cosmology). Such important baggage in physics suggests, then, that what we see all around us has not always existed, and that something had to happen between the first particles and Quixote: matter has been progressively becoming more complex. How did such a thing happen?

Let us insist. Physics has managed to find out enough of the how in the world of the very small and of the how in the world of the very large. And that has allowed it to discover, as well, that it knows little or nothing of how things occur in the invisible world of the very complex. This is the third front that has just been inaugurated in physics and that, in all likelihood, will define the trends of the next century. Before the half-hopeful, half-suspicious gaze of other scientific disciplines (such as chemistry, biology, psychology, economics, or politics), physicists and mathematicians sharpen their wits and prepare to attack complexity. Theories that attempt to define magnitudes that take complexity into account, and that wish to explain how to make a system acquire and maintain a certain degree of complexity, are beginning to appear in the scientific community. This is the case of some attempts (not always disjoint between themselves): the chaotic dynamic, evanescent structures, the theory of catastrophes, autopoiesis, the theory of fractals, synergy, information theory, etc. What is the current state of these efforts? There are some common features, such as: all these theories (some of which have inundated the scientific publications market) are extraordinarily elegant and aesthetically spectacular; all of them offer some complicating mechanism; all of them have achieved some small local success such as suggesting the description of some concrete example (curiously, many examples are common to various theories); all of them give the impression of a great future potential; all of them need from the great and new ally of complexity an instrument capable of processing a great quantity of information and of doing it at great speed; the computer; and all have falled, for now, in the task of doing something that is truly worth the trouble. It stands to reason; the complex can be anything except that it cannot stop being so. All of the theories have failed in reality at the moment of leading us to the great questions on the subject. It so happens, as always when a great paradigm is introduced, that the first exercise consists in finding good questions.

What is it that pushes a system to become more complex? What is the "motor" of complexity? The already old natural selection in perhaps, despite its tautological component, the only criterion that sheds a certain light in this sense. But for most thinkers on complexity there must be something more. Can one explain complexity as an appropriate combination of the laws we already know? Or rather: Wouldn't there be complexity's own laws to be discovered, that is, laws that rule for both a language and an ecosystem. In a few words, is there really a theory of complexity? Let us say that there are indications sufficient for that to be so, so that the process continues, so that we risk time and effort in the search for such a theory.

The truth is that the endeavor is very ambitious, so much so that we are perhaps in one of those moments in which the scientist must rid his mind of more prejudices than appeared at first.

I have the impression that it is not enough to prove new scientific ideas; the endeavor will undoubtedly effect the scientific method itself, or, at least, the method that has brought physicists so many successes up to now. The Scientific Method is to scientific theories what the Constitution is to ordinary laws. Although much more slowly, it also changes. The physicist has based his success and his prestige on a type of scientific intelligibility: that of the model (the formula, the law in form of a mathematical equation). The method has borne its greatest fruits with simple objects. I think that to conquer complexity we cannot renounce an other type of intelligibility less used in physics, but not for that reason less scientific. I am referring to the intelligibility that emerges from mere classification, from causality, and above all, of the intelligibility that arises in seeking coherences between a Whole and its Parts (analysis and synthesis), something only possible since there has been a new way of approximating reality that is neither theory nor experience, but rather, simulation. To understand the relationship between the Wholes and their Parts (where the Wholes are, in turn, Parts of other Wholes...) will permit us to build a preliminary architecture that also does not exist for now, that of a theory of hierarchies. I think that a good theory of hierarchies will be the announcement that a good theory of complexity is near.

Placentarium

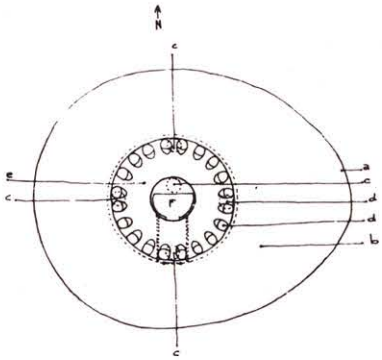
Placentarium

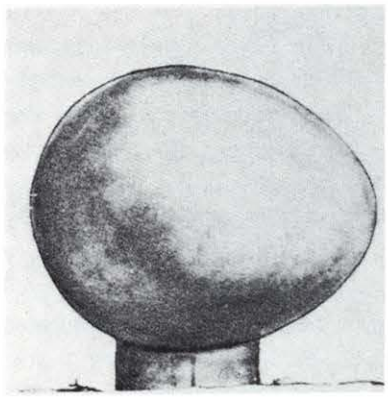
PIERO MANZONI

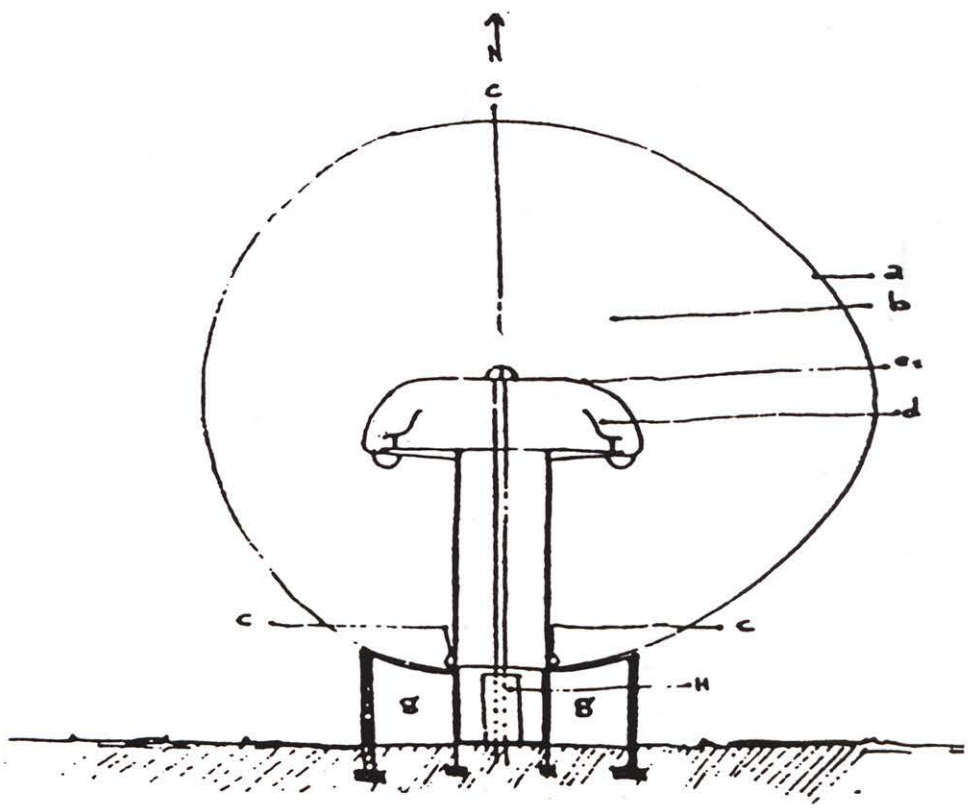
Del libro de Germano Celant, *Piero Manzoni* (Milano, Prearo Editore, 1989, 2ª Edición), pp. 61 y 78. Este proyecto y el manuscrito de este texto, inéditos desde su realización en 1961, fueron recuperados por Germano Celant en 1975 para la primera edición del libro citado y hoy forman parte del Archivo Celant, Génova. La obra de Piero Manzoni (Soncino 1933, Milán 1963) ha sido recientemente recuperada en una exposición antológica organizada por el Musée d'Art Moderne de la Ville de Paris actualmente expuesta en la Fundación "la Caixa" de Madrid y próximamente en el Castelo de Rivoli de Turín. Traducido por Javier Revillo.

From Germano Celant's* Piero Manzoni *(Milán, Prearo Editore, 1989, 2nd Edition), pp. 61 and 78. This project and the manuscript of this text, unpublished since they were created in 1961, were recoverd by Germano Celant in 1975 for the first edition of the book mentioned above and today make up a part of the Celant Archive in Genova. The work of Piero Manzoni (b. Sancino 1933, d. Milan 1953) has been recovered recently in an anthological exhibition organized by the Musée d'Art Moderne de la Ville de Paris, currently exhibited in the "La Caixa" Fondation in Madrid, and appearing shorthly in the Castelo de Rivoli in Turin. Translated by Diana Saez.

La esfera tiene 18 m. de diámetro, blanca en el interior, plateada en el exterior: el alvéolo aísla visualmente al espectador del resto del público y de todo lo que es espectáculo en el teatro.
Un compresor mantiene de maneraa autónoma en el interior una presión suficiente capaz de sostener la envoltura: las puertas de entrada están aisladas (dos en serie) y son giratorias.
El *Placentarium* es una sala de proyección neumática.
De forma esférica (en el proyecto piloto 18 m.







Proyecto A:

a) Envoltura (sostenida por presión neumática).

b) Aire (comprimido) o gases (coloreados o luminosos).

c) Proyectores luminosos, difusores sonoros, ventiladores para movimiento del gas.

d) Asientos.

e) Plataforma giratoria.

e 1) Cúpula transparente de protección.

f) Ascensor.

g) Compresor, maquinarias.

h) Entrada.

Project A:

a) Enclosure maintained by pneumatic pressure.

b) Compressed air or gasses (colored or lighted).

c) Light projectors, sound diffusers, fans that more the gasses.

d) Scats.

e) Revolving platform.

e 1) Protective transparent dome.

f) Elevator.

g) Compressor, mechanical instruments.

h) Entrance.

de diámetro) la totalidad de la envoltura del teatro está hecha en material plástico y está sostenida, no por estructuras, sino por la presión atmosférica interior, siempre ligeramente superior a la del exterior: para ello un compresor mantendrá constante la presión interior de forma automática: la entrada puede hacerse a través de una puerta giratoria o a través de dos puertas, colocadas una detrás de otra.

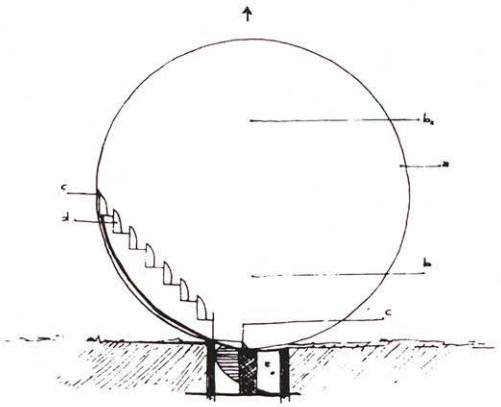
En el proyecto, la entrada, la base, la maquinaria están enterradas, de manera que desde el exterior el teatro se presenta como una esfera. Evidentemente se pueden realizar muchas otras formas y muchas otras aplicaciones (enormes pabellones, cubiertos por cúpulas hemisféricas, etc.) según las necesidades y las posibilidades. La esfera es plateada en el exterior (para proteger de los rayos solares), en el interior es blanca, los asientos están dispuestos y realizados de manera que el espectador no pueda ver a los otros espectadores, sino solamente la inmensa pantalla. El espectador está rodeado por la pantalla desde el interior de la esfera.

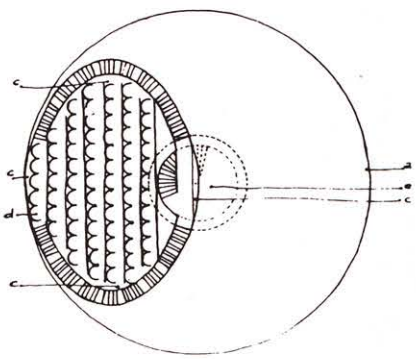
El *Placentarium* ha sido proyectado especialmente para la proyección de los "ballets de luz" de Otto Pienne: se trata de proyecciones de luz y de movimientos de puntos luminosos que se producen a través de aparatos especiales. Se pueden acumular también sensaciones acústicas y táctiles además de las visuales. Por lo que respecta a la directa participación del individuo-espectador en el espectáculo, tengo también otro proyecto que intenta llevar a un auténtico papel de protagonista a quien habitualmente es público.

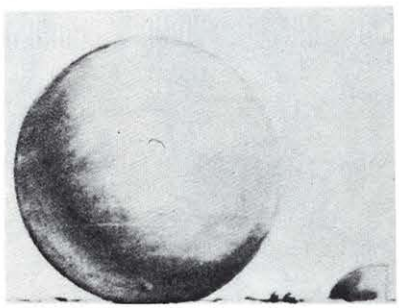
En un viaje que recientemente he realizado a París, he conocido al pintor R. Rummey. Él también estaba trabajando en un proyecto muy semejante al mío: es más, incluso idéntico en lo sustancial, de manera que juntos prepararemos su puesta en práctica.

El espectador entrará en una especie de laberinto, formado por numerosas celdas más o menos grandes (cerca de unas sesenta) controladas por un cerebro electrónico.

El "sujeto" es el propio espectador (su estructura psíquica), según sus reacciones será encaminado de manera autónoma hacia un







Proyecto B:

a) Envoltura (plástico, sostenido por presión neumática).
b) Aire comprimido.
b 1) Gases ligeros.
c) Proyectores luminosos, difusores sonoros, vibradores para sensaciones táctiles.
d) Alvéolos para los espectadores.
e) Escalera de acceso, compresor, maquinarias, etc.
f) Entrada.

Proyect B:

a) Plastic enclosure sustained by pneumatic presure.
b) Compressed air.
c) Light gasses.
d) Alcoves for spectators.
e) Access stainway, compressor, machenes, etc.
f) Entrance.

itinerario determinado en lugar de otro diferente. Este itinerario le producirá diferentes sensaciones, que dependerán de la elección inconsciente que él mismo haya realizado. Para algunos resultará banal, para otros desencadenará reacciones perturbadoras. Por ejemplo, mientras un determinado espectador será incluso expulsado de una celda, en otra no conseguirá encontrar la salida, mientras tanto el techo empezará a bajar amenazándole con aplastarle y cuando se encuentre cerca de dar con la solución para poder salir, una voz le insultará y se reirá de él, obstaculizándole: según sus reacciones, encontrará una salida que le sumergirá en un determinado circuito en lugar de otro, en una habitación encontrará la luz más violenta, en otra en la oscuridad más absoluta se hundirá en un suelo de goma, en otra, a través de un sistema de espejos, tendrá la impresión de andar por el techo, etc.

The sphere is 18 m. in diameter, white on the interior, silver on the exterior: The honeycomb structure isolates the spectator from the rest of the public and from distractions (spectacles) in the theater.

A compressor automatically maintains sufficient pressure on the interior, capable of sustaining the exterior covering. The entry ways are isolated, and are composed of two consecutive revolving doors.

The Placentarium *is a spherical room constructed by pneumatic projection (pilot project 18m diam.). The material enclosing the space, which contains a theater, is composed of plastic and is given form not through the use of structures, but as an effect of mechanically maintained atmospheric pressure, always slightly lower on the interior than on the exterior. Entrance into the space is achieved through two consecutive revolving doors. In the project, the entry way, as well as the base of the structure, and the mechanical mechanisms, are buried underground in such a way that the exterior of the theater appears as a perfect sphere. It goes without saying that other forms with other applications may be created according to the particular needs of the occasion, through use of this system —large pavilions, hemispheric domes, etc.*

The sphere is silver on the exterior to protect it from solar rays, and white on the interior. The seats are situated in such a way that the spectator has visibility only to a large screen, which encircles the interior of the sphere.

The Placentarium *was specifically conceived for performances of Otto Piene's "ballets of light": projections of light on the screen and movement of illuminated points produced by special apparatuses. Apart from visual stimuli, acoustic and tactile sensations may also be projected. In respect to the kind of spectator that habitually attends events such as these, I have a project in mind that will protagonize the participation of these individuals. In a trip I recently made to Paris, I came into contact with the painter, R. Rumney, who was also working on a project involving these same characteristics, in fact, in terms of the basic principal behind the project, our ideas were fundamentally identical. We decided, therefore, to collaborate in the practical preparation of the project.*

The spectator will enter a type of labyrinth, formed by numerous more-or-less-large cells (there will be approximately 60 of these cells) controlled by an "electronic brain" or computer.

The "subject" is the spectator him or herself (their psychic structure); according to the spectator's orientation, they will be automatically directed towards a determinant place. Each itinerary will produce specific and different sensations, that will depend upon the unconscious election each spectator realizes. For some, the experience will be banal, for others it will awaken disturbing realizations. For example, while one spectator is ejected from a cell, another will not be able to find the exit, during which time the ceiling begins to lower and threatens to flatten him or her, when at last the participant finds the exit, a recorded voice will insult and laugh at him or her, and their way will be obstructed. Depending upon their reaction to this experience, they will be directed towards and subjected to another particular environment. In one room they will encounter violent light; in another, they will sink into a rubber floor, in total darkness; and in yet another, through use of a system or reflecting mirrors, they will have the impression that they are walking on the ceiling.