Morton Heilig

"The Cinema of the Future" (1955)

sensorana

Morton Heilig, Sensorama. Courtesy of Scott Fisher.

"Thus, individually and collectively, by thoroughly applying the methodology of art, the cinema of the future will become the first art form to reveal the new scientific world to man in the full sensual vividness and dynamic vitality of his consciousness." << 22 >>

<< Morton Heilig, through a combination of ingenuity, determination, and sheer stubbornness, was the first person to attempt to create what we now call virtual reality. In the 1950s it occurred to him that all the sensory splendor of life could be simulated with "reality machines." Heilig was a Hollywood cinematographer, and it was as an extension of cinema that he thought such a machine might be achieved. With his inclination, albeit amateur, toward the ontological aspirations of science, Heilig proposed that an artist's expressive powers would be enhanced by a scientific understanding of the senses and perception. His premise was simple but striking for its time: if an artist controlled the multisensory stimulation of the audience, he could provide them with the illusion and sensation of firstperson experience, of actually "being there."

Inspired by short-lived curiosities such as Cinerama and 3-D movies, it occurred to Heilig that a logical extension of cinema would be to immerse the audience in a fabricated world that engaged all the senses. He believed that by expanding cinema to involve not only sight and sound but also taste, touch, and smell, the traditional fourth wall of film and theater would dissolve, transporting the audience into an inhabitable, virtual world; a kind of "experience theater."

Unable to find support in Hollywood for his extraordinary ideas, Heilig moved to Mexico City in 1954, finding himself in a fertile mix of artists, filmmakers, writers, and musicians. There he elaborated on the multidisciplinary concepts found in this remarkable essay, "The Cinema of the Future." Though not widely read, it served as the basis for two important inventions that Heilig patented in the 1960s. The first was the Telesphere Mask. The second, a quirky, nickelodeonstyle arcade machine Heilig aptly dubbed *Sensorama*, catapulted viewers into multisensory excursions through the streets of Brooklyn, and offered other adventures in surrogate travel. While neither device became a popular success, they influenced a generation of engineers fascinated by Heilig's vision of inhabitable movies. >>

Pandemonium reigns supreme in the film industry. Every studio is hastily converting to its own "revolutionary" system—Cinerama, Colorama, Panoramic Screen, Cinemascope, Three-D, and Stereophonic Sound. A dozen marquees in Time Square are luring customers into the realm of a "sensational new experience."

Everywhere we see the "initiated" holding pencils before the winked eyes of the "uninitiated" explaining the mysteries of 3-D. The critics are lining up pro and con concluding their articles profoundly with "after all, it's the story that counts." Along with other filmgoers desiring orientation, I have been reading these articles and have sadly discovered that they reflect this confusion rather than illuminate it. It is apparent that the inability to cope with the problem stems from a refusal to adopt a wider frame of reference, and from a meager understanding of the place art has in life generally.

All living things engage, on a higher or lower level, in a continuous cycle of orientation and action. For example, an animal on a mountain ledge hears a rumbling sound and sees an avalanche of rocks descending on it. It cries with terror and makes a mighty leap to another ledge. Here in small is the essence of a process that in animals and man is so automatic—so rapid—as to seem one indivisible act. By careful introspection, however, men have been able to stop its rapid flow, bring it into the light of consciousness, and divide it into three basic phases. The first, observation (the noise and image of the boulders in our example), is the reception of isolated impressions or facts. The second, integration, is the combining of these isolated facts with the inner needs of the life force into an emotional unity that prompts and controls action (the animal's sensation of danger and terror). The third, action (the leap to safety), is a change in the creature's physical relation to the world.

With the forming of society, different men concentrated on one of these three phases, and by learning to cast the results of their labor into concrete forms (that could be passed from man to man, and generation to generation) they created science, art, and industry. These three have the same methods and aims in the social body as the mind, heart, and muscle do in individual man. Their goals are clear. For science it is to bestow the maximum knowledge on humanity. For art it is to digest this knowledge into the deeper realms of feeling, generating emotions of beauty and love that will guide the crude energies of mankind to constructive actions. And for industry it is to act on the material world so as to procure more living energy for mankind. The success with which each field can approach its goal depends on its understanding of method. Science has come the closest because it has uncovered the individual's scientific thought processes and codified it into a clear and systematic method of experimentation. Consciously applying this method, it makes more discoveries in one year than previously were made in millenniums. Writing, international mail, and international conferences have long been efficient ways of distributing its findings to humanity.

Industry, within the last one hundred years, has also made great strides toward its goal because production geniuses like Ford have rationalized it to the last degree. They have instigated assembly line, mass production techniques that pour out more food, machines, and fuels in one year than were produced in centuries. The problem of distributing its bulky goods has been solved theoretically and only awaits practical application.

It is the middle field, art, which today is furthest from its goal. The world is woefully barren of peaceful, tolerant, humanitarian feelings and the art that should create them. And this is because, as yet, art has evolved no clear-cut methodology to make it as efficient as science and industry in creating its product. Art is now struggling feverishly to achieve this, and only in the light of this struggle and the laws it seeks to establish will we be able to understand the innovations that prompted this article.

The laws of art, like those of science and industry, lie hidden in the subconscious of man. When a primitive man desired to convey to another man the complete emotional texture of an experience that occurred to him he tried to reproduce, as closely as possible, the elements that generated his own emotions. His art was very simple, being limited to the means provided by his own body. He used his voice to growl like the bear that attacked him, pumped his arms and legs to show how he climbed a tree, and then he blew on his listener's face to make him feel the hot breath of the bear. If he were a good storyteller, he would arrange these effects in more or less the same order they originally happened to him. Of course, his listener would feel everything more intensely if he, and not his friend, were attacked by the bear. But aside from being impossible, this is not advisable, for by listening to his friend's story, he can have all the excitement, learn all the lessons, without paying the price for them.

With time language became more complete. A specific word-sound became associated with the impressions, objects, and feelings in man's experience. Words were useful in conveying the general structure of an event to the mind, but could rarely quicken the listener's pulse the way fresh and direct contact with the original sense elements could—that is unless spoken by a very skilled narrator. And even then not a thousand of his choicest words could convey the sensation of yellow better than one glance at yellow, or high C better than listening for one second to high C. And so side by side with verbal language they evolved more direct forms of communication—painting, sculpture, song and dance. They found they could bore deeper into experience by concentrating all their powers of observation on one of nature's aspects and mastering the limited materials necessary to its expression.

Materials became more complex and techniques more refined as each art form sought to exploit the full range and delicacy of its own domain. The few lines scratched on a rock developed into the full glory of painting. The singing voice evolved into symphonic music and the few words into the rich fabric of poetry. For all the apparent variety of the art forms created, there is one thread uniting all of them. And that is man, with his particular organs of perception and action. For all their ingenuity, a race of blind men could never have evolved painting. Similarly, no matter how much they appreciated movement through their eyes a race of limbless men could never have developed dancing. Thus art is like a bridge connecting what man can do to what he can perceive.

What we commonly refer to as the "pure arts" are those whose materials are so simple, so pliable, that one artist can master them sufficiently to express his inner feelings to perfection. The painter fashions color, the musician notes, the poet words. Each additional impression of their artistic form is like an electric charge driving the spectator higher and higher to peaks of pure and intense feeling that he rarely experiences in his daily life. The simple materials of the pure arts are apprehensible through only one sense, but this sense is not a necessary condition of purity. Precision and subtlety of form achieved through *control* is the decisive factor.

Desiring to convey the full richness of experience in more lifelike form, men have combined the pure arts into forms known as the "combined" or "secondary arts," such as opera, ballet, and theatre. Their effects were fuller, more spectacular, but rarely deeper. The essential factor of control was missing. Not only did the artist have to master visual, musical, choreographic, and verbal materials, not only did he have to limit the scope of his imagination to the practical limitations of a theatre and depend on the collaborations of dozens of singers, painters, dancers, musicians, and actors, but even after he had masterminded every detail and rehearsed the cast into perfect form he had absolutely no way of fixing his creation so that it could remain exactly the same whenever and wherever played. This was an impasse the artist could never surmount and never did, until the arrival of a strange newcomer on the scene—the machine. The machine with its genius for tireless repetition and infinite exactitude was an extension of the limbs and will of man. It could be trusted to perform all his purely mechanical operations, freeing his energies for more creative tasks.

In the form of the printing press, lithograph, radio, phonograph, and now television, the machine has rapidly solved the second part of art's age-old problem—distribution. Painting, poetry, music, drama, and ballet can now reach millions of people about the globe as they never could before. But the machine has done more. It has entered, as it has done in industry and science, into the very sphere of artistic creation itself, providing the artist with a much wider palette of sense material and enabling him to mold them with precision into an aesthetic unity as he never could before. And it is the invasion of such a relentlessly efficient and logical apparatus as the machine into the humane and heretofore romantic field of art that not only suggests but necessitates a clear, efficient *methodology* of art. 11

If at this point we scan back over our very brief history of art forms it becomes apparent that the first law of such an artistic methodology must be: "The nature of man's art is fundamentally rooted in his peculiar psychic apparatus and is limited by the material means at his disposal." Logically, then a proper science of art should be devoted to the revelation of the laws of his psyche and the invention of better means.

Although very little of it was conscious or intentional, nothing demonstrates this research and invention more dramatically than the cinema. The sense was vision-the material, light. The still camera had been invented but it could do no more than a skilled painter could do with time. But when in 1888 the Lumiere Brothers set up a little box before their factory and cranked away at it as a group of workers left, they did something no human being could ever do before. They captured visual movement in a form that could exactly reproduce the moving image as often as desired. Only after countless millenniums of existence had man learned how to do what his visual mechanism can do with no effort at all. With time every part of this new machine, from the lens to the film stock, was improved. Lenses were made faster and given wider angles. The iris became adjustable and the film finer-grained and faster. Always the criteria of invention were to reproduce as closely as possible man's miraculous mechanism of vision. The addition of color was inevitable. Man sees color, so must his mechanical eye. Now we have the so-called "revolutionary" 3-D and Wide Screen. The excitement and confusion are great but they need not be. First, 3-D was invented over 50 years ago and shown at the Paris Exposition. Financial, not technical, considerations held it up until 1953. The really exciting thing is that these new devices have clearly and dramatically revealed to everyone what painting, photography, and cinema have been semiconsciously trying to do all along-portray in its full glory the visual world of man as perceived by the human eye.

Side by side with the invention of means to freeze visual movement, machines were developed that could (this also for the first time in human history) freeze sound. But again, the public's deep and natural urge for more complete realism in its art had to wait on the wheel of finance until 1933. It is the addition of sound that represents the really great "revolution" in the history of cinema. For

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with the addition of sound, cinema stepped irrevocably out of the domain of the "pure arts" into the camp of the "combined arts." Rather than attempting to portray the whole through the part, it now began attempting to portray the whole directly. But with this tremendous difference from all other composite arts—it could do it without losing *control* or *permanence*. With the help of the machine two radically different sense materials, light and sound, could be dynamically combined into one work without losing any of the control, subtlety, or concreteness formerly attained only by the pure arts. Cinema was no longer just a visual art (notwithstanding the effort of some directors to keep it such by shooting visual films and pouring the sound track over it like some pleasant, superfluous goo), but had set itself the task of expressing in all its variety and vitality the full consciousness of man.

Instead of continuing to stumble along this road with the system of hit and miss, let us, according to our first law, deliberately turn to life and study the nature of man's consciousness.

Man's nervous system—sensory nerves, brain, and motor nerves—is the seat of his consciousness. The substance or component parts of this consciousness can be determined by the process of elimination. If a man lies still, or, due to some disease or drug, has his motor nerves blocked, his consciousness or wideawakeness is not diminished in any way. If, however, he closes his eyes, it is. If he stops his ears, it is diminished further. If he pinches his nose and does not taste anything and avoids tactile impressions, his awakeness is diminished considerably. And if, as is done in anesthesia, all sensory nerves leading to the brain are blocked, he would lose consciousness completely. (Dreams and internal voices merely being sense impressions of former experiences stored away and served up later by memory.) Thus we can state our second law: "Consciousness is a composite of all the sense impressions conveyed to the brain by the sensory part of the nervous system which can be divided into the great receiving organs—the eyes, ears, nose, mouth, and skin."

By concentrating on one organ at a time, we can list the various elements affecting it. These are, for the eye, peripheral imagery— 180° horizontal $\times 150^{\circ}$ vertical, three dimensionality, color and movement; for the ear, pitch, volume, rhythm, sounds, words, and music; for the nose and mouth, odors and flavors; and for the skin, temperature, texture, and pressure. These divisions—although purely subjective and dependent on vocabulary and techniques of reproduction—are nonetheless useful for analysis.

These elements are the building bricks, which when united create the sensual form of man's consciousness, and the science of art must devote itself to invent-

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ing techniques for recording and projecting them in their entirety. Celluloid **film** is a very crude and primitive means of recording light and is already being **re**placed by a combination television camera and magnetic tape recorder. Simila**rly**, sound recording on film or plastic records is being replaced by tape recording.

Odors will be reduced to basic qualities the way color is into primary colors. The intensity of these will be recorded on magnetic tape, which in turn will control the release from vials into the theatre's air conditioning system. In time all of the above elements will be recorded, mixed, and projected electronically—a red of the cinema of the future being a roll of magnetic tape with a separate track for each sense material. With these problems solved it is easy to imagine the cinema of the future.

Open your eyes, listen, smell, and feel—sense the world in all its magnificent colors, depth, sounds, odors, and textures—this is the cinema of the future!

The screen will not fill only 5% of your visual field as the local movie screen does, or the mere 7.5% of Wide Screen, or 18% of the "miracle mirror" screen of Cinemascope, or the 25% of Cinerama—but 100%. The screen will curve past the spectator's ears on both sides and beyond his sphere of vision above and below. In all the praise about the marvels of "peripheral vision," no one paused to state that the human eye has a vertical span of $150^{\circ 1}$ as well as a horizontal one of 180°. The vertical field is difficult, but by no means impossible, to provide. Planetariums have vertical peripheral vision and the cinema of the future will provide it along similar lines as shown in the accompanying drawing. This 180° × 150° oval will be filled with true and not illusory depth. Why? Because as demonstrated above this is another essential element of man's consciousness. Glasses, however, will not be necessary. Electronic and optical means will be devised to create illusory depth without them.

Cinemascope, despite all the raving of its publicity men that it is the "crowning glory" of motion picture development, represents one small step forward, and one big one backward. Its increase of screen image from 5 to 18% of man's visual field is a definite improvement although there is still 82% to go. It has, however, regressed substantially in clarity. One reason that few critics noticed for Cinerama's excellent illusion of reality is its extraordinary clarity. The human eye is one of the most perfect in the animal kingdom. It is not spotty, out-of-focus, or jumpy the way average movie images are. The image it records is limpid, razorsharp, and solid as a rock, and Cinerama, by using three film strips instead of one, and specially designed projectors, makes a great advancement towards this perfection. Cinemascope, on the other hand, by still using only one film strip to cover two and one-half the normal screen area, is also magnifying grain, and softening the focus two and one-half times, making clarity much worse than it is on the normal screen.² The electrically created image of tomorrow's film will be perfect in focus and stability—the grain and spots vanishing along with the film stock.

Stereophonic sound will be developed so that the spectator will be enclosed within a sphere, the walls of which will be saturated with dozens of speakers. Sounds will come from every direction—the sides, top, back and bottom—as they do in real life.

The large number of speakers will permit a much better identity of image and sound than is achieved now where the sound leaping from one distant speaker to another is either behind or ahead of the image. The air will be filled with odors and up to the point of discretion or aesthetic function we will feel changes of temperature and the texture of things. We will feel physically and mentally transported into a new world.

Yes, the cinema of the future will far surpass the "Feelies" of Aldous Huxley's *Brave New World*. And like many other things in this book that are nightmarish because superficially understood, it will be a great new power, surpassing conventional art forms like a Rocket Ship outspeeds the horse and whose ability to destroy or build men's souls will depend purely on the people behind it.

The mastery of so many sense materials pose another problem—selection. People already complain about the excess of realism in films and say the new inventions shall plunge us from bad to worse. Although the spirit of their complaint is valid, their use of the word "realism" is not. "Realism," or, in aesthetic terms, "experience," is that something which is created by the unity of the outer world with the inner. No matter how extensive the artist's means, he must use them to provoke more of the spectator's participation, not less. For without the active participation of the spectator there can be no transfer of *consciousness, no art*. Thus art is never "too" realistic. When either too much or too little is given, there just isn't any "realism." Poor use of cinema's remarkable new powers is no more of a case against them than daubing with oils is a case against painting.

It is estimated that each sense monopolizes man's attention in the following proportions:

Sight	70%
Hearing	20%
Smell	5%
Touch	4%
Taste	1%

Men can have their attention led for them as a bird will do by flying across an empty sky, or can willfully direct it as everyone does at the dinner table when singling one voice out of the maze of chatter. In each case the criterion is "what is the point of greatest interest and significance to me?" Thousands of sense impressions stimulate the sensory nerves every second of the day, but only one or a few are permitted to enter the realm of higher consciousness at a time. The organ that screens them out is the brain. The brain is the storehouse-the memory of the physical and spiritual needs of the individual, and through him of the human race, and it is according to this criteria-"what is beneficial for the development of the individual and racial life force?" that a decision is made. We can now state the third law of our methodology of art: "The brain of man shifts rapidly from element to element within each sense and from sense to sense in the approximate proportion of sight, 70%; hearing, 20%; smell, 5%; touch, 4%; and taste, 1%, selecting one impression at a time according to the needs of individual and racial development." These unite into the dynamic stream of sensations we call "consciousness." The cinema of the future will be the first direct, complete and conscious application of this law. Since the conventional movie screen fills only 5% of the spectator's field of vision, it automatically represents his point of visual attention and the director needs only to point his camera to control the point of attention. But with the invention of means to fill 100% of the spectator's field of vision with sharp imagery, he must solve the problem of visual attention another way or lose his main aesthetic power.

Every capable artist has been able to draw men into the realm of a new experience by making (either consciously or subconsciously) a profound study of the way their attention shifts. Like a magician he learns to lead man's attention with a line, a color, a gesture, or a sound. Many are the devices to control the spectator's attention at the opera, ballet, and theatre. But the inability to eliminate the unessential is what loosens their electrifying grip on the attention of a spectator and causes them to remain secondary arts.

The evolution of the aesthetic form of cinema can, in a way, be described as a continuation of the artist's struggle to master attention. Griffith began using the "close-up" to draw the spectator's attention to a significant visual detail. Lenses with narrow focus fields were devised to throw foreground and background out of focus, riveting the eye only on the sharp part of the image. Pudovkin developed the close-up in time by varying camera speeds to parallel the varying intensity of man's observations. Eisenstein proclaimed "montage" and Griffith discovered "parallel cutting," both magnificent weapons in the director's arsenal of attention. Shots and scenes could now be shifted with the same freedom and rapidity possible in man's natural observation or imagination. Sound arrived with undiminished intensity, but in time it too became refined in content, pitch, and volume, sometimes dominating the scene, sometimes leaving it completely, leading the ear as precisely as the eye. But like the search for an additional number of sense materials, the principle involved in this refinement of attention were mostly stumbled on by accident—rarely searched for deliberately, and never formulated consciously.

Again, the only place to search is in the mind of man. We must try to learn how man shifts his attention normally in any situation.

Suppose we are standing on a hilltop overlooking the countryside. First we are struck by the huge sweep of the view before us. Then we notice the vivid green of the fields and the sunshine. Then the silent expansion and rolling of a cumulus cloud entrances us. We feel a warm gust of wind and our nostrils dilate at the smell of new-mown hay. Suddenly, our ears sharpen as the shriek of a jet plane cuts the air. We cannot see it, but we linger on the way its high-tone lowers in pitch and fades away. Here is an example of how attention shifts from one element (space—color—then movement, in our example) within a single sense (the eye) and from one sense to another (the eye, the skin, the nose, the ear). In each moment it fixes itself, if for only an instant, on one sense element to the partial or complete exclusion of all others.

In life, only the object being observed is in focus. The area of focus is not necessarily rectangular, including everything in the same plane, as it is in today's films, but can be circular, triangular, vertical, or horizontal, depending on the shape of the objects of interest. Electrical and optical means will be developed to duplicate this flexibility, retaining the hazy frame of peripheral vision as the human eye does for added realism. Naturally, the great visual oval of the camera field will include, exclude, move closer, and recede as it does in life. This zone of focus will generally be at the center of the visual field, but it will be free to shift up and down, or around to the sides, leading the eye wherever it goes. The direction, quality, and intensity of all other sense elements will be controlled and pin-pointed in the same subtle manner.

Each basic sense will dominate the scene in roughly the same proportion we found them to have in man. That is, sight, 70%; sound, 20%; smell, 5%; touch, 4%; and taste, 1%. Nature turns them on and off without a whimper but filmmakers once in possession of a new power usually cling to it like a drowning man to a life raft. Eye irritating colors, ear deafening dialogue, and soul sickening music are loaded one on top of another just to "make sure the point gets across." The cinema of the future will turn any and all of it off, including the visual part, when the theme calls for it. For, and it cannot be stressed too strongs the cinema of the future will no longer be a "visual art," but an "art of consciousness."

When a great many sense materials are presented in sharp focus simultaneously the spectator must do his own selecting. He is no longer being led along in a work of art, but must begin with great fatigue to create his own patterns. The situation is so life-like that it gives the spectator the sensation of being *physica* in the scene. For example, in Cinerama's famous roller coaster sequence. the spectator's body, not his soul, is riding the roller coaster. This is a tremendous faculty and will, I am sure, be used to great effect in the cinema of the future. but it must be used with great discretion. For aside from being very tiring, after one too many loops, the spectator may be so thoroughly convinced that he is shooting the chutes as to throw up on the lady in front of him. As stated before, art is a specific technique for living vicariously, of weeping without actually losing a loved one, of thrilling to the hunt without being mangled by a lion, in short of reaping the lessons and spiritual nourishment of experience without any loss. The solution of the problem of focus will invalidate the opinion that the wide screen is no good for "the intimate thing." If man can have intimate moments in life with his peripheral vision, stereophonic hearing, smell, and touch, so can his art.

It would seem from the preceding analysis that my conception of the function of the cinema of the future is to faithfully reproduce man's superficial and immediate perception of the world about him. Nothing could be further from the truth. The history of art demonstrates over and over again that some of the most valid experiences come from the inner and not the outer world. But the history, not only of art but any other human endeavor, also proves that the outer precedes the inner. The outer world supplies the raw materials of creation. Man cannot originate. He can only take the forces of nature and rearrange them into shapes more friendly to his own existence. Just as nature had to provide water, iron, fire, and the laws of thermodynamics before someone could invent the steam engine, so nature must supply man with raw impressions before he can fashion them into an imagery more meaningful and useful to himself. The first task of painting was to copy the world, and only when the camera relieved it of this mirror-like function was it really free to explore the full range of man's fantasy. At first, motion picture cameras and sound recorders could not even capture the simplest aspects of man's perception of the outer world. Now, though still far from matching some of these, they are far superior to others. Slow motion, fast motion, and infrared ray photography are able to "see" things no human eye can.

Supersensitive microphones are now able to "hear" sounds way beyond the range of human ears. Similarly, directors at first had to be content with what the natural scene about them offered. Then, in studios, they began to select and arrange what went before the lens. By building sets, and developing trick photography, they could set the world of history and fantasy before the lens. Then, by perfecting the technique of animation, they could do without bulky sets and intricate models entirely and give free reign to their wildest imagination.

Sound has followed a similar evolution—from the objective to the subjective world. First we recorded only natural sounds, or the sounds created by human voices and musical instruments. Then we invented a whole series of odd new sound-making instruments and set them about the microphone. Now people like Norman McLaren are dispensing with expensive instruments and microphones entirely and are creating sound never heard before by painting directly on the sound track.

These developments bring us to our fourth law: "In his creative process, man is imposed on by outer impressions. He learns the secrets of their basic principles through imitation and then subjects these to the needs of his own expression. He goes from reception to imitation to creation, i.e., from portraying the outer to portraying the inner world."

This law will inevitably hold true for the cinema of the future. While it still must learn to faithfully reproduce man's outer world as perceived in his consciousness, it will eventually learn to create totally new sense materials for each of the senses—shapes, movements, colors, sounds, smells, and tastes—they have never known before, and to arrange them into forms of consciousness never before experienced by man in his contact with the outer world....

The theatre will provide for the full exercise of the social instincts. It will incorporate a promenade and cafe around the theatre proper. The film will not be presented as "entertainment" but as an evening of community culture. A speaker will review the personalities in and history of the film being viewed. After the performance the audience will criticize the film in a discussion facilitated by television relays and led by a moderator. The audience will be able to continue the discussion in the cafe-lounge or on the promenade where they can see, be seen, and enjoy the evening in a thoroughly social fashion. Thus, individually and collectively, by thoroughly applying the methodology of art, the cinema of the future will become the first art form to reveal the new scientific world to man in the full sensual vividness and dynamic vitality of his consciousness.

-TRANSLATED BY URI FELDMAN