

ARTO SIITONEN

**HOW CAN ARTISTS, SCIENTISTS AND PHILOSOPHERS IMPROVE
THEIR MUTUAL UNDERSTANDING AND CO-OPERATION?**

The problem of the present talk belongs, first of all, to the sociology of art and science. There are some affinities between art, science and philosophy - affinities which can be made known with a certain profit to artists, scientists and philosophers. There could be more mutual understanding and co-operation between people who come from these different fields; but how to produce it?

The prevailing organization of the cultural work brings science and philosophy together by accommodating scientists and philosophers under the roof of the universities. History of art and art education are also represented in the universities, but most artists receive their education outside universities - in specific schools and high schools of art. University education produces art theoreticians and critics, whereas most art practitioners are not academically educated. Some artists take part to university courses, and occasionally an artist may come as graduate from university. Besides, there are conferences such as the present one in which connecting themes between research work and artistic work are discussed. However, that kind of meetings are predominated by the people from the university and are rather theoretical than practical in their orientation. They are also too occasional in order that mutual understanding and co-operation would be permanently cultivated. In civilized towns, there are (or used to be) coffee houses and restaurants in which artists, their critics and university scholars can meet each other. Such a spontaneous coming together may be very fruitful. Unfortunately, the privatization of life, the alcohol

problem etc. have led to a situation in which contacts between artists, scientists and philosophers have become more and more rare. The old coffee house culture is vanishing, and restaurants have become commercialized and too noisy (often full of aggressive rock music). Even the possibility to meet colleagues has diminished. Commercialism and hard competition threaten to ruin the rest of the social ties - and the individuals who need such ties.

How can a philosopher understand a scientist and vice versa? There is a branch of philosophy called philosophy of science, in which scientific reasoning is logically analysed and evaluated. Philosophy and science have the same origin. Philosophers are bound to look for co-operation, because hostility or indifference towards science does not pay in modern philosophy. The problem is, that philosophers build idealized models of what happens in science, and scientists often disagree with the models by claiming that this is not at all what they are doing. Some scientists are even hostile to philosophy and consider the whole effort of asking or clarifying philosophical questions a mere whim. Nevertheless, a chemist attending a philosophy congress is a more usual phenomenon than a philosopher visiting a chemistry congress. There are quite a lot of meetings between philosophers and scientists, so that presuppositions for an improved mutual understanding are good. Although some scientists remain sceptical towards philosophy, science at the top level is quite philosophical. Beside understanding, there could be more co-operation: a philosopher working in a scientific project, or a scientist working together with philosophers. Although many universities are built and organized so that sciences and philosophy are done far away from each other, philosophers and scientists are both breathing the same university air - and thus sharing the same universal spirit of research.

The problems of understanding and co-operating become more difficult, when philosophers and artists are compared to each other. There is, again, a branch of philosophy which promises to bridge the gap between the respective fields - viz., philosophy of art. However, it is theoretical, whereas art is practical. There are artists who detest theoretizing, particularly when art is concerned. Some detest the analytical approach which is typical of philosophy. Philosophers, on the other hand, are not always such friends of art as one might think due to their subtle studies in aesthetics. Art may be only a contingent object of inquiry, something to which it is good to try the tools of logical machinery. However, art and philosophy are closely related in many respects. Space, time, conceptualization of experience offer problems to both, even though these problems themselves are hardly the same. Artistic ideas are very philosophical. Already the concept of idea connects philosophy and art together. This concept has been penetratingly analysed by philosophers from

Plato to Husserl. Its link to seeing - by means of physical or, derivatively, mental eyes - even points to the common origin of artistic creation and philosophical reflexion. Philosophical ideas may receive an artistic expression, as well as artistic ideas can be analysed in a philosophical inquiry. Artistic ideas can, moreover, directly lead to philosophical insights. Often there are close parallels between art and philosophy. Plato's dialogues are even embodiments of both philosophy and art. Since Aristotle, philosophical style lost much of its literary splendour, but philosophical texts may nevertheless have poetic values. Nietzsche, Kierkegaard and Wittgenstein are modern examples of philosophers whose books can be read as poetry as well as discursive inquiries. An example in which practically the same problem has been treated by an artist and a philosopher is the following: René Magritte stated through his works the question of the relation between reality and its reproduction in painting. "Ceci n'est pas une pipe" is a famous example. He stressed the questionable, incongruous, inexact character of the sign systems, such as language and painting. Ludwig Wittgenstein analysed in his work 'Tractatus' the representational relation of language to reality and stressed the incongruence of language in his work 'Philosophische Untersuchungen'.

The most problematic comparison is that between artists and scientists. A scientist cannot allow herself such poetic expressiveness as philosophers sometimes do: reports on scientific experiments and theoretical scientific analyses are, and should be, rigorous and precise. Exact logic and systematic observation are connected in science in the most fruitful way. To-day's science is done as a teamwork, in which an individual scientist has to conform to the rules of community. But ideas and creative impulses are needed, otherwise science would not progress. The goal of science is to give us more and more knowledge of the nature of reality. Scientific progress and its practical applications in technology have become the predominant factor of modern culture. It seems that in comparison to science, philosophy and art would not progress - that there would only be change of ideas in them but not a replacement of more effective ideas for less effective ones. A certain legitimation claim is made to philosophy and arts: also they should progress. On the other hand, the very idea of progress, as it is propagated by scientists, can be and has been called in question by philosophers and artists. For artists, it is in a way easier to be even hostile to science, than it is for philosophers. The latter are bound to science on institutional basis: scientists and philosophers do research work at the universities. Artists are outsiders in the system in which scientists and philosophers are insiders. By means of art, the impact of science and technology on society can be criticized more effectively than by any "socio-critical" philosophy. But a critical artist does not need to be directly hostile to

science - he may even stress the similarities between the artistic and the scientific creativity and accept the goal of science. If he claims that also art gives knowledge of the nature of reality, he adds the presuppositions for a fruitful discussion and even for a possible co-operation between scientists and artists. A scientist, on the other hand, may attend art exhibitions (why not?), or even self practice an art. She may profit in her work from artistic ideas consciously or unconsciously. Ideas have the capacity to be transferred to different areas. She may also enlarge her consciousness of the advancement of science by enjoying works of art, or by discussing with their producers. A famous example of the discordance between scientists and artists is Goethe's 'Farbenlehre', in which he tried to disclaim Newton's physics. A more promising example for the future is given by the current researches on the chaos theory, in which scientists and artists already collaborate.

There is a bridge from art to science, which is due to the fact that works of art, as well as instruments for producing works of art, are - whatever else they are - also physical entities. This fact is often expressed by saying that a work of art is an embodiment; e.g., a sculpture is embodied in a piece of granite, or a painting is embodied in canvas. A violin is made of wood, designed to reproduce a violin concerto. That concerto itself is embodied in a piece of paper, in which its notes are written. It is likewise embodied in physical sound waves discernible to human ears in the actual presentation of the concert. Chemistry of colour stuffs is very useful for a painter, also in cases in which painters do not care for scientific questions. A painter has to know also some physics (e.g., optics), anatomy, physiology and psychology. Not every painter is Leonardo or Michelangelo, but some scientific scholarship would surely advance a painter's professional skills. For a sculptor, geology is the main branch of science - some knowledge of stones is even a prerequisite of his work. A study of geology and co-operation with geologists can only advance a sculptor's career. In music, a considerable knowledge of acoustics is needed. For drama, that is true too. Dancers cannot work without close co-operation with physiologists. Scientific progress advances arts in improving the material conditions of creating works of art. There is an art which has emerged as a fruit of scientific progress, viz. the film. Adding sound and colour improved its expressive possibilities; concerning the prospects of further advance in technics, still other, formerly unimaginable means of expression can be expected in this pictorial art. Holograms point out the way in which the film can be freed from the bounds of the Euclidean geometry of the screen. Discovery of laser rays gives new possibilities of expression also to painting.

Music and architecture are the most mathematical arts. They have a similar relation to mathematics as science has. Music and architecture, as well as

science, use mathematical tools. Buildings and compositions are perceptual models of mathematical relations, similarly as scientific experiments and instruments are such models. Architects are in fact, of all the artists, those who are given the most scientific education. They are educated together with engineers. Architects not only learn to understand scientific reasoning and not only co-operate with scientists; they are themselves scientists as well as artists. An improved communication and co-operation between scientists and artists could most fruitfully begin from architecture, indeed. Still one branch of art, hitherto unmentioned, which has close ties to science, deserves to be considered: science fiction. As its name expresses, it is a melting point of science and art. It is a branch of literature which has as its very subject matter the progress of science. A writer of science fiction must have a scientific education, or at least a good command of scientific thinking. Moreover, she also has to be a skillful writer, i.e., she has to be an artist and a scientist in the same person.

Above, the main lines for answering to the question of the present talk have been developed. Artists, scientist and philosophers have good possibilities to understand each other, because there are many points of contact between art, science and philosophy respectively. All three areas are fields of creative work. An artist, a scientist and a philosopher must have imagination. Artists, scientists and philosophers are all of them grappling with problems. Accordingly, one may say the following:

- (1) Doing art, science or philosophy is a problem-solving activity.

The problems which an artist meets in his work are most often different problems than those which present themselves to scientists or to philosophers. Artistic problems are rather practical than theoretical. However, if you consider one of the basic problems of classical painting, viz. the problem which can be formulated as follows: "How to project the three-dimensional outside world to the two-dimensional canvas?", you may see its close affinity to geometry and physics - and to the philosophical problems of space and of realism. "What is the outside world? In which sense is it the real world, provided that it exists?" Thus:

- (2) Between the problems of art, science and philosophy, there are similarities.

Such similarities are easily concealed by the different means of expression which art, on the one hand, and science and philosophy, on the other hand,

use. A work of art is a perceptual (visual or acoustic, or haptic etc.) entity. It is to be enjoyed by the senses. Scientific and philosophical works are written in discursive language, specifically cultivated to convey just the meaning which they are intended to express. Poetry and literature also use language as the means or their expression, but their language is not discursive. It is rather as perceptual - metaphorical, suggestive, sounding - as possible (novels and poems of course differ from each other in their ways of conveying meanings). However, here the border lines are not so clear as it might seem. There is a branch of art called conceptual art. Its aim is to show which conceptual - discursive - structures are concealed behind perceptual shapes. It makes the very distinction between perceptual and conceptual a problematic one. The possibilities of conveying meaning exactly have been put in question in the philosophy of language. Exact sciences remain exact under certain presuppositions, but the very means of their exactness - formal languages - are such as to allow different interpretations. The concept of intended interpretation, which is used in the semantics of formal languages, brings the study of these languages, i.e., formal logic and mathematics, to a close affinity with the research of works of art. Moreover, much of exact scientific research is done on the concrete, perceptual level. For visualization of science, perceptual models are needed, and artists can help to create such models. Concrete models and even abstract formalizations have aesthetic properties - science can be beautiful. Philosophical treatises can use, and should use, works of art as exemplifications of abstract ideas - also outside aesthetics proper. The following semiotic thesis underlines the common features of the systems of expression in art, science and philosophy:

- (3) Art, science and philosophy use signs - signs related to reality in a multitude of ways.

In studying works of art and scientific and philosophical treatises from a certain period, one can see structural as well as material similarities between them. Art and philosophy of the time which is predominated by science and technology are different from classical art and philosophy. Significant scientific discoveries and artistic innovations often happen at the same time, without necessarily having a causal link to each other. It may be difficult to spell out in detail, which similarities and in which respects there are between works of art, science and philosophy. Such examination is the task of culture historians, art historians, and of those who study history of science or history of philosophy. One may suppose that the following theses is true:

- (4) Art, science and philosophy from the same period have considerable, characteristic similarities in style.

Artists, scientists and philosophers may make such stylistic similarities more conscious in their mutual contacts.

Co-operation requires more than communication, discussion or even understanding. Something should be done together. There are lots of joint ventures between scientist and philosophers: congresses, publications, public disputes, scholarship. There are some inter-arts experiments, attempts to combine e.g. music and painting, or music and sculpture, or painting and drama. Moreover, some branches of art themselves combine different arts together, e.g., drama is a connexion of poetry, dancing, singing and instrumental music. The German painter Kurt Schwitters even considered his aim in art to be "die Grenzen der Kunstarten zu verwischen". The limits between philosophy and science are not so clear as it might seem. Art comes close to philosophy, and it may also come close to science. Thus one may wonder, which kind of joint ventures there could be between the representants of art science and philosophy. Theoretical discussions, of course, but artists do not remain a long time motivated. What about shared exhibitions? This would be a more promising line of effort. It does not imply creating individual works which share all the properties: artistic, scientific, philosophical. Perhaps some works of art have these properties, or can be given these properties under a suitable interpretation. In any case, it is recommendable to look for contacts, to exchange ideas and maybe to try to express the ideas together in some concrete undertaking. For some artists, it may even be more fruitful to work together with scientists or philosophers, than with fellow artists. The corresponding situation may be good for some philosophers or scientists, respectively. Between colleagues, there often are rivalries which poison the atmosphere of mutual understanding and co-operation. Between representants of different spheres of culture, communication and joint ventures can be surprisingly fruitful. They should be looked for - also for the reason that they can only improve art, science and philosophy in giving them new impulses.¹

Endnote

1. The present text was delivered as a lecture in the IX yearly symposium of the Nordiska sällskapet för estetik in Uppsala 20 -22 May 1990. I owe a debt of gratitude to the listeners for their critical comments. I would also like to thank my friend, painter Veikko Rautiainen (Turku), for his comments on my ideas.

As to the topics of my paper, Nelson Goodman and Catherine Z. Elgin have done a pioneering work in their book **Reconceptions in Philosophy & Other Arts & Sciences**, Routledge, London 1988. The friends of beauty, wisdom and knowledge have just only begun to profit from that book. For the thesis (3) above, cf. also Goodman's **Languages of Art**, Hackett Publishing Co., 1976 (1968).