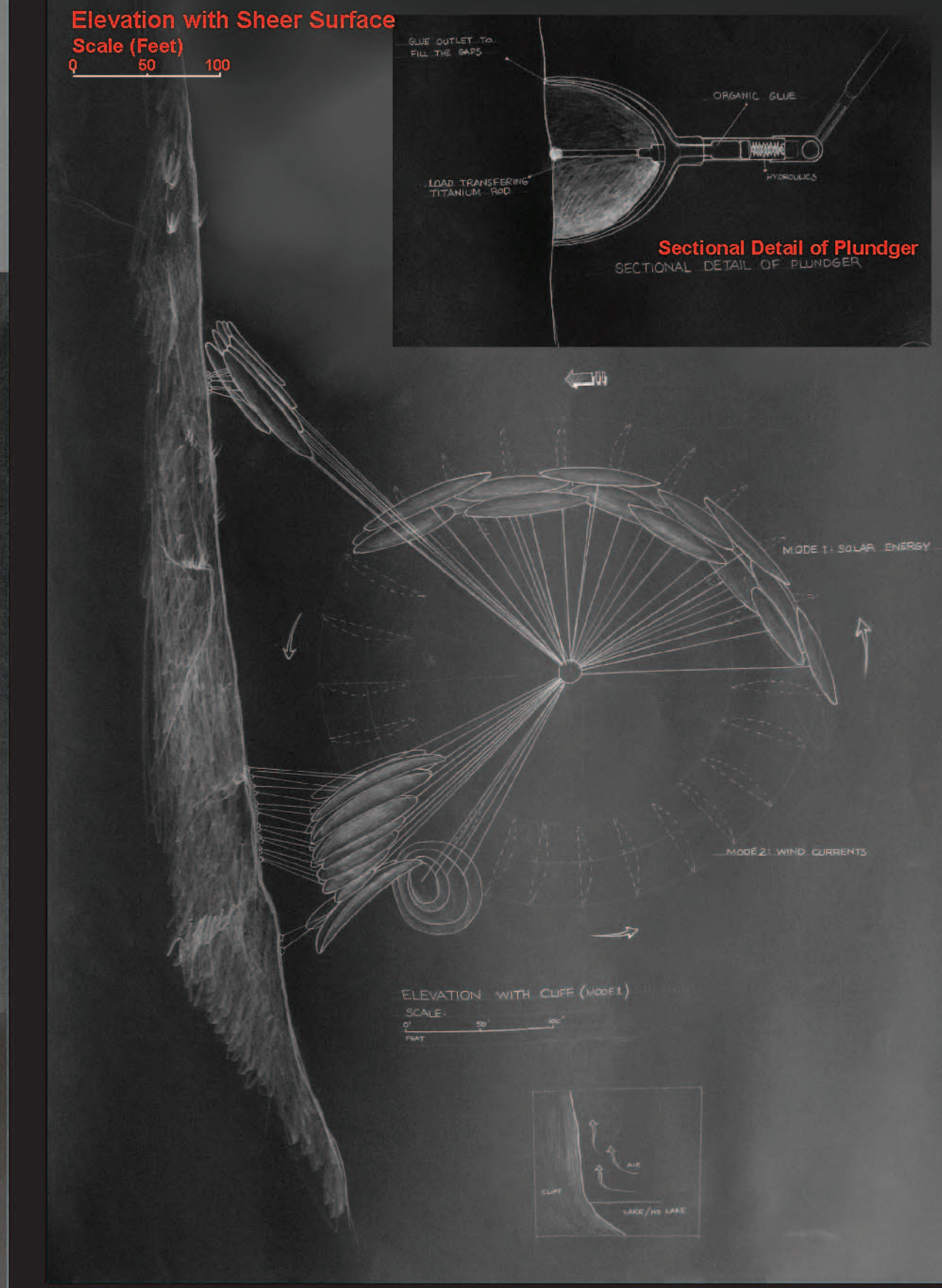
The outermost nucleus stratum is a titanium cage based on the bars' traffic (structural configuration of the form). Empty spaces are fitted with carbon-nano-technology, a smart material (reference: Responsive Architecture and Subtle Technologies). They offer opacity/transparency variation with respect to a given change in a factor; in this, temperature.



As the form goes under water, scales in the outer layer reconfigure into oars and go under water with the pod. Middle layer with the solar cells remain exposed to sky as the panels float over water. It counterweights rest of the structure. Solar panels give the 'oars' merely sufficient energy to start vibrating to and fro. As the slow but constant impact of water transfers from one scale to another, resonance is produced. This slow vibration of scales produces artificial tides, eventually becoming large amount of electricity at the skin of the nucleus (the turbines underneath). Dissipated heat is pacified by the ocean itself and solar cells are relied on no more. Further, Oxygen production devices by NASA are installed. Recently invented Water Recycling System by Nasa (which converts urine into drinkable water) is deployed. A smaller version of that i.e. for three inhabitants only. Also, there are no discrete furniture units/tools inside the pod. Things are made to reconfigure and appropriated according to needs, so turbulence is minimized. Inhabitants can dive into water through bottom exit.



Structure can stick to Sheer icy surfaces. Plungers are installed at the longer filament bars (which stretch out to the outermost layer) these plungers can drill in up to 4 feet (comparatively nothing to the size of the structure). A Number of these small nails add to the aggregate cantilever effect which is further reinforced by the wind rushing upward with the surface. The middle layer with the solar panels become a wheel against current and pushes the structure upward, into the cliff. The downward load is transferred horizontally into the cliff. So the structure gets a gentle response back from the cliff. As the middle layer wheel of scales rotate, turbines run. When there is no wind, panels can spread out to suck up sun.



TOWARD EXECUTION: The structure supports itself. The idea incorporates Sir Fuller's tensegrity model strength which enables the overall pod to bear its own tension and compression loads. To determine the size of the pod, the 1400 kg aggregate mass of the pod was divided by approximate accumulative density of the structure. The volume obtain was then related to the weight for the same volume of air. The quite illogically high volume of the pod, at this point, served only as a reference to comparison with the volume-weight value of air. To distribute the densities within the spherical volume of the pod (weighing equal to that of air) was done by consulting true distribution of weight in the flying seed, the local achene. It was discovered that the hair seed carried literally insignificant weight as compared to that of the seed itself. Length of each hair extended up to 25 times the diameter of the seed and as the hair got congested closer to the seed, it helped the seed trap the air, which reduced its weight further and the flexible hair filaments made the seed spin around its own axis helping it ride over a current.

The same law has been applied for the pod. Structure has been distributed into three levels (layers). The outer most layer comprises huge surface areas (extended polystyrene panels), or the scales of the pod which are installed in a very sophisticated manner in order to produce the forward-upward spin of the structure, independent of the direction of wind. The second layer comprises the same weightless surfaces but is composed of weightless solar-sheets or panels (to be utilized for particular configuration of the pod only). This layer of scales is sandwiched between the outer layer and the inner nucleus and the structure is overall constructed with titanium magnesium rods and with wires of high tension capacity. Air between middle layer and nucleus heats up quickly because of the rollers which spin under the skin of the nucleus. Middle layer is hence, connected to the skin of the nucleus; a tough strata; and not to the main body of the nucleus. A downward load at the bottom of the nucleus helps the inner habitation space maintain a horizontal level. Energy is totally derived from laws of nature, using wind (rotation of turbines), sun (solar panels) and water (artificial tides and resonance) and their combinations under given scenarios.

missing in the pod (fuel weight, consumption reasons), however when the lightweight but massive structure is dropped at a high altitude by some means, it starts gaining a directional momentum as it starts spinning around its own axis, it resists the downward fall then and it tends to catch any available wind current. Wind fuels its navigation, provides it an upward thrust (heat generated by the rotation of turbines under nucleus skin is dissipated into atmosphere and middle layer keeps hold of it due to its own fast rotation). Electricity is generated from these little turbines.

