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Introduction

J. V. FIELD* and FRANK A. J. L. JAMES†

Art and science are both terms whose meanings have been subject to change over time. At the end of the twentieth century, the terms tend to be used antithetically. Current views of the relationship between the spheres of activity that they connote range from a sweeping dismissal of any connection to an opposing but less extreme conviction that scientists and artists have something in common. The latter belief apparently at least partly stems from an underlying feeling that at any one time both activities are, after all, products of a single culture. The woolly shade of C. P. Snow's idea of there being 'two cultures' in the Britain of the 1950s at once rises to view if one attempts to pursue analysis along these lines.

In setting up a conference called 'The Visual Culture of Art and Science from the Renaissance to the Present' the organizing committee was not attempting to resolve any kind of debate that may be perceived to exist in regard to the separation or otherwise of the domains of art and science. Rather, we wished to bring together historians of science working on areas that are of interest to historians of art, and historians of art working on areas that are of interest to historians of science, as well as practising artists and scientists of the present time who show an interest in each others' fields. We were, of course, aware that this agenda raised questions in regard to present-day relationships between art and science, but we hoped that, as we were dealing with a range of historical periods, any light that was shed would be moderately illuminating rather than blindingly lurid. The meeting, which took place on 12–14 July 1995, mainly at the Royal Society in London, was organized jointly by the British Society for the History of Science, the Association of Art Historians and the Committee on the Public Understanding of Science (COPUS) – a joint committee of the Royal Institution, British Association and the Royal Society. The historical examples presented at the conference showed a wide variety of interactions between art and science. The success of the conference (it attracted an audience of about 200) suggested very strongly that art, which has a large public following, can be used to encourage an interest in science, whose public following, according to scientists, could be better.

Since the conference was intended to cover a wide area and to open up questions for discussion, we did not wish to constrain speakers to present finished arguments of the kind that would be expected in papers intended for publication. Accordingly, there was never any question of producing a volume of Proceedings. Nevertheless, the editor of the *BJHS* and we ourselves thought it would be worth while to bring together a few of the papers presented, as a reminder of the conference. The four papers published here have been

* Department of History of Art, Birkbeck College, 43 Gordon Square, London, WC1H 0PD.
† RICHST, Royal Institution, 21 Albemarle Street, London, W1X 4BS.

chosen to illustrate the relations of science and art through four case studies, concerned with different periods and different milieux.

In the first, Keller considers earthquakes, concentrating particularly upon those in Lisbon (1755) and in Calabria (1783). In Europe at least, earthquakes are relatively rare phenomena. Consequently later generations of scholars usually need to rely upon the descriptions by contemporary witnesses. Keller shows how pictorial representations of the effects of the earthquakes of 1755 and 1783 played a part in theories of their causes. Earthquakes became important as natural entities with the development of uniformitarian geology in the hands of Charles Lyell, who argued that one should only assume as causes of geological phenomena processes that can be observed at the present time. Thus, as Keller points out, a large proportion of the very few illustrations in Lyell's *Principles of Geology* (1830) show the effects of the Calabrian earthquake since they illustrate the workings of an agent of geological change. Presumably Lyell included these representations to demonstrate the devastating effects of earthquakes, and thus make the point that over time they could bring about immense changes on the surface of the earth.

Bucchi is concerned with the use of visual representation for pedagogical purposes, rather than in the construction of knowledge. He looks at how scientific knowledge, particularly but not exclusively in the life sciences and in the German-speaking countries, was presented in the form of wallcharts. Both the content and the style made wallcharts effective teaching aids. Bucchi shows that such charts, which came into widespread use with the advent of relatively cheap colour printing in the early part of the nineteenth century, had a long history. The charts he discusses developed further, in both style and content, and were a sophisticated means of transmission of information. It is perhaps significant that at least some of the charts were drawn by artists who are otherwise known as illustrators of children's books. Such people would have been experienced in producing material that would appeal to young people.

In the papers by Keller and by Bucchi we see art playing an important part in constructing and communicating scientific knowledge. Loach's paper shows how, in the twentieth century an architect, Le Corbusier, used science, and most particularly mathematics, to provide theoretical underpinnings for his practice. Le Corbusier's work as an architect spanned sixty years, during which European society underwent vast and sometimes sudden changes in structure. Science emerged from the horrors of the First World War with its reputation as a vehicle for progressive ideas generally intact. The Modernists, among them Le Corbusier, saw themselves as looking to science for inspiration and for legitimation. The process culminated with his invention of the Modulor, a system that used abstract numerical relationships to develop architecture. In the late 1940s, Le Corbusier's mathematical legitimation of the Modulor led to his enlisting the help of a professional mathematician with an interest in the history of geometry, René Taton.

Science emerged from the even greater horrors of the Second World War with a mixed reputation. In some quarters it was viewed, as it had been after 1918, as a progressive force for good. Other groups viewed it more pessimistically. Discussions about science and its role in society, had been comparatively clear-cut before 1939. After 1945, in Britain at least, they became entangled in all the complexities of discussions over Britain's future. These

relationships contribute to the background to the issues discussed in Forgan's paper on the Festival of Britain (1951). Science played a dominant role in the Festival, a role that histories of the Festival have played down or ignored. In celebrating British science directly by displays and less directly, perhaps, by the production of science-based fabric designs, science was shown as an integral part of the overall culture of the time. This was perhaps the last time that such a statement could be made so confidently both about the role of Britain and about that of science. Just five years later as the Anglo-French task force prepared for the expedition that became the débâcle of Suez, C. P. Snow coined the phrase 'two cultures' as the title of an article that suggested there was a separation of the 'cultures' of science and of the humanities. The message was repeated three years later in his Rede lecture of 1959. These events are indicative of the malaise into which Britain and science had simultaneously fallen; their consequences are still with us.

Historians are agreed that Snow's article and lecture were both woefully simplistic in their analysis. However, the very simplicity of his argument probably helped in starting up a debate, and the debate has yet to be laid finally to rest. Detailed historical analysis would be required to determine how far the debate was descriptive and how far, in fact, it turned out to be prescriptive, creating a division. One curious consequence of Snow's attack on what he perceived as the dominance of an arts-educated scientifically illiterate élite was the introduction of 'interdisciplinary' arts-oriented courses for scientists in universities. The reasoning behind this policy is not entirely clear (and might perhaps be investigated by historians). In any case history of science was a major beneficiary. The changes did not, however, directly address the problem Snow posed. In 1985 the scientific community took an initiative of its own with the formation of COPUS, an organization designed to ensure that science enjoyed an appropriate position in national life; COPUS was one of the sponsors of the 'Visual Culture' conference.

The papers published here show four examples of the relations that have existed between art and science. There are, of course, many more examples, from the more distant and the more recent past as well as from the present, that could be the subject of similar studies by historians.