

ART, SCIENCE AND TECHNIQUE

This article tries to provide elements of discussion and reflection rather than answers to the following question: for many centuries or even millennia, man, at least in so far as prehistory and history have recorded it, made a close connection between the beautiful, the true and the useful and he sought an aesthetic response in the minute manifestations of his daily existence as well as of his intellectual life. Today, and even more so for just the past fifty or one hundred years, art seems to be relegated to specific domains, expelled from the daily life of the average person. Yesterday, and for centuries and millennia, mankind was not satisfied with the fact that a house, a temple, a church, a fortification or a castle were lodgings, proper places to hold reunions, strong-holds built for a particular purpose, it was equally important that they be beautiful; a key did not only have to open a lock, a carriage had not only to run, a bit to control a horse, spurs to reassure the rider, a glass pane to close a window, a table to have a place setting, a chest of drawers to contain clothes, clothes to cover the body, a pen to write, a manuscript to transmit the signs of the alphabet—no, it was also necessary that these signs, that manuscript, the pen, the spurs, the bit, the key . . . be designed and decorated in such a way so as to evoke in the persons who

Translated by Paul Mankin.

merely saw them, without even using them, an affective emotion of beauty. Nor was it enough that science or a technique be true or useful, they had also to be beautiful.

Today art, technology and science are, almost always, entirely separate. Is science responsible for that separation? Is it an infantile hangover from a primitive human society which made for a confusion between domains which were objectively separate: the beautiful and the useful, the beautiful and the true, and the beautiful, the dream and the reality? Or is the separation of these domains, on the contrary, only a moment of evolution, a more or less transitory state of human mentality and attitudes? Are science and art apart only for some projects which are momentarily divergent?

Without even attempting to answer such questions, could one try to understand the traditional situation and contemporary evolution better? Could one try to point out the major traits as they pertain to the present situation and thus envisage future developments?

For thousands of years, man has not distinguished what today goes by the name of art from other techniques of action. Art, so the French dictionary Littré tells us, is "the way in which a thing is made." Similarly for the Encyclopaedia Britannica "Art, in its most basic meaning, signifies a skill or ability. This definition holds true for its Latin antecedent *ars*, as well as its German equivalent, *Kunst* (derived from *Können*, to be able)."¹

Only at the end of the traditional period, that is to say sporadically at first, then more and more frequently for the past 150 years, has the word *art* been applied only to a fashioning *which succeeds*, and thus no longer holds for all techniques, but *the perfecting of technique*.

Even later the word art became specialized at the same time as the word "artist" and limited to the exercise of *certain* techniques, those of crafts and works were initially called "fine arts."

And quite recently, the words *arts* and *artists* have yet

¹ *Encyclopedia Britannica*, Vol. 2, p. 484 (1971 Edition).

assumed a different meaning which will constitute the major object of our study.

In order to facilitate the description and the comprehension of this evolution, we intend to distinguish three periods in the evolution of the relationship between science and art.

The first is the one we have just pointed out with the help of French and English dictionaries, where *art* is practically synonymous with technique and where it serves to designate the highest success of each technique; during this period, the true, the good and the beautiful are felt as being complementary and solidary. The second period is the one where art is distinct from "utilitarian" techniques, where the *beautiful* is distinguished not only from the useful, but also from the true and the good; art is then defined as the technique, the talent or the genius which create *beauty*. The third is the present period, where art is defined by the name of artist given to certain technicians (without taking into precise account the success, mediocrity or failure of the result of their work).

The description of these three periods make up *the first part* of this article. The *second* will involve certain elements of explanation and reflection.

We will then find ourselves able—as a *conclusion*—to offer some hypothesis about future tendencies and about what the next phase may be of the relationship between art, science and the world pictures which men may formulate.

I am unable to present from this ensemble of facts, attitudes and beliefs and from their evolution, a neat, simple and clear theory where all might be explained by cause and effect, according to Cartesian rationality and according to the ideal of *French clarity* in the 18th century. But inversely, for reasons to which I shall refer at the conclusion of this article, I am not one of those who believe that one cannot nor should not speak of a subject except when one can present it in the total light of a perfect "science" where all reality is described, explained, shown and demonstrated by necessary and sufficient reason or by a mathematical "model."

The most serious questions arising from the human condition, from the past, the present and the future of persons and peoples, from their ideals, their joys and their sorrows, can find only

obscure and contradictory answers. And yet they are of such importance that most questions to which science brings a clear and definite answer become ludicrous when placed side by side. Nor do I belong to that faction that believes that humanity, by refusing to consider problems which have no sure answers, or by even denying their scientific legitimacy, will behave better than if one were to try recognizing, describing, debating and analyzing these problems.

Reality itself is confused and contradictory in relation to our rationality; our reason and our brains must nevertheless make the effort to become aware of this reality. A little knowledge, or even a little awareness of our ignorance is better than emptiness, the very unawareness of unawareness.

I. THREE STAGES IN THE EVOLUTION OF THE RELATIONSHIP BETWEEN ART AND SCIENCE

We shall have to deal at some length with the first period, the one we just characterized as traditional and thousand year old, during which art and knowledge were closely linked, because most of our contemporaries have totally forgotten and thus are quite unaware of this spontaneous tendency of the human spirit. It seems to me that we must take this drive into consideration, since otherwise we cannot understand the human spirit, nor (consequently) the development of our conceptions of the art of science, which is the evolution of how we perceive the world. We will only briefly deal with the second period, the one during which mankind began to distinguish "fine arts" and other techniques, and where the word *art* began to take on its present-day restricted meaning. In conclusion we shall have to examine the present period more closely, a time when art tends to be defined by the *artist*.

1. *The traditional situation of what we call art today. Art, as a perfecting of techniques.*

In the thousand-year-old situation of humanity, in order for *art* to exist, it is enough that *a thing be made*, a work, an action.

There are as many arts as there are professions and, conversely,

as many professions as there are arts. Nor are there any words that can distinguish the art leading to the most successful works from that which leads to ordinary works. There is only one art for each profession and it points to an honest and marketable piece of work. The author usually remains unknown and the most admired and successful works are admired for themselves and not as a tribute to their creators. They are master-works, not works of a master.²

This work to be made is usually a material thing: to cultivate wheat, to make wine, to go hunting, to build houses, to make tools, furniture, cloth, garments . . . but it also involves rendering services, raising children, feeding, nursing, shaving, cooking, transforming, protecting . . . it also means to distract, to comfort . . . to teach and to describe . . .

Each one of these tasks, each one of these works asks for different acts, a different method of action, what today we call a technique. Our ancestors used to say an art, since the same word (*ars*, in Latin) would be applied to all crafts. And so it was also for the "craft" of the writer, the philosopher, the geometer, the architect, the sculptor . . . that is to say for the acts that were meant to elaborate and to transmit the messages.

Moreover, it seems that—at most—for our ancestors of pre-historic times or at the beginning of history, there was either a perceptible message, which was moving and convincing, or indeed there was no message. So that where we may distinguish a message and the art to express this message, they saw nothing beyond the message. Thus each thinker, each mathematician, mechanic, physicist or philosopher was either mute (his speech not having been noted) or else he was at once *wise* and what we call an *artist* today. If he had anything to say, that certain thing had to be beautiful; if he really said something, that something was beautiful, or further: either there is a *work* and this work is lasting; or there is no *work*.

In this atmosphere of thought, science and art can be neither disassociated nor even set apart.

² I believe that all readers know that the case of Praxiteles, about whom almost nothing is known, is an exception. It is due to the modern tendency toward a cult of the artist that we have rediscovered, after the fact, in the dust of accounting and notarial archives, the (often doubtful) names of a few painters and cathedral architects and sculptors.

If such a conception of the *work* has indeed prevailed during the first stages of humanity one can understand how the adjective “beautiful” was tied to the common noun “work” from the very moment that some distinctions appeared between the more or less long duration of the work, the more or less long line of generations who kept the work in existence, that is to say that it maintained its physical consistency, its usefulness and its significance. One can also understand, starting with these conditions of confusion and later of distinction, that the notion of *beauty* was tied to the notion of enduring, that is to say of *eternity*.

Even more must be understood: in its archetype, the *beautiful* and *beauty* manifest themselves far more that they are constructed: emotion, faith and knowledge are inseparable; a work which has the effect of moving is a work that convinces, and what does it convince of? Of its truth, its reality. The true (the true reality by opposition to the real that is banal, ephemeral, changing and thus misleading), the good and the beautiful are one and the same thing. The beautiful work is a manifestation of the eternal model whose daily world is generally nothing but a mediocre and ephemeral reflection. *The emotion*, unleashed by what we call today the aesthetic shock, is at the same time the source and the proof of knowledge, the means of perception and the means of persuasion. Emotion brings at the same time information and carries away the conviction. It is an *impression* (that is to say that it impresses on the brain knowledge and certitude—the “conviction”).

Beauty allows discovery and persuasion at the same time; it reveals and it bears witness. In beauty, reason is born with truth; truth comes in man; man receives truth.

Until the Renaissance, in the 16th and 17th centuries (or even in our time, but sporadically) these conceptions of beauty have prevailed, these attitudes of man insofar as they concern the relationship between knowledge and what we call art today (research, the achievement of beauty!)

As late as the 17th century, in Europe and even more so in the rest of the world, such terms as artisans, artists, engineers, hydrographers, architects, scholars, mechanics, astronomers, urbanists, landscape gardeners, planners of parks and forests

could all be placed together quite easily, since all of these "technicians" were acknowledged as men of art . . . cooks, hairdressers and tailors are qualified as being artists . . .

There is no need for me here to recount the platitudes, however significant they may be, about the links between art, science and technique in the Middle Ages and at the beginning of the modern era . . . who, among my readers, has not been astonished once by the aesthetic concern of Medieval and Renaissance artists, who, in addition to being painters and sculptors are also builders of churches and houses (houses in which people lived five to a room, without water or toilets, but designed to satisfy the eye of the passer-by and evoking the Virgin and the saints, decorated with mottoes, with pictures and sculpture?)

There is little point in mentioning Leonardo da Vinci here, that majestic actor who achieved a synthesis of beauty, reality and truth, a symbol of the intimate union of science and art. But Leonardo is no more than the most visible searcher (today) among a list of men who could not conceive of truth, reality and science as being outside of the realm of aesthetic emotion. "To make nature give up her secrets" meant for them to discover its beauty, its grandiose simplicity, the *virtue*, the sovereign and intimate force. Galileo and Torricelli look for the *substantial qualities* of bodies; Descartes not only looks for but "finds" "the *admirable* structure of this visible world." Huyghens must force himself to respect Descartes' system since (so says Huyghens) "the newness of the figures dealing with its particles and its vortices is *so harmoniously shown*." The fact is that Huyghens himself, a philosopher, geometer and watchmaker, is sensitive to beauty and attaches, through ornaments, his first pendular weights to the mysteries of the universe.

I shall make only brief references to the confusions and ambiguity which, during the 17th century and (I am sure) beyond our time, associate rationality and beauty and try to transfer the task of certitude to rationality (it is easy to see that a lot of reasoning is declared *rational* only because it pleases authors and readers; rationality is undoubtedly an avatar of beauty).

Whatever the case may be, our great scientists of the 17th and the 18th century are quite aware and quite concerned about

beauty: the order and balance of proofs, the symmetry, the lapidary expressions of mathematical formulae, the symbolism of notations. Newton balances harmoniously *Vis insista* and *Vis impressa*; Leibnitz brings together the *life force*, *the plenum* and *the total effect*. It can be seen as quite characteristic how much care the writers of that period took to bring out their works in forms which were held to be beautiful, as it applies to editing and to style as well as the type-setting, the illustrations and the page presentation. The very titles of books during that period reveal the authors' effort to lure the reader as if by enchantment.³

But, more generally, what is still called today, at least in the Sorbonne and in the Ecole Normale in Paris a great philosophic work? Fichte, Hegel, Nietzsche, Freud, Kierkegaard . . . This means that such a work is judged today by its emotive and poetic force, by its wide range, its scope, its authority, its power, its way of handling brilliantly, the logo-conceptual concepts by the *impression*, ultimately, which it makes upon the reader . . . and it is hardly judged by how it concurs with the real . . .

It seems then that our ancestors' principal ideas are still surviving today as caricature and not as a seminal force! We must not lose sight of the fact that they have sustained for at least two thousand years and undoubtedly even longer, a large part of humanity, incidentally the very portion which has brought about economic "progress," that all nations of the world are still trying to imitate or pursue to this very day.

According to my understanding what should retain our attention is the force, the coherence and the synthetic character of these ideas. They appeal to the unity and simplicity of the world. They are thus a contributing factor for discovering what, in this world, is *simple* and tied to *simple* links (that is to say that they are fairly easily grasped by the human brain). Therefore

³ I am for instance thinking of Blaise Pascal's title: "*Expériences nouvelles touchant le vide faites dans des tuyaux, seringues, soufflets et siphons de plusieurs longueurs et figures: avec diverses liqueurs, comme vif-argent, eau, vin, huile, air etc., Avec un discours sur le même sujet, où est montré qu'un vaisseau, si grand qu'on le pourra faire, peut être rendu vide*" . . . etc. (eight more lines of title) in a moving typesetting.

to the real world of “appearances,” which is disappointing, complex, diverse, unstable and hence unpredictable, the philosopher opposes and substitutes for its comfort, but also for its “progress”, a world that is *surreal*, simple and clear, and intelligible . . .

The belief and the faith in this surreal is so strong with Plato that he affirms the surreal to be real and he degrades the real as being a “reflection,” an appearance unworthy of holding the wise man’s attention. Such is also the Hindu belief and even that of most western intellectuals, even if they call themselves Aristotelian. *The concern is to make the universe intelligible*; the fact is that the brain “comprehends” only simple ideas, and those not simultaneously, but only sequentially,⁴ thus this willing belief to “understand” the world implies the willing belief that the world is simple and “is explained” by necessary deduction of a unitary principle.

That is what the great philosophers, from Plato to Marx (with a success, one should say, which is not exclusively psychological) assert and so do the great scientists, from Copernicus to Einstein and de Broglie. Newton and his contemporaries believe for nearly a century that the world was “summarized into a formula.” We recall Goethe’s famous letter to Eckermann, in which he explicitly states the faith shared by intellectuals in the 18th century (a faith which was still prevalent in the 19th century and remains dominant today) that the “spirit” of man (one says neither “brain” nor “soul” since the thesis cannot be defended with “brain” and would be called metaphysical with “soul”) is “equivalent” to reality: “If I hadn’t carried the world within me, I would have been blind with living eyes.” And indeed, in order to see, one must first of all believe that one is going to see.⁵

⁴ This concerns the *unicity of the clear thought*: the human brain can generate only one clear idea at a time (at one precise moment in time). Cf. my *Comment mon cerveau s’informe*, Robert Laffont, 1974.

⁵ That is why and how platonic faith has been and remains fertile. But of course there is a followup to this story, and this continuation is simply the obverse of this fertility of faith in the unitary and fundamental simplicity of the world: *When man’s brain is busy seeing certain aspects of the real, he does not see the others . . .*

Many other things ought to be said here to suggest the nature, the wealth

In what manner, during the 18th, 19th and 20th centuries, Plato's excessively simple idealist conception has been exploded, having somehow become the victim of its own success; how the intellectual and the "wise man" himself have given up believing in and looking for a *truth* which was at once simple, clear, beautiful and good, stable and exalting; how we have reached today a total split between the real and the beautiful, and a query without any sure answer as to the true and the good, those will be the questions arising in the mind of the reader in these forthcoming pages.

2. *Art as distinguished from other arts; Art, as a name given to certain "techniques."*

From ancient Greece to the 19th century, the relationships between art and science are thus dominated by the unitary faith of the "wise man," intellectuals, ruling classes who believe in the *intelligibility* of the world, of nature, of the *universe*, by the human mind. In this belief, according to that will, the good, the true, the real and the beautiful are not distinguished; the

and the depth of this belief in (this will for) a unitary world. For instance, one would have to note that we are dealing here with an *elitist* belief or will, which is intellectual, philosophical, university-centered, stemming from Socrates and Plato—and not from the popular current, which was conceived, felt and transmitted in the popular masses. This popular current (albeit mythical and surreal) but *pluralist* (absolutely non-unitary) is based on daily observation of the vegetable and animal world, its multiplicity, its diversity—and thus it is based on the strategies which Marcel Detienne and Jean-Pierre Vernant have called the *strategies of the ruse*. Cf. André Varagnac, *Civilisation traditionnelle et Genres de Vie*, Albin Michel, 1948. Marcel Detienne and Jean-Pierre Vernant, *Les ruses de l'intelligence, la "mêthys" des Grecs*, Flammarion, 1974. For the bulk of the people, the real is only what Plato declared to be only the reflection of the real. The bulk of the people do not try to *understand* the world (the universe, nature), but they limit themselves to "cohabit" with it. To achieve this they "scheme" and "deal" with it (schemes that are constantly renewed, deals based on *cults* and not on techniques). Looking at it this way, what we call *art* today is a cult process: it represents the force for supplication or domination, it allows prayer or possession (domination). A beautiful picture of the Virgin makes one believe in the "existential" reality of the Virgin, releases faith and prayer. Wall paintings are not only, as it is traditionally accepted, an incantation that serves to paralyze and bend the spirit of the living animal, but also a prayer that serves to appease (to avoid the vengeance of) the spirit of the dead animal.

word *art* is the only one employed in the French language to designate what today we call “techniques.”⁶

We must here consider the disruption of this unity; a few lines will suffice to describe the important point where the word *art* ceased to designate universally a manner of doing, acting and thinking and where it became restricted to the search for the *beautiful*, which was then distinct from the True and the Good.

This movement was, quite obviously, the result of thoughts, attitudes and thought processes which were initially sporadic, diverse and confused and almost always not conscious. We can today distinguish three major currents.

The oldest current tried to distinguish the “mechanical arts” from the “liberal arts.” Only the latter were noble and truly linked to science, a wise knowledge.

In a parallel fashion the *work of art* was more and more often and more and more clearly disassociated from the production of it. Certain works were discerned which did not, or only barely, evoke admiration or enthusiasm; there were mediocre works, and even “failed” works (at first called unsuccessful, that is to say unfinished).

Finally, this distinct notion of attained goals and of goals to be attained resulted in the fact that certain arts were recognized as having *utility* as their objective and others aimed for. . . . beauty, or rather Beauty. Thus one spoke about *Fine-Arts* which constitute our arts of today (music, painting, sculpture, architecture, “belles lettres” and poetry. . . , dance). To these one usually adds today the theatre, the cinema and the immediate cinema which is television. Today one no longer says “Fine Arts” to designate these arts having Beauty as their objective; one simply calls them “the arts.” In this evolution of ideas and of the meaning of words the study of ancient and foreign

⁶ The word “technique” appears in the French language only in 1750 as an adjective and 1836 as a substantive noun (cf. *Dictionnaire Robert*, 1970, p. 1754). In the Littré Dictionary (1875), “technique” is defined by the word *art*, and this word occurs five times in five lines, while the definition of the word “art” by Littré does not contain the word “technique” one single time in twenty lines. (We already said earlier that the role of the word “art” is the same in the English language).

“works of art” has played a large role: the “art of ancient Greece” was studied and described, as was “Egyptian Art,” “Hindu Art,” “Negro Art,” etc. Thus art has become no longer the way of doing a thing well or of expressing a knowledge emphatically, whatever this thing or that knowledge may be, but the professions and the works which men of letters, art critics and other “specialists” of art and its history have the habit of considering and qualifying as “art.”

All of this presupposes that the other professions, the other works, the other men have given up (and have always been powerless) to create an artistic emotion and to search for Beauty. “Whatever is useful is ugly,” so declared Théophile Gautier in his peremptory way (1870). Beauty is thus, strangely enough, excluded from the work ethic of most men, at the very moment when beauty is extolled as a goal for itself in the work of a small minority.

This will lead a bit later, as we shall see, to the definition of art by the artist and it will serve to expel the beautiful from the very domain where it had first been exalted but confined.

3. *Art, as a work of certain men recognized as “artists.” Essay on the situation of art today.*

This attempt to describe the present situation of art can only be subjective. It is made by a man who is not statistically placed into the category of “artists”—and who has neither supernatural illumination nor does he even have the light which distance in time bestows upon mankind—but he is sensitive and often feels the need for “artistic” emotions, in the old sense of the term. I therefore beg the reader to excuse my mistakes and my omissions.

The first trait which comes spontaneously to my mind to characterize the present situation of art, is its isolation among human activities. We are far removed from the time recalled in the first paragraph of this article, when all men, be they masons, geometers, philosophers or farmers, had beauty as their primary objective, a work that may not be only true and useful, but beautiful, that is to say moving, evoking the creation, the human condition, fertility and life. The time when,

according to a remark by Andre Piettre, a tool had to be beautiful to be judged useful. The time when Montesquieu, starting his "Esprit des lois," was writing "with Correggio": "I too am a painter!" Among my colleagues, men in the physical and the human sciences, not only would none today think of making beauty a conscious tool of proof, but most of them do not see art as a path to knowledge of the human condition, and a means of solace from the suffering and the disappointments of life; they are surprised, but uninterested when they are told that the Uffizi, Rome, the Prado, the Louvre and Toledo are necessary to the intellectual formation of the researcher in nuclear physics or in fluid mechanics . . . University people, at least in France, have, by and large, no aesthetic sense; the buildings of the Ecole Normale Supérieure, built around 1930 in the rue d'Ulm, are the ugliest in Paris.

For all of that, art is still alive. Between 60,000 and 65,000 persons (as compared to 42,000 in 1962) are counted today, in France, in the "socio-professional category" of "artist."⁷ Sustained if not stimulated by the high living standard of the population, by leisure and by tourism, by speculation tied to taxation and the devaluation of currencies, the turnover of the arts has never been greater. In the 17th century, which gave us many masterpieces, less than one thousand people in the West lived from their "*fine arts*" activity; today they number more than a million (By the West, I mean Europe and America).

But this powerful stream of activity has no dominant image, since it is so diverse and dispersed, so original and esoteric, so peremptory and ludicrous, so arbitrary and so systematic, so full of contestation and of conformity, so violent and so bland that it leaves the large part of humanity indifferent and one feels obliged regretfully to give the name of disarray to the only message which it transmits.

First of all how is art actually defined today? References to beauty have almost disappeared. Emotion is still referred to, but in a dampened and almost shamefaced manner. Although

⁷ The French census of 1975 placed 59,075 persons who were active in the "socio-professional" category of "artists." This category includes neither merchants of art objects nor civil servants working in "cultural affairs" or museums, nor professors of art nor art historians. On the other hand, it does include *actors* in theatre, dance, cinema and television.

one may want to speak “to the people,” and although access to *culture* of millions of people in a short time (people who actually have not learned an artistic language in their childhood and are probably illiterate or at best self-taught) may lead to focus at best on Atala’s virginal sensitivity or at worst on Caliban’s visceral instincts, yet most painters, sculptors and other artists of today join directions for use, a prospectus written in “rational-sensitive” style, to their work. In this prospectus they explain what the work means and why it should hold our attention. In fact the people, and even what has come to be called the wider public, usually is quite as “dumbfounded” by the prospectus as it is by the work.

I seem to distinguish two poles in the field of art today. One centers art upon the artist, while the other, on the contrary, centers art on the spontaneity and the creativity of any person. On the one hand (and here I quote “authoritative” authors) “all is art and everyone can do it,” “art can be fabricated by all.” On the other hand art must “teach men to act truly,” it is necessary that the artist as a magician and a mentor, teach the bulk of mankind “lucidity, curiosity, expressivity,” it is necessary to show those who don’t know (and which include everybody except the artist) how “to transform daily life” and “live the true life.” In all cases, no reference to *beauty* is made in these declarations concerning what half a century ago were called the “fine arts” (*beaux-arts*).

On the one hand, art is “anything emanating from the artists,” on the other hand “art is nothing but a vast possibility.”

Of course in the bipolar field whose poles are so ill-defined, combinations as well as the quest for objective and process are innumerable. First the real was broken up, the organic and the organization were decomposed and ridiculed. Then the very notions of description, of imitation of nature, of representing the real or the surreal, have disappeared. They were transposed to a more abstract level. It is no longer a matter of transmitting precise information or perceptible messages without initiation; nor is it a matter any longer of releasing the only message of creativity—the acknowledgement of what has been created previously.

The ultimate result is that many artists express only expres-

sion . . . In painting, the object is only a color or a line; in poetry the word is only a sound; in music the very sound is too precise and one has recourse to noise. One can say nothing beyond the statement that one creates and that one expresses; one tries how to say this nothing; one tires and one finds, as if to say that one says; one says that one has nothing to say. One says *nothing*, but one says it. And, in the process, one makes fun of those who have something to say, especially if they say it clearly and loudly.

One proves by "expressing oneself" that one had something to express. One shows without having to show anything else except what one shows, and which has no meaning and does not want to have any beyond the one that it has been made, that it is made or badly made, or even not made. It is a *how?* without a *what?* An *acting* without any purpose beyond action. "I am, therefore I act"; "I act therefore I think," "I am an artist, therefore I make art." "All the forms and all the non-forms are conductors of expressivity."⁸

Other authors consider themselves above all as researchers. And thus, with a passionate and meticulous conscience, they play upon the immense scale of possibilities which, precisely, non-artistic industrial techniques have just made available to them . . . Thus I find in the journal *Opus*⁹ a list of the twenty art materials used in a single art "exhibit." This list starts as follows: "*Margarine* (Beuys), *coal* (Kounellis), *flour* (Le Va), *tar* (Kuehn, Boezem), *rubber* (Mario Merz, Alan Saret, Richard Sera), *sulphate* (Saret), *felt . . . ashes . . . cotton . . . wire . . . dog food . . .*" An artist thus becomes "he who experiments . . . to defy the possible." The result of these experiments is a work of art called "object-situation," and having as a title not "The Burial of the Count Orgaz," nor "Sacred and Profane Love," nor "The Cabal of the Philippines," . . . but "Tetrahedric Vinyl containers, filled with newspapers with a zipper" (F.L.

⁸ Commenting on these attitudes in *L'art et l'âme*, Flammarion, 1960 (especially p. 15 et passim) René Huyghe agrees that the artist does not know his work nor recognize himself in it until after its completion. But it does not result, in general, that this work is, for anyone, a source of interest or emotion. The artist himself cannot always say, "I congratulated myself when I recognized myself."

⁹ *Opus international*, No. 22, January 1971, p. 19.

Viner), "Parallelepiped of granite with lettuce squashed on one of its sides by a paving-stone, the whole thing held together by wire" (Anselmo), "Two piles of ashes held together by iron rods which traverse them" (R. Ruthenbeck) . . .

Already in the 18th century, the craftsman who saw the beginning of applied sciences, discovered that everything could be done differently and better: glass-panes, mirrors, floors, furniture, cloth, linen and the coating of walls . . . Today, the advent of a huge amount of new materials (from "plastics" to hardened steel) and of new techniques (industrial, computer oriented, temporary or combined . . .) quite obviously encourages the artist to attempt countless experiments. The composer *tries out* new instruments, new prints, combines new sounds and new noises on magnetic tapes . . ., the architect builds towers in concrete or in aluminum that are one hundred or four hundred meters high; the sculptor presents "mobiles" (Calder), or a "pyramid of 5800 oranges" (R. Loew), or "a bag, a pair of boots, real faggots and artificial snow" (Panomarenco) . . .

But the notion of beauty surely seems to be eclipsed in this enterprise. Nobody, and the author less so than anyone else, expects the spectators of these works to be seized by an emotion which could be compared to the one that inspired the works of El Greco, Titian or Goya. It was then a question of being transported into the world of the true, the beautiful and the good, it was a matter of dominating the profane, the daily banality by the sacred, the real by the surreal . . .; it meant *enthusiasm*, that is to say the revelation of the awareness of the world's order.

Today one can no longer even count on a sincere admiration.

Under such conditions, the word *art* and the word *artist* once again change their meanings. Actually these artists no longer care about beauty; they are technicians in an experimental laboratory. It is only because they call themselves and are called artists that their works are called works of art.

What is it then that the "artists" of today share with the El Grecos, the Titians, the Goyas or the Delacroix of *The Struggle with the Angel*? It is neither the message expressed, nor the effect produced nor even the invention of producing an effect. André Malraux saw this problem and spent the last twenty

years of his life dealing with it. If art is not defined by beauty, and if an essentially ambitious technique remains wanting to be linked to Phidias, to Praxiteles and to the major works of thousand year old humanity, how can that art be defined? For Malraux, what all those arts and all those artists have in common is their will to endure and their revolt against destiny. I cannot here expose either the criticism of these theses or the elements of the solution which I propose. I shall only say I don't believe that the artists of bygone days produced for eternity nor were they all in a state of rebellion against the human condition; in general, they were merely trying to assume it. They emphasized the surreal which made the real bearable.¹⁰

Such is not the project of our essayists of today, of our invention of sounds and noises, of forms, of materials and of objects. Thus they should not be called artists. This idea that within the group where artists proliferate, certain semantic distinctions become necessary, is becoming clear. For instance, Jean-Claude Lambert has, ever since 1970, proposed the term of *arteur* to designate men "for whom the very meaning of artistic activity has undergone such a complete change that one can no longer consider them *artists* in the accepted sense (a sense still prevalent among the public)."¹¹

Of course, the line of *arteurs* goes back rather far in time; from the 15th century on in the works of certain artists who shared the dominant religious beliefs only perfunctorily or not at all and were thus less moved by the surreal than by what *in the real* escaped the majority of their contemporaries; they therefore endeavored less to contest this surreal, since they judged it to be illusory or insufficient, perhaps even fallacious and they tried to *open the eyes* of mankind to the realities which men did not see: Vermeer, Velasquez, even Goya who

¹⁰ Especially in those cases when a "masterpiece" is recognized as such by mankind throughout time and space, it seems absurd to me to say that it is because it was "made" to "last" (as if the will to make it last assured its lasting); one must simply accept and recognize that many (or at least a certain amount of) images, forms and objects which are capable of *moving* men belonging to a certain time and place, are also capable of moving men of other times and places. Such are the living beauties of bodies, of faces and of landscapes.

¹¹ Cf. *Opus*, journal cited, Nos. 17 & 22.

is closer to us in time, and the Impressionists have opened and followed this path.

It has since led to divergent areas which were at times nauseating and about which René Huyghe has written pertinently. As early as 1847, Delacroix was aware of these tendencies in the art of his time: "Artists were (formerly) only occupied in raising the soul above matter. In our day the contrary obtains . . . Protestantism has emptied the heavens and the churches. Only material happiness counts for modern man . . . One only tries to amuse us with the spectacle of misery, from which we should eagerly avert our eyes."¹² Delacroix's thought is thus still quite traditional: the work is a *model* ("modèle" says Littré: "an object to imitate"). Thus by painting beauty the artist raises man, by painting ugliness he degrades him. Yet it is probable that this aspect of our misery is not without use in elaborating the new concept of the world such as humanity is inevitably forming, unless it ceases to exist altogether.

And above all, besides the *arteurs*, which differ considerably among themselves, the *artists* continue to exist. Those who go on proclaiming (Chagall), those who denounce, those who call . . .

Many more traits of contemporary art ought to be envisaged. Even in this incomplete survey, one cannot omit *the economic and commercial* trait.

We have already said that the *arteurs*, if not the artists, proliferate not because the sense and the need for beauty progress in the heart of "modern man," but because the *consumption of works* progresses as much and faster than any other consumption. Economic progress, itself born out of the progress of production techniques of current goods and services, brings about everywhere in our land the raising of the *standard of living*, which signifies the increase in the physical volume of consumption by each inhabitant. This individual consumption has tripled since 1945 in almost every Western country. In these countries every man consumes more of everything, more of anything, and notably more of "art" and of "culture" at the same time, the work span decreases and leisure time increases. Art is thus a commercial commodity whose turnover

¹² Delacroix, *Journal*, 22 March 1847.

increases greatly. It becomes a source of investment, of speculation. It is a revenue factor, and thus of employment (producers of works, restorers, repair experts, conservators, salesmen, commentators, critics, experts, publicity men . . .) The total number of jobs tied to art is about three times as high as the one of persons who are recognized as "artists."

Art becomes an object of daily consumption and an object of common possession, but (generally) without a motivation of deep emotion, without (generally) an attempt to find a world-concept, without (generally) a will to understand and to control better or to assume the human condition better: it is merely a matter of distraction, of "decoration," of a "change of ideas," of collecting; it concerns itself only with the usage of time and even more with the usage of money . . .

It is not a matter of understanding and controlling the real, it is only a question of expressing or fabricating a variety of the real . . .

The consequences of these facts are enormous.

Let us first of all recall what one might have hoped for, what many of us were hoping for, thirty years ago, to be brought about by this diffusion of culture and art, by the vast amounts of art bestowed upon the people by the schools, by radio, television, records, books, magazines, color reproductions and high fidelity recordings, the major works of thirty centuries of human endeavor: Bach, Mozart, Beethoven, Berlioz, Debussy, Ravel, Stravinsky, Messiaen . . . Michelangelo, Titian, El Greco . . . Shakespeare, Goethe, Schiller . . . all at the disposal of anyone, at home, in his own house, at any time . . .

Yet what we observe is far removed from our hopes. First of all, in the young generations which are reaching adulthood, there is (generally) no knowledge of art, no impregnation of art, no access to the realm of thought which it could open up, no awareness of any factors applied to the human condition, no conception of the world, no living curiosity and no thirst for life . . . But—refusal, boredom, a surfeit without repletion, the feeling of "déjà vu"—without interest—which is quickly forgotten, a kaleidoscope of colors and sounds which school has reduced to technical analyses, to unpleasant tasks: names of authors, dates, painful commentaries (where the essential was

missing) . . . Not only is there hardly a positive aspect to this state of things, but rather a radically passive aspect: no more appetite, no more prestige, no more desire . . .

The commercialization adds its own ravages to those brought about by scholarly erudition. Here you have a canvas that you have no right to admire, to feel, to be moved by. What you must know is who the author is, what school it belongs to, what country, what period, what "the point" of it is. If the work is by Rembrandt, it is worth 100,000; if by Picasso, then it's 10,000; by Sisley, 1,000; by Servranx, 100, and if it is by nobody, that is to say by a man who has not made it into the dealers' repertory, then it is worth nothing.¹³

These catalogues, these repertories, this sort of publicity favor the "arteur"; there are customers, there are buyers; works must be furnished: the dealer, the advertiser and the critic find and discuss more easily the works of *arteurs* than they do the works of artists. The *arteur* feels comfortable in the logo-conceptual chatter that fascinates today: he writes the blurbs himself which are quite enticing to the amateur of technico-commercial works.

Art, and even the greatest works, has become banal. One can hear, in the summer, from many open windows, the strains of *The Four Seasons* or *The Afternoon of a Faun*. Your neighbor across the hall offers you Schubert and your other neighbor gives you *The Song of the King of Thule*. Fifty store windows, in the inner city, show Fra Angelico, Botticelli, Renoir . . . Art has lost its shock-value; its memory evokes only a sense of glut. Barely eighty years ago, Maurice Barrès undertook a month-long trip to see *The Burial of the Count of Orgaz*.

A world without art, a world without the surreal . . . a dead world.

¹³ In the world of literature, as in painting and in sculpture, these ostracisms prevent the distribution of original works, which, had they been published at another moment of time, would then and even now have had a great success. Thus one could not find in France today a publisher who would accept to publish a tragedy like *Le Cid* or a novel like *La Maison de Claudine*. These commercial pressures, market controls and cliques find an echo, in those countries with a totalitarian government, in the monolithic relentless dictatorship of the party in power.

II. THE FACTORS OF SEPARATION. FROM ANALYSIS TO DISILLUSION

We have just summarized in broad outline the three stages which, in our opinion, characterize the passage of Western civilization (and, following in its wake, all of humanity) from thousand year old conceptions where art and knowledge were linked, where the true, the beautiful and the good formed an insoluble ensemble of the same essence and the same entity, down to the present situation where science is entirely dissociated from art and morality, where most men, therefore, consider art merely a distraction, a "curiosity" of "organized tourism," a means of spending time and money.

We must now examine, even more succinctly, the factors of this acquired evolution, which will help to suggest some predictions concerning the future.

The dislocating factors were first of all due to science, but those that continue to operate today are more directly the result of art.

4. *The Grievances of Science*

Ever since it first appeared, the experimental spirit introduced a doubt concerning the identity of the beautiful and the true. In a second phase, the experimental scientific method, as it became generalized, ruined the sacred spirit and devalued the fables and the myths which traditional art expressed and magnified. And finally, in a third phase, which is still the common opinion of the great majority of men today, science came to consider itself as the only source of truth, and consequently the only source of progress and of legitimate power: science alone can and will achieve happiness for mankind.

Experiments and Observation Contradict the Canons of Beauty

This is not the place to recall the circumstances of the appearance among mankind of the *experimental spirit*. And yet it is a crucial problem, poorly understood, inadequately known. I

shall only point out that, for thousands of years and undoubtedly since its animal origins, humanity has not only used observation and experimentation quite badly to *discover* the real, but it has, on the contrary, considered observation and perception of the real as being receptive or even fallacious (fallacious means: to mislead with the intent to do harm). (And in effect, correct observation and experimentation are much more difficult than most people seem to believe today).

Thus, quite late in history, and in very few countries, and only among some portions of the citizenry of those nations, did the experimental scientific method take hold. It took two thousand years longer until the adepts of an experimental science would number one hundred. And thus they founded modern science, which soon showed its shining efficiency. Nowadays, all the researchers in the physical, biological and human sciences call themselves above all experimenters and observers, although *most of them* still understand poorly what this experimental method is, and almost all of them, whether they want it or know it, still give priority to the precepts of the old 'rationalism'.

Whatever this may mean, the experimental test is strong enough today, and, in some instances, was strong enough even since 1550 or 1650, that it ruined the affirmations of art whenever they were contradicted by the observation of the real. Thus Descartes' *beautiful* constructions on the vortices and the horror of the vacuum (horror: a repulsion caused by ugliness). Thus the *beautiful* polyhedric and spherical constructions of astronomy. Thus the circular movement and many more disappointments . . .

The worm entered the fruit: it was bound to destroy it. There were *beautiful* things that were neither real nor "true". On the other hand, many real things show themselves, when they are observed, to be strange, unexpected, complicated, weird, bizarre . . . *ugly*, even horrible (like the vacuum).

Beauty was no longer a criterion of truth. Art and artistic emotion were suspected of being fake and arbitrary. The unitary vision of the world became dislocated.

"Un long cri de douleur traversa l'Italie / Lorsqu'au pied des

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autels Michel-Ange expira / Le siècle se fermait ... L'art avec lui tomba."¹⁴

The Ruin of "Fables" and of the Sacred

The men of science, thirsting for beauty, consoled themselves quickly, too quickly. They effectively substituted, and without realizing that it was a surrogate, abstract beauty for plastic beauty, reasoned beauty for felt beauty, the surreal elegance of thought for the real elegance of colors and forms: *rationality* was substituted for art.

The combined action of the experimental process (always sure and fruitful) and of the rational process (often sure and fruitful, but often also fallacious) then exerted a destructive action on the conceptions of the world which men had fashioned for themselves during what had been, after all, a thousand year old human experience. The experimental criterion destroyed all beliefs in beings, things and events which were not *observed*: the consideration of observed reality eliminated all considerations of non-observed reality; truth was relegated to the only truth as observed here and now; but this truth was extended to all places and all moments. Gravitational pull, as observed by Newton, as going from the earth to the moon, was successfully declared to be universal, and with no lesser faith, conceived as being eternal. Thus, little by little, despite a long popular resistance, despite a stubborn persistence among the non-scholarly masses of certain magic and religious mental attitudes, slowly all faith crumbled if it was not based on the observation of the real, and with it went all awareness of the non-observed and non-observable real, all belief in this *surreal* that had been painstakingly built over a period of a thousand years by men who wanted to assure their life and their survival.

Rationality, thus supported by experimental science, had no difficulty, after a few centuries, in overcoming the fables and myths of "faith" and of religions, since these beliefs were swarming with incongruities and contradictions, especially if they were confronted with daily reality and if one ignored

¹⁴ Alfred de Musset, *La coupe et les lèvres*, 1830.

their significance of religious initiation. Especially if one neglected the fact, as it was done in perfectly good faith, that these fables, these myths, and these beliefs had, for thousands of years, contributed to maintain the zest of life for materially deprived humanity.

The Reign of Science

From the 19th century on, in a large if not a major part of humanity, the truly outstanding success of experimental science in many fields—and more recently the upsurge in life sciences—joined to the natural extrapolations of rationality (now being faith, belief, certitude that the human brain, called “reason,” had the capacity to know the universe) brought about such confidence in science that it was considered to be able, by itself alone, to be entrusted with the guidance of humanity, to allow it to reach the *true life*, to open the gates of both happiness and plenty. This was the great period of the *Master Thinkers*¹⁵ and of *Scientific Socialism*.

It is clear that, due to its great successes and its great design, science left only a minor place to art, together with teaching techniques, and leisure activities . . . Art, which in 1550¹⁶ was still the tutor of science, finds itself in 1975, in many countries of the world, its servant, ruled by the plan and assigned to the production of “socialist realism.”

5. *The Grievances of Art*

It is quite obvious, then, that under such conditions artists rebel against science. While they were initially unaware, and subsequently disoriented by the criticism leveled at them by science and consequently put down, certain artists are today beginning to see new paths.

¹⁵ Fichte, Hegel, Marx, Nietzsche. Cf. André Glucksmann, *Les maîtres penseurs*, Grasset 1977, and Bernard-Henry Lévy, *La Barbarie à visage humain*, Grasset 1977.

¹⁶ 1564, the death of Michelangelo.

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Art is sick with science

What experimental science has determined is quite radical: the beautiful is not necessarily true, beauty is subjective, relative to the man who admires and judges it; the aesthetic emotion is often deceiving or even fallacious.

To the extent that the public and artists became aware of this reality during the 16th, 17th, 18th and 19th centuries in the West, and then during the 20th century in the entire world, a serious crisis was bound to come and spread its ravages, first in a limited way but then extended to all of art. The crisis could even go so far as to question the very existence of art: if art is not the discovery of truth, if science itself believes that it must do without it and does indeed do without it to announce, of its inhabitants, a city where the Catacombs, the mosaics of unstable emotions, if art deceives men instead of enlightening them, why shouldn't Michelangelo follow the gods and the kings in their *purple shroud*?¹⁷

But it is clear that such beings take several centuries to die. In the beginning of the crisis, art still had a great vitality. Most people remained faithful to their emotions and ignored the vast schism between beauty and truth. For instance, Rome continued to be, until the middle of the 19th century, for most of its inhabitants, a city where the Catacombs, the mosaics of Santa Maria Maggiore, Raphael, Bramante, Michelangelo and Bernini *proved* the truth of Christianity.

In other realms, art maintains itself quite easily in the vast subdivisions of its immense domain. Music, barely affected by the split with science, continues to assume the major function of regulating "the movements of our soul which have been disturbed within us."¹⁸ In the same way, protected from the storm, painters have open access to the emotions of love and the pleasures of the flesh, memorials of towns and ceremonies, portraits, political imagery . . . Watteau, Fragonard . . . *The Oath of the Horatii*, *The Coronation of Napoleon I*, *The Raft of the Medusa* . . .

And as we said already, the best artists, gaining the awareness

¹⁷ Ernest Renan, *La prière sur l'Acropole*, 1885.

that the surreal was becoming suspect, taught mankind to see the real better: *Las Meninas*, *The Lacemaker*, *The Anatomy Lesson*, *Charles IV and Marie-Louise of Parma*, *Picnic on the Grass*, *The Oarsmen of Argenteuil*, *The Montagne Sainte-Victoire* . . .

The Success of the "Arteurs"

The crisis took a radical turn, when, on the one hand, a part of the public at large which no longer believed in the supernatural *virtue* of art, became the majority and then grew to be almost the entirety of "amateurs"—and when, on the one hand through photography, on the other through ever more faithful reproduction of sound, color, line and form, it began to bury artists and their following, and eventually all citizens, beneath an uninterrupted avalanche of pictures, signs and symbols, originating from all the countries and all the centuries of the world. Then classical art, reproduced everywhere, present everywhere, sullied since kindergarten and dishonored by its very success, crumbled.¹⁹ No more harbors, no more oases could be found. The entire past was devalued, all traditional sources dried up.

The artist fled from these lands that had become trite. As a poet, as a man of sensitivity and feeling, he could no longer find refuge in science, which was a mass of incomprehensible mathematical scribbles which repelled him. Yet he flees without wanting or being able to do what had been done too often and too well. He flees without knowing where he is going:

Plonger au fond du gouffre! Enfer ou ciel qu'importe
Au fond de l'Inconnu pour trouver du nouveau.²⁰

Thus Baudelaire has foreshadowed the key word of the *arteurs*, "*nouveau*," newness. Beauty or ugliness, no matter, as long as one "creates" what had never been seen or heard, as long as one is *creative, original* . . .

But the will to do "something else," even if it meant, to

¹⁸ Plato, *Timaeus*.

¹⁹ Cf. Roger Cailliois, *Babel, orgueil, confusion et ruine de la littérature*, Gallimard 1948.

²⁰ Baudelaire, *Le voyage* (since 1860).

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break, upset, dismember, smash, or to propose enigmas, puzzles and jokes, thus accomplishing the transition from artist to *arteur*, all of this could not have occurred without the encouragement of dealers and buyers. A new clientele with a considerable buying power, but lacking in traditional culture, achieved access to the *art market* and favored this production of an art which had also cut its ties with tradition. The Picasso phenomenon is due not only to the original genius of Picasso but also to Picasso's commercial success.

It was not the bulk of the people, but an active fraction of *amateurs* that created the success of an art which began to forget the past, and which also contested the present and even science itself.

Art as a critic of science

The search for the *new* can actually not last for any length of time unless certain trends are established. By dint of *looking* in all directions, it happens that research reaches results and that the *arteurs* bring forth artists.

The major factor in this long crisis is undoubtedly the vital persistence of art; whether they are converted or perverted, disoriented, painful or ludicrous, revolutionary or submissive, poets, men of sensitivity and feeling will always be there. Nostalgia and need for the artistic emotion, as well as the nostalgia and need for the Art-Beauty-Truth concept still persist even among the patrons, the dealers, the controlling officials but above all among the bulk of mankind. The *long cri de douleur* which Musset wrote about, has not stopped its path through Italy and the world.

*Regrettez-vous le temps où le Ciel sur la Terre
Marchait et respirait dans un peuple de Dieux
Où Venus Astartè, fille de l'Onde Amère
Secouait, vierge encore, les larmes de sa Mère
Et fécondait le Monde en tordant ses cheveux?*²¹

²¹ Alfred de Musset, *Rolla*.

Yes, we regret this time.²²

We regret it, because, without the surreal, daily reality is dreary, flat and dull. For many, it quickly becomes the excremental mess (*chierie*) which Arthur Rimbaud was one of the first to feel and to denounce.

We regret it, because, without the surreal, the crises of this reality, the spasms of this reality become absurd and repugnant.

We regret it, because, without the surreal, morality flounders, force regains its priority and political power is given back to tyrants.

We regret it, because, without the surreal, suffering, failure and death are sterile and relentless.

We regret it, because we are not all stoics and we have a need for meaning and hope.

We regret it, because no human group has ever lived without representing the mysteries of the universe, and because the experience of "realism" in which we have been enmeshed for the past four hundred years has ended in an impasse.

In relinquishing this oratorical style, I shall only say that the project of science to bring about, by itself alone, the happiness of mankind, has already failed. The bell of Beauty-Truth-Goodness was tolled by Bacon, but the bell of Truth-Scientific reality-Goodness-Beauty was tolled by Solzhenitzyn. Today there are many books, also in French, in which the pretense of science to rule mankind is laid to ruin.²³ There are many things that don't "jibe" in our scientific societies and in our scientific socialism; those scientific gentlemen must have forgotten a few factors in their calculations.²⁴

²² Of course, there is no reason why 20th century man should hold on to the naive beliefs which our ancestors held and which are clearly contradicted by observed reality and the experimental science of our time. It is, on the contrary, a matter of finding in myth what was and remains today a valuable lesson; all that which experimental knowledge has achieved today and which today gives answers to the questions asked by man and which science itself asks and does not solve.

²³ Cf. the books of Maurice Clavel (*Ce que je crois, Délivrance, Ce Juit de Socrate*, etc. . .), of Bernard-Henry Lévy (*La barbarie à visage humain*), of André Glucksmann (*Les maîtres-penseurs, op. cit.*), of Guy Landreau and Christian Jamblet (*L'ange*). And also, of course, the "old ones", Albert Camus, Jacques Ellul, Raymond Aron, Georges Friedmann . . .

²⁴ Nobody is more aware of the benefits of science that I am. (cf. *Le grand espoir du XX^e siècle, Machinisme et Bien-Etre* and in this same journal "Three

To the extent that science is aware of it, science itself asks itself questions; science itself is well on the way to disclosing its errors and its abuses.

Indeed, for the past fifteen years, within certain areas of reality, the failure of the traditional research methods of experimental science is becoming obvious. It is a matter of both the research methods and the procedures for expression. The so-called human sciences have been disappointing. The physical sciences themselves are not able to overcome the complexity and the contradictions of their own results. No, nature does not allow itself, as Descartes and Newton believed, to be *understood* so easily by the human brain.

For the past twenty years, research from all over the world has discovered the limitations and the dangers of "classical rationality". Of course, the present scientific method has been, remains and will remain highly efficient in many fields; it has been, remains and will remain one of mankind's basic conquests. But in many other fields, it is too simple, too linear, too deterministic, too rigid to embrace the moving complexity of reality. A research idea called "Systems Theory" is the result of such observations.²⁵

Quite recently, one of France's great sociologists, Edgar Morin, has presented the problem of present-day science's limitations in all its magnitude as well as the problem of procedures which might afford a better approach to the complexity of reality and do less damage to "the existence of beings and the mystery of things." He has just started publishing a huge "Summa," entitled (simply!) *The Method*.²⁶ In the introduction,

Comments on the Near Future of Mankind", *Diogenes*, No. 32). But on balance the positive does not exclude the negative. There is no doubt that science could and should, could have and should have brought us the advantages of efficiency without forgetting or denying what it ignores, without ending up in the dreary plain of a planned consumer society and without feeding and supporting the pride of the *master thinkers* ... see below.

²⁵ In France, Pierre Vendryès (*Vie et probabilité*, Albin Michel, 1940) is one of the movement's pioneers. W. Ashby, L. Von Bertalanffy, Mesarovic ... are classics. In French, one can read: J. Lesourne, *Les systèmes du destin*, Dalloz, 1976; B. Wallisser, *Systèmes et modèles, introduction critique à la théorie des systèmes*, Seuil, 1977.

²⁶ Edgar Morin, *La Méthode, Volume I: La Nature de la Nature*, Seuil, 1977. Here we have a critique of science and of "rationality," such as I have formulated

he clearly shows the harmful tendencies of classical science: to suppress the unknown, the unmeasured and even more the unmeasurable; to idealize, rationalize, normalize; to generalize; to extend quite improperly into space and into time the results of certain research, the results of certain "laws"; to hide the complexities; to be unable to synthesize, to remain "crumbled"; to be unaware of the slavish dependency forced upon human knowledge by brain structures . . .

Science is changing its skin. To feel prophetic about a happy reconciliation between art and science, I need only to read the following sentence written by a man such as Edgard Morin: "We need a principle of knowledge which not only respects, but reveals the mystery of things."

6. *How can the agreement between art and science be renewed, the reconciliation between the subjective Truth-Beauty and truth-reality?*

What do these two words then represent, which are in use more and more in the past few years and which come up so often in my language: *real* and *surreal*?

Real, so says the Robert dictionary, "from the Latin *res*, thing (- - - - -) A masculine noun: things themselves - - - - - that which is." Robert quotes Bachelard: "Scientific observation rebuilds the real."

Let us narrow down our precision and say that the word "real" is taken here as a synonym of the *felt* real, that is to say that which is *perceptible to man's senses*, either directly, or by the intermediary of instruments or machines. The real is all of the sensitive universe, and each object, system or sensitive being in the sensitive universe.

A large part of this felt reality, which can be perceived by man's senses, is not actually perceived, since man is not living in a state of receptivity. Human science not only demands a man's perception, but also the memory of this perception which must be precisely transmitted to other men. These facts force us to recognize in the real:

myself in *Les Conditions de l'esprit scientifique*, Gallimard 1966, but with less vigor and breadth.

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— the enclosed real, known by science: *observed or experienced real*;

— the unobserved real, without benefit of experimentation, for whatever cause; it could have been observed, but has not been, a real which could not, can't, nor will be able to be observed by man, due to conditions of time and place (Example: events, beings or objects which are not yet; those which exist today but on other planets, suns or galaxies; those which occurred on earth or on the moon some 15,000 years ago). One can give the name of *hyperreal* to the real which, as things stand now, escapes man's observation and thus escapes also experimental science (observation and science are envisaged by rationality).

Surreal, "which is beyond the real", says Robert. I am here using the word in a more precise meaning: "which is beyond the *observed* real." The surreal is the ensemble of non-observed factors, objects or systems which man must suppose to be real in order to explain the observed real.

It is clear that only for humanity is the observed real separable from the hyperreal. It is equally clear that the observed real cannot objectively form an isolated system. The explanation of the real demands that the hyperreal be taken into account. Thus, the observed real cannot suffice in explaining the real, nor even the observed real.

The surreal is the ensemble of hypotheses and beliefs which relate to the hyperreal which man is forced to imagine, to invent or to accept so that the real has a meaning for him and that it be bearable and possibly joyfully lived.

*Why beauty is "eternal," tied to the existence and to the science of men, why a renewal will come*²⁷

Because beauty evokes and makes the surreal sensitive, so necessary for the comprehension of the real and the coexistence with the real. Science, as we have just seen, does not suffice to explain

²⁷ Just as the crisis of art and science is already centuries old, so their reconciliation and their renewal cannot be rapid. The majority of men and their leaders still hurl themselves in the direction of totalitarian science, too frequently conceived as a magic power. The War of the Roses is thus not yet over: King Richard III has not yet reached the final act.

the real, which is part of her inventory; nor does it suffice to make it bearable. Science cannot, without incurring serious errors and suffering, imprison man in experimental knowledge. It must admit and evoke a surreal which art imagines and represents, or at least in whose invention and representation art plays a large part.

Art is tied to the knowledge and imagination of mankind; it is art which puts the brain into a situation where it perceives strongly and where it discovers; it is a situation wherein virginity receives the impulse of fecundity.²⁸

Art must be present in all techniques. It is art, through its *perfection*, which makes the tool, the machine, the street, the town sympathetic . . . Only art can induce a warm glance to be cast upon the fabricated object. And this, by *perfection*, will go beyond the utility on the scale of values; it will go beyond the observed, measurable, immediately efficient real and evoke and assure a surreal which is even more necessary. Everywhere art must add onto the useful, it must be a sign of belonging to an immense and "eternal" universe of which we are members. Beyond the individual usefulness, there is the collective usefulness, humanity; beyond the immediate usefulness, there is the lasting, the long-term; beyond man, there is the animal and the vegetable world; beyond the earth, the universe. Art's mission is to recall, to display, in daily life as in the great works of philosophy, that man belongs to the mysterious organization in the universe, to the great "system" (of which science discovers only a fraction), a system which is surely imperfect and as we would desire it, but nevertheless constant and fertile enough so that we may exist . . .

Far from being separated, or even opposed, such as we see it today, art and science must then collaborate, and they shall do so in effect, to achieve this awareness and this discovery

²⁸ The *charm* of information received in a virginal brain is wellknown by us all: they are childhood impressions, *The House of Aunt Léonie* and the famous "*petite Madeleine*" of Marcel Proust.

Art and beauty are the realities, the information and the messages which put us back in touch with our childhood (or widowhood) and bring about within us this molecular tempest (emotion) which touches our brain (which creates a structure in certain groups of neurons).

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(real and unreal) of the world's organization, which is necessary to our intelligence, our happiness and our survival. It is a matter of participating in this universal organization by acting in it; it is a matter of what Edgar Morin calls *organization*.²⁹ And then . . .

We will unite the white rose with the red:
Smile heaven upon this fair conjunction,
That long hath frown'd upon their enmity!³⁰

²⁹ E. Morin, *op. cit.*, p. 155 et seq.

³⁰ Shakespeare, *Richard III*, final scene.