

By Mel Bochner & Robert Smithson



FOR SOME, INFINITY IS THE PLANETARIUM, A FROZEN WHIRLPOOL
AT THE END OF THE WORLD, A VAST STRUCTURE OF CONCENTRIC
CIRCLES, ROUND WHOSE BORDERS ONE MAY FIND AN INTERMINABLE
COLLECTION OF IDEAS AS OBJECTS, A REPOSITORY OF MODEL
UNIVERSES. HERE ALSO IS THE DOMAIN OF THE GREAT BEAR.

Nature is an infinite sphere, whose center is everywhere and whose circumference is nowhere.

—PASCAL

in the center of the infinite

Borges speaks of a labyrinth that is a straight line, invisible and unceasing. Overwhelming in its symmetries, the architecture of the planetarium is more labyrinthian. Circular, insular, windowless, it renders the mind itself invisible. An artistic conception of the inconceivable, it conforms to no outer necessity. Edges blur as one tries to distinguish an outline. The ambulatories become vast interminable spaces; traversing them becomes an interstellar journey. Once such expectations occur, there no longer exist any realities. Just vague disorders and contingencies. The planetarium becomes the same size as the universe; which it is. Perplexed, dizzied, one encounters here a cosmic nostalgia. Vertigo at contemplating man's most futile gesture—patrimony of the infinite. Above the staircase a sign:



The walls of the original sections of the building have a clotted surface and are painted sky-blue. They are a last refuge from the sleek and streamlined. There is a toneless, bleak feeling in the blank stone facing, the wide stretches of deserted corridor, the dark shrouded corners. A supernatural, immobilizing effect. But the light of recently installed exhibitions is bleaching out the dim uncertainties of 1934. New notions of the future and space, more optimistic and satisfying, are supplanting the dreary void. Formica and fluorescent, chrome and plexiglass are replacing the beaverboard, textured cement, glass and plywood. The dismal maroons and blacks are being repainted aqua, chartreuse, cerise or tangerine.

The conundrum, however, remains.

captives of the planets

At first only the image of a yellow light bulb is visible, suspended from the ceiling. A small globe of yellow incandescent light sunk in a dim background. Slowly other groupings of lights appear, advancing or retreating sluggishly as they move out from the center along wider and wider tracks. In orbit about the second order of lamps, further diminished lights revolve, sometimes indistinct, sometimes overlapping, hanging from boxes and armatures or other less simple shapes. This is the Solar System.

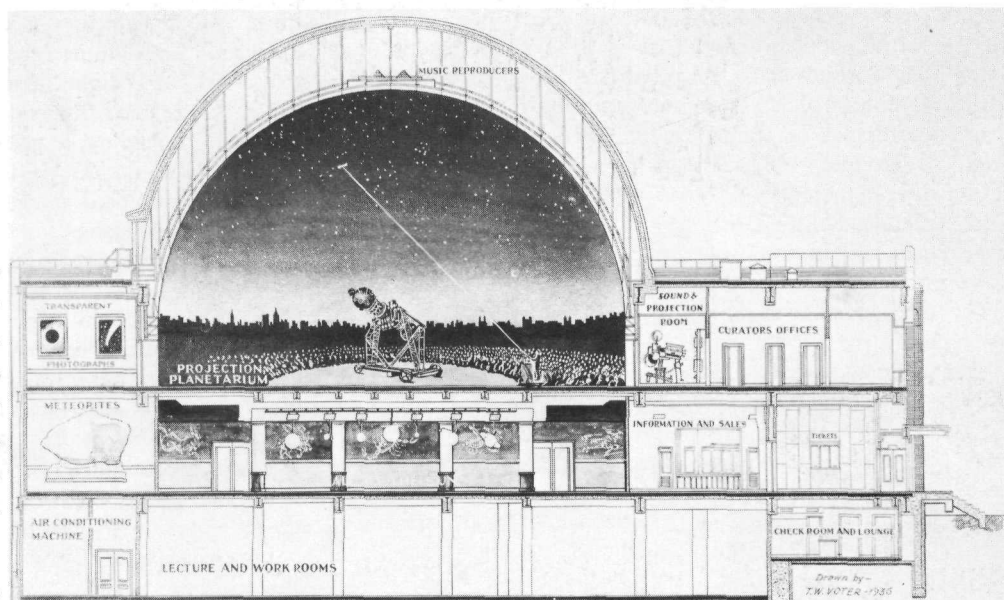
On the floor, in the center of the circular room, beneath the sun, is a twelve-foot reproduction of the Aztec Calendar Stone. The core of the design is a face of the Sun God. Its close-set eyes are crossed. Its expression vaguely cruel. On either side of the Sun, claws enclosed in circles are grasping human hearts.

About the stone in concentric rows are the seats. In the seats, in stupor, the audience. . . . Captives of the Planets. The atmosphere is violet, silent and inert. A recorded lecture drones in a basal monotone. Vacancy adds to the lifelessness. The axes of the system cut four aisles through the tightly wound rings of chairs. The aisles terminate in four sets of double doors at the outermost reaches. The doors, once closed, expel temporality. Enormous lengths of time are compressed into the room. Light-years pass in minutes. Life so extended becomes negligible. The cycle of the planets occurs and reoccurs. The Solar System, this mechanical collection of tracks, boxes, bulbs, gears, armatures, rods, seems tired, torpid. A chamber of ennui. And fatigue. It is endless, if only the electricity holds out.

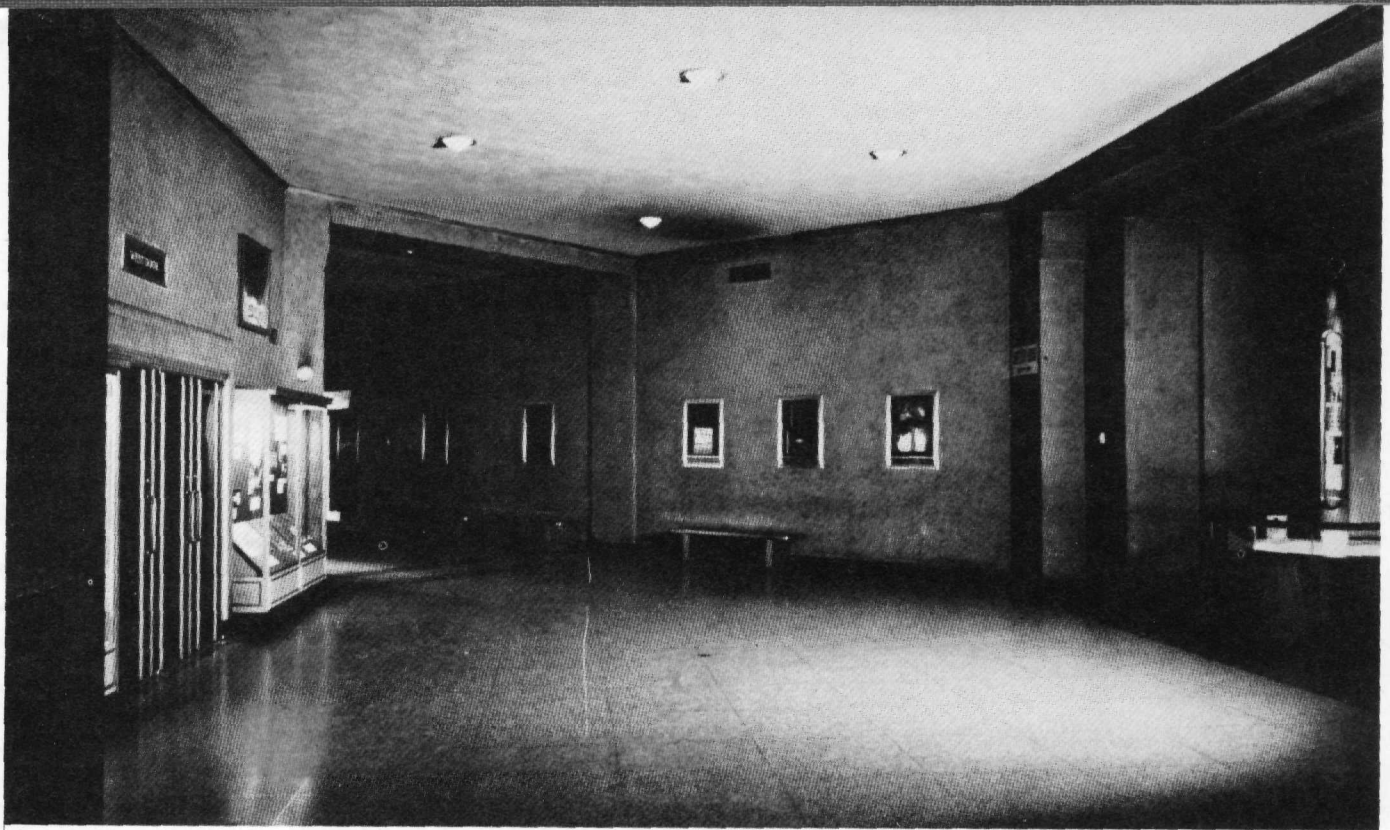
All photos courtesy of American Museum of Natural History

"Under the great dome, the lecturer, with a complicated series of buttons, dials and switches to manipulate, and with over two thousand possible combinations at his command, is virtually in control of the universe."

Hayden Planetarium
Guide Book



LONGITUDINAL SECTION OF THE HAYDEN PLANETARIUM



at the perimeter

Beyond the malevolent red exit sign of the Solar System rests the Williamette meteor. It is, presumably, one of the largest meteors in captivity. Behind it a caption from another exhibit reads "The Future."

It is here, at the perimeter of the old sensibility, that the Viking Rocket display lies, caught between the old humanism and the new technologism. Along its fifty-foot length are inset twenty plastic windows. Ten of these are clear and transparent. Four are green. Three are red. Two are blue. The remaining one is of an indeterminate cast. The body of the rocket was at one time white. It has become overcast, marred in spots, gray, somehow decadent. The nose cone appears to be of another material or else the same material unpainted. The interior looks uncomplicated. Various square, cylindrical or polygonal boxes and compartments, either open or closed, perforated or solid, are interconnected by means of single or grouped wires. The parts are labeled: Cosmic Ray Coincidence Amplifier, Solar Aspect, Gimbal Ring, Doppler Antenna, X-Ray Densitometer. In the central cavity of the elongated main section is the fuel tank. Three plastic windows reveal the red void, a chilly container of nothingness. The next opening along the fuselage proceeding from left to right is the oxidizer tank. It is a vitriolic green in color, cleaner in appearance, and bored through centrally by a standpipe. The rear exhaust, directly behind the aft instrumentation compartment, is joined to the main body by four large red hoses. The whole apparatus is set into the posterior orifice beneath a cylindrical casing with nine plugs attached to the end of it terminating in a series of stranded white wires that disappear somewhere off to the left behind a lateral appendage clearly marked *Yaw Servo*.

The supposed factuality yields no information. Nothing is known but the impenetrable surfaces.

beyond the possibility threshold

For some, reality is not enough. Others, perhaps those whose anxieties have been deadened by lethargy and inactivity, find in the inert forms of reality a rare intoxication. The shapes of the physical world, once assimilated, become detached identities. The random dimensions of reality lose their subjectivity. Duration becomes a coefficient of weight. It is beyond this possibility threshold that the "black-light" mural room exists.

Entry to the mural hall is gained by skirting a floor-to-ceiling blockade. Immediately a misty carnival of space sensations is encountered. Bloated visions of "Saturn and Its Rings," "Moon in Eclipse," "Giant Nebulae of Orion," "Lunar Landscape." The luminescent whites and yellows are activated by the dim "black-light." Backgrounds are dark, velvety, vast, infinite, spectacular. But oddly, the reverse effect is achieved. The hall is confining, claustrophobic. If this is outer space, any closet will do. These flat heavenly bodies are nothing more than transposed images of mental fixity. The room a replica of quasi-deaths.

Here, as everywhere in this labyrinth of inefficient senses and circular reasons, there is a center. The Ahnighito Meteor. "In 1956 the Toledo Scale Company built a special scale which was assembled in this corridor. . . . The weight of the meteor was discovered to be 68,085 pounds. Visitors, by stepping on the scale platform, may see the hand of the scale move slightly as their own weight is added to that of the gigantic meteorite."

More incredible than the Scale, more artificial and unreal than the fluorescing pigment of the murals, are the unsuspecting visitors. Their shirts gather the impossible luminescence. Their glowing teeth become more stellar, more remote than the tiny specks of distant planets which surround them. Trapped in this chamber of the unceasing Planetarium, the duration of their stay is heavier than Ahnighito's thirty-four tons.

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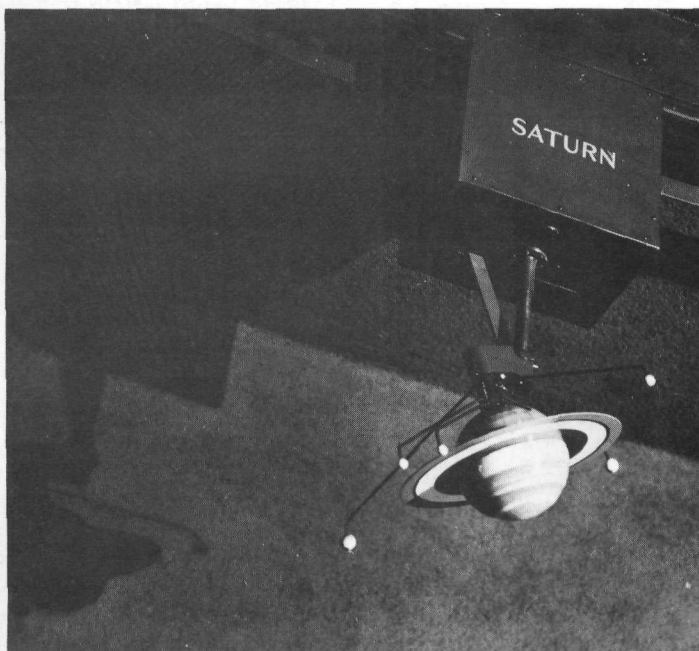
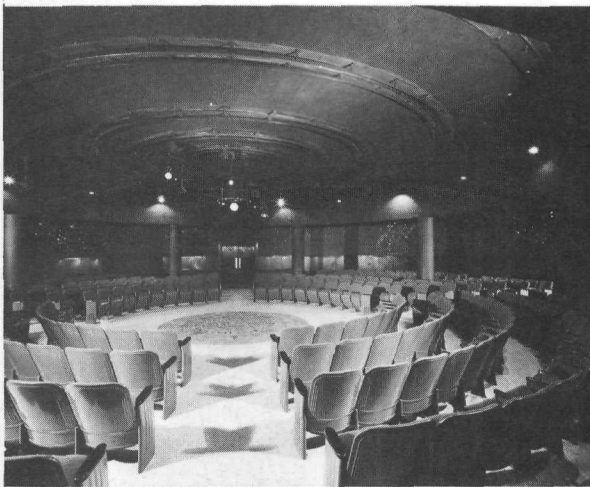
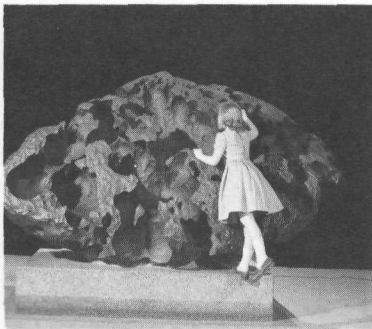
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secrets of the ambulatories

1. THE GLORIFIED ORRERY, FORTY FEET IN DIAMETER . . .
2. EXACT REPLICA OF AZTEC CALENDAR STONE . . .
3. COLORED PANELS OF THE SOLAR PROMINENCES . . .
4. LOAN COLLECTIONS OF ASTROLABES, COMPASSES, AND HOURGLASSES . . .
5. AN IMAGINARY 10,000,000,000,000,000 MILE TRIP . . .
6. THE LUNAR LANDSCAPE PAINTED BY HOWARD RUSSELL BUTLER . . .
7. THE ELEPHANTS AND A TORTOISE SUPPORT A HEMISPHERICAL EARTH . . .
8. THE WORLD SERPENT TWINED ABOUT EARTH EGG . . .
9. THE BABYLONIAN IDEA OF THE UNIVERSE AS A BOX . . .
10. APOPI, WHO LIVED IN THE DEPTHS OF THE CELESTIAL RIVER . . .
11. TWO THOUSAND TIMES THE WEIGHT OF PLATINUM . . .
12. THE ABANDONMENT OF SPLENDID SPECULATION . . .
13. MODEL OF THE EINSTEIN TOWER AT POTSDAM . . .
14. A SHIP WHIRLING ABOUT IN THE FUNNEL OF THE MAELSTROM . . .
15. AN ENTIRE DAY IN THREE MINUTES . . .
16. THE SO-CALLED "LAW OF THE CONSERVATION OF MATTER" . . .
17. AN IMPONDERABLE, ALL-PERVASIVE, AND INTERMEDIATE SUBSTANCE . . .
18. THE OLD LUMINIFEROUS ETHER DOES NOT FUNCTION . . .
19. THE BRITISH ECLIPSE EXPEDITIONS OF 1919 . . .
20. SUNDIAL MOTTO: "I MARK ONLY THE SUNNY HOURS" . . .
21. ORDINARY X-RAYS ARE A KIND OF INVISIBLE LIGHT . . .
22. VARIATION OF RAY INTENSITY WITH ALTITUDE . . .



1. BAYER'S HISTORIC URANOMETRIA . . .
2. MORE THAN 120 STEREOPTICON LANTERNS . . .
3. WHIRLPOOLS OF MAGNETIC ACTIVITY . . .
4. THE DARK WEDGE OF SYRTIS MAJOR . . .
5. PHILOLAUS AND THE COSMIC OCTAVE . . .
6. THE CIGAR THAT LASTS TWICE AS LONG . . .
7. SHIFTING OF THE SPECTRUM LINES . . .
8. EDDINGTON'S IMAGINARY EXPERIMENT . . .
9. DEMOCRITUS AND THE THEORY OF COMETS . . .
10. AN IRON CEILING OVER THE UNIVERSE . . .
11. BROWNIAN MOVEMENT EQUATION (1905) . . .
12. PHOTO-ELECTRIC EQUATION (1905) . . .
13. A CERTAIN HAZY CONDITION . . .
14. APPROXIMATELY FIFTEEN TONS . . .
15. 33-INCH TELESCOPE AT MEUDON . . .
16. TWELVE MASSIVE PILLARS . . .
17. TIME KEPT BY A FICTITIOUS SUN . . .
18. NORMAL TIME AT THE 75TH MERIDIAN . . .
19. COSMIC RAYS IN THE STRATOSPHERE . . .
20. A FIRM FOUNDATION . . .

1. FRIGID IN DARKNESS . . .
2. THE SPECTROHELIOSCOPE . . .
3. THE GOD SHU . . .
4. MUSIC OF THE SPHERES . . .
5. THE AKELEY CEMENT GUN . . .
6. CENTRIPETAL FORCE . . .
7. THE VERNAL EQUINOX . . .
8. A WORLD WITHOUT LIFE . . .
9. 200° BELOW ZERO . . .

secrets of the domes

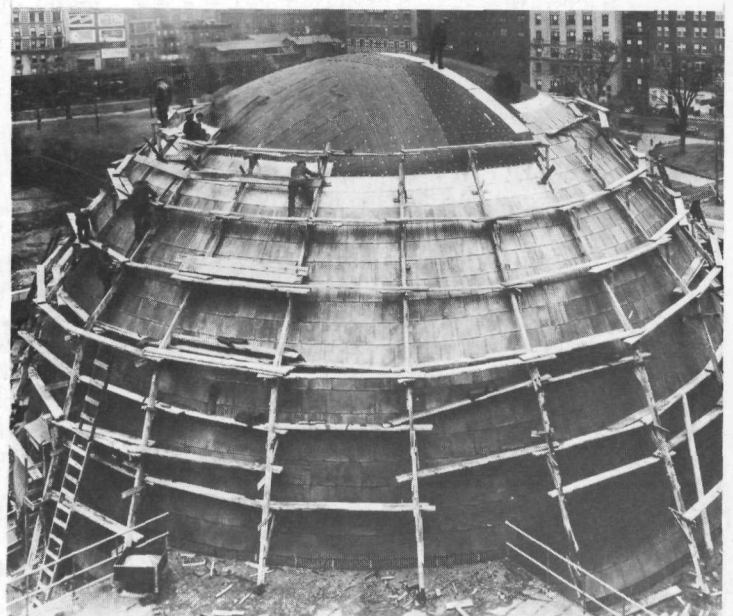
1. DRIVEN DOWN BY MEANS OF A 6,500 POUND STEAM HAMMER . . .
2. THE CORONA IS CORRELATED WITH THE PERIODICITY OF SUNSPOTS . . .
3. SUSPENDED FROM SMALL T-SHAPED BAR ANCHORS . . .
4. "SPOT" WELDED ALONG THE LAPS AT ONE-INCH INTERVALS . . .
5. TWO FALSE-WORK SURFACES HELD AT EQUAL DISTANCES . . .
6. GAUZELIKE WINGS HIDE MYRIAD SUNS FROM VIEW . . .
7. MASSES OF OPAQUE MATTER OBSCURING THE LIGHT OF STARS . . .
8. DESIGNED TO MINIMIZE STRAIN ON THE NECK . . .
9. THE GIANT APPARATUS TURNS AND TWISTS . . .
10. SEPARATED FROM THE EARTH BY 240,000 MILES . . .
11. A DECADE OF STUDY OF CERTAIN CRATERS . . .
12. THE GREEKS BELIEVED THE EARTH TO BE A DISK . . .
13. WHITE-ROBED PRIESTS STANDING MOTIONLESS . . .
14. ILLUMINATED BY FLOODLIGHTS CONCEALED ABOVE THE MARQUEE . . .
15. THAT MANY-SIDED GENIUS—THE LATE CARL AKELEY . . .
16. RIME OF THE ANCIENT MARINER AND THE "HORNED MOON" . . .
17. ALLEGHANY OBSERVATORY STAFF DISCOVERS "FURNACE COMETS" . . .
18. THE BIG DIPPER, FOUND IN THE NARROW BELT CALLED THE ZODIAC . . .
19. NATURAL TENDENCY OF ALL KNOWLEDGE TO "UNITY AND SIMPLICITY" . . .
20. REAL COLLISION, GRAZING COLLISION, OR NEAR COLLISION . . .
21. EUCLIDEAN GEOMETRY—LENGTH, BREADTH, AND THICKNESS . . .
22. THE LEAGUE OF NATIONS CONSIDERED A REVISION OF THE CALENDAR . . .



1. LIGHT RAYS ARE BENT BY GRAVITY . . .
2. MILLIONS OF SMALL "MOONLETS" . . .
3. 90° IN A STIFFENING RIB ONE INCH WIDE . . .
4. 326 PILES WERE NECESSARY . . .
5. ROUND IRON RODS IMBEDDED IN CONCRETE . . .
6. S-SHAPED OBSCURATION WINDS . . .
7. THE PREVENTION OF DISTURBING ECHOES . . .
8. COMFORTABLE SEATING ARRANGEMENTS . . .
9. THE GREAT NEBULA IN ORION . . .
10. IRON PEDESTALS BOLTED TO THE FLOOR . . .
11. ONCE THOUGHT TO BE HOLES IN THE SKY . . .
12. HOLLOW SPHERES OF GASEOUS MATERIAL . . .
13. ALL THE POINTS OF THE COMPASS . . .
14. IN THE VALLEY OF TEN THOUSAND SMOKES . . .
15. EASY LESSONS IN EINSTEIN . . .
16. NEWTON AND ABSOLUTE SPACE . . .
17. SMALL-HEADED NAILS WERE USED . . .
18. THE PRESENT ORBIT OF NEPTUNE . . .
19. THE SATELLITES OF JUPITER . . .
20. VELOCITY 12,000 MILES PER SECOND . . .



1. A GIGANTIC SIEVE . . .
2. ASTRONOMY FOR AMATEURS . . .
3. A LAYER OF "ROCK CORK" . . .
4. THE RED SHIFT . . .
5. THE SWITCHBOARD . . .
6. "ALADDIN'S LAMP" . . .
7. NEWTON WITH HIS PRISM . . .
8. THE DOPPLER EFFECT . . .
9. RIGIDLY FIXED . . .



the domain of the great bear

SHOW SETTING:

Latitude 40°N, May 31, 1966, 9:00 hours on meridian. Geocentric earth set to 40°N Latitude, N.Y. on meridian. Red and green platform lights, blue pans, and cove lights up.

OPERATION I:

1. Red and green platform lights and cove lights should be out by end of introductory music.
2. On cue before music ends, technician projects slides showing title—first part—and then photo of bear and second part of title.
3. Lecturer fades in geocentric earth and signals off title and bear slides.
4. Lecturer fades in winter sun, moves geocentric earth to demonstrate its motion.
5. Lecturer switches to spring sun and demonstrates motion.
6. Lecturer switches to summer sun and demonstrates motion.
7. Lecturer stops geocentric earth and switches on all three suns.
8. Lecturer moves triple suns over earth.
9. Lecturer points out Tropic Zone of earth, Arctic Zone of earth, and Temperate Zone of earth.

Topic:

Introduction. Domain of Bear is Arctic. Demonstrate motions of winter, spring, summer suns over earth. Show how each will appear or not appear from Arctic region. Demonstrate and explain Tropic and Arctic Circles; Tropic, Arctic, and Temperate Zones on earth. Introduce next topic, viz, that Domain of Bear is also our spring evening sky.

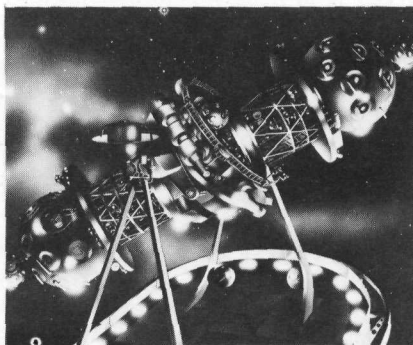
Insert:

Tendency to immobilize the constellations into a concave grid-system. 'Stars' are projected from below, thus inverting the temporal 'naturalism' of the Copernican Solar System. The 'starry sky' is crystallized into square surfaces. Ursa-Major is represented by a slide (a stuffed Kodiak Bear) from the Museum of Natural History. The organic metaphor of the 'Bear' is replaced by an abstract grid-system that compacts all the seasons of the year, thus eliminating the passage of time through space. Space is almost excluded. Time is solidified. The Arctic Circle replaces the Tropic Circles. The 'Equator' within the actual limits of the Planetarium undergoes a meta-ice-age. Time becomes an actual-object. The stars of Ursa Major are frozen into a global arctic that covers

all the zones on earth. (See illustration of 'the Bear' in the depiction of Washington, D.C. undergoing an 'ice-age'.)

OPERATION II:

1. Lecturer fades out triple suns, signals for N.Y. daytime horizon, fades out geocentric earth, fades in Zeiss sun in slow diurnal motion.
2. Lecturer signals for sunset clouds, sunset and star music. Technician starts clouds in motion, starts tape, and fades out blue pans. Technician, on music cues, filters blue over daytime horizon and dissolves for nighttime horizon, fading out night horizon by end of star music.
3. Lecturer fades up stars.



The Zeiss Projector. Art work by Helmut Wimmer.

Topic:

Sunset, stars of the spring sky, the Domain of the Bear. Lecturer should prepare for next operation by setting pointer stars on meridian.

Insert:

Rapid motion of the false stars produces mild nausea or seasickness. Canned 'classical music' adds to the effect.

OPERATION III:

1. Signal for 3 x 4 slide of Big Dipper clock (with hour hand up in midnight position for early March). Use diurnal motion to demonstrate clock, stopping with Arcturus on meridian.
2. Signal off clock slide.
3. Signal for slide of Owl Nebula, M-51 (Whirlpool Galaxy) and M-81 & M-82, all projected in position within the constellation.
4. Signal off slides.
5. Signal for sequence of 7 slides, showing nature of 7 Dipper stars, switched on one-by-one, at five-second intervals.

6. Signal off all slides except slide showing Mizar as a double.
7. Signal for spectrum device.
8. Signal for motion in spectrum demonstrator.
9. Signal off spectrum demonstrator. Technician then dissolves in two spectroscopic binary slides for Mizar slide.
10. Signal for slide showing Alcor as a binary.
11. Signal off all slides.

Topic:

Big Dipper star clock. Deep space objects in direction of Ursa Major. Nature of Big Dipper stars.

Insert:

The third dimension is diminished. Also tends toward binary dualism—an interminable regressus against the unity of a single star. 'Deep space' is explained by two-dimensional slide projections. There is no time apart from the actual lecture-time. The mind is brought to absolute rest for the duration of the lecture. Moments, intervals and sequences are coded into a landscape of ice. Chronology contradicts, repeats, bifurcates, and gets heavier with thoughts of the Polar regions. Matter is seen to be both solid and dualistic.

OPERATION IV:

1. Signal for each of four slides showing head, paws, and hind-quarters of Bear over constellation. Each is switched on at ten-second intervals.
2. Signal for slide of tail.
3. Signal off slides.
4. Signal for music and change to Latitude 80°North.

Topic:

Identifying the constellation Ursa Major. Journey to Arctic.

Insert:

Ten-second intervals are coded into the polar regions. Ice belongs to the ditrigonal-pyramidal type of symmetry in trigonal system. The 'Bear' is divided and coded into that system. The 'Bear' vanishes into glacial grids. Time does not pass during the actual moments of these intervals, but is crystallized into the faceted present of the mind. The time of our mind becomes a frozen actuality, while the clock is forgotten.

* Show Outline, courtesy of the Museum of Natural History—Hayden Planetarium. Inserts by the author.



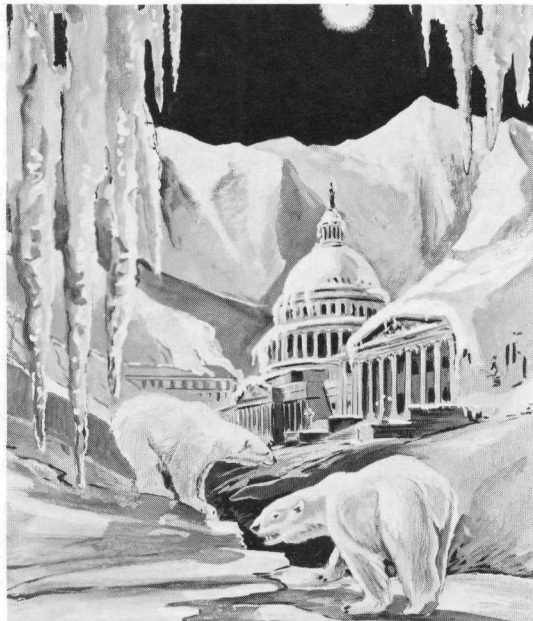
Drawing of dinosaur watching a bolide.



An increase in the Sun's energy.



"The End of the World"—a bombardment of meteors.



Artist's impression of the Earth doomed to a frigid death as the Sun gradually cools. Drawings by T. Voter.

illustrations of catastrophe and remote times

... the inevitable catastrophe is at hand.

—Edgar Allan Poe, *Eureka*

Artists employed by both the Planetarium and the Museum of Natural History have illustrated expendable "conceptions" of ultimate catastrophe, based on the more inaccessible regions of "space and time." In their minds they have traveled into the forbidden zones, into the dazzling realms. They have imagined dimensions beyond the walls of time; and have established provisional limits on a grand scale in order to re-invent the cosmos. The problem of the "human figure" vanishes from these illustrated infinities and prehistoric cataclysms. Time is deranged. Oceans become puddles, monumental pillars of magma rise from the dark depths of a cracking world. Disasters of all kinds flood the

mind at the speed of light. Anthropomorphic concerns are extinct in this vortex of disposable universes. A bewildered "dinosaur" and displaced "bears" are trapped in amazing time dislocations. "Nature" is simulated and turned into "handpainted" photographs of the extreme past or future. Vast monuments of total annihilation are pictured over boundless abysses or seen from dizzying heights. This is a bad-boy's dream of obliteration, where galaxies are smashed like toys. Globes of "anti-matter" collide with "proto-matter," billion and billions of fragments speed into the deadly chasms of space. Destruction builds on destruction; forming sheets of burning ice, violet and green, it all falls off into infinite pools of dust. A landslide of diamonds plunges into a polar crevasse of boundless dimension. History no longer exists.