

TWO LITTLE KNOWN: A COLOR EXHIBITION AND A SCIENCE MUSEUM

How a misfiled brochure led to the rediscovery of a long-forgotten exhibition and the museum that housed it.

Leo M. Hurvich

In a search some three years ago for an old catalog of optical instruments, I went to the science and technology division of the New York Public Library and requested a certain volume indexed under what seemed an appropriate category. What the library messenger delivered to me turned out to be a diverse collection of pamphlets on optics and laboratory instruments. The catalog I had hoped to locate was not in the collection, and the items were of no interest to me—with one exception: a seemingly misfiled eight-page pamphlet that came as a stunning surprise. Its cover page announced a “Printer’s Proof of General Outline Plan for Exhibition on Color.” The exhibition was scheduled to begin on 1 January 1931 at the “Museums [sic] of the Peaceful Arts (A Museum of Science and Industry)” at 220 East 42nd Street in New York City. The existence of such a museum was as surprising to me as the mounting of the exhibition.

My own career in the visual sciences dates back to the 1930s, and my primary research area has been the psychophysics and neural mechanisms of color vision. Nevertheless, I had never seen or heard any reference made to this exhibition. Page 2 of the plan listed 23 advisory committee members and sponsors. I recognized almost all of the scientists affiliated with the project, among them Leonard T. Troland and Irwin G. Priest, two former presidents of the Optical Society of America who had collaborated on the influential OSA colorimetry report of 1922,¹ as well as Loyd Jones, then president of OSA and later chairman of the society’s colorimetry committee, whose report was ultimately published as *The Science of Color* in 1953.²

The pamphlet indicated that the exhibition was to be divided into six categories: I. The Nature of Color: What is Color?; II. Microscopic Modification of the Energy (Which Evokes the Color by Microscopic Structures of Matter); III. Color “As We See It Only”: The Arrangement, the Attributes and the Modification of Color; IV. Color Measurement and Specification; V. Materials for Work With Color; and VI. Applications of Color (How Color is Used).

Despite the acquisition of a staggering amount of new information and the development of new research tools

over the more than 60 years since this outline was printed, only the addition of a seventh category—on color vision theory: evidence from genetics, photochemistry, neurophysiology, psychophysics and perception—would be needed to create an encompassing, up-to-date treatment of color.

Locating the exhibition

Because the outline in the printer’s proof was “tentative,” I wondered whether the exhibition—an ambitious project—did in fact take place.

A search through the indexes of the *Journal of the Optical Society of America* for the period in question produced no relevant information. But in the 16 January 1931 issue of *Science* a special correspondence column by Fay C. Brown, acting director of the Museum of Science and Industry, provided a rather complete story.³ Here we learn that Charles R. Richards, the museum’s executive vice president, had just announced an “Exhibition on the Science and Art of Color” to be held at the museum from 20 January to 15 March.

Richards’s lengthy statement emphasized the comprehensiveness of the exhibition, which would “indicate the use and future possibilities of color in virtually all departments of modern life.” The planned exhibits, he was quoted as saying, “will range from colored kitchen utensils and other articles in the home, to clothes, decoration, reading material, food products, color in transportation, manufacturing and industrial processes, and give glimpses of the kaleidoscopic cities of the next century.” He went on to say that the people of the early 1930s were probably on the threshold of a new era in the use of color and that “this third decade of the twentieth century might be characterized by future generations as the real beginning of the age of color.”

Richards also stated that “for the first time, color will be presented not only from any one standpoint in a single field, but from the inclusive standpoints of the scientist, the artist, the psychologist and the technician, and an endeavor made to correlate them.” We learn also that “many exhibits will be visitor operated. Switches and levers will permit the visitor to make his own demonstrations.”

A check of the *New York Times* index turned up an item on a demonstration lecture given under the auspices of the Museum of Science and Industry on 10 February by M. Luckiesh, director of the Lighting Institute of the

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PRINTER'S PROOF

of

General Outline Plan for Exhibition on COLOR

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Beginning
January 1st, 1931

at the

MUSEUMS OF THE PEACEFUL ARTS

(A Museum of Science and Industry)

220 East 42nd Street, New York, N. Y.

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A tentative outline in preliminary form for criticism. A list of exhibitors will be distributed later.

In connection with this exhibition evening lectures will be given from time to time as well as daily lunch-time talks and "talkies."

General Electric Co in Cleveland. During his talk on "Color in the Work World," Luckiesh displayed for the first time his "Byzantine jewel box," consisting of a constantly changing panorama of color designs projected on a screen. "Beginning with ordinary geometric patterns in black and white," the *Times* stated, "the designs gradually assume more and more color, rising to a climax in a series of gorgeous patterned stained glass windows." It took ten years to develop the apparatus! Conceptually, Luckiesh's mechanical device was a dramatic preview of the intriguing displays that now commonly serve as computer monitor screen savers.

Luckiesh's outlook for the benefits of technology was boundlessly optimistic. "Today," he was quoted as saying, "by utilizing numberless man-made colors, we are making the world a happier place to live in." Perhaps. But on at least one expectation, his remarks were about as far off the beam as one could get: "In the future, we shall sleep in beds shaped as covered wagons, and instead of pajamas we shall have ultra-violet light rays pouring down on us as we sleep producing the effect of reposing on a sunlit meadow in a tropical land. The benefit to our health should be incalculable." Today, of course, we recognize the dangerous role of UV rays in skin cancer and other health problems.

The color exhibition seems to have attracted a large number of attendees. At a joint meeting of OSA and the American Physical Society at MIT on 25–27 February 1932, one session included a paper by I. H. Godlove entitled "Color Blindness Test of More than 6500 Per-

COVER PAGE from a pamphlet outlining an exhibition on the science of color, held at the Museum of Science and Industry in New York City in the winter of 1931.

sons."⁴ A brief abstract of the paper in the *Journal of the Optical Society of America* stated that Ishihara plates were used to survey the incidence of abnormal color vision in 6539 persons attending the color exhibition. Godlove recognized that his survey suffered from sample weaknesses. More recent reports indicate that the incidence of color blindness among males is somewhat greater and among females somewhat less than what Godlove reported.⁵

Finding the museum

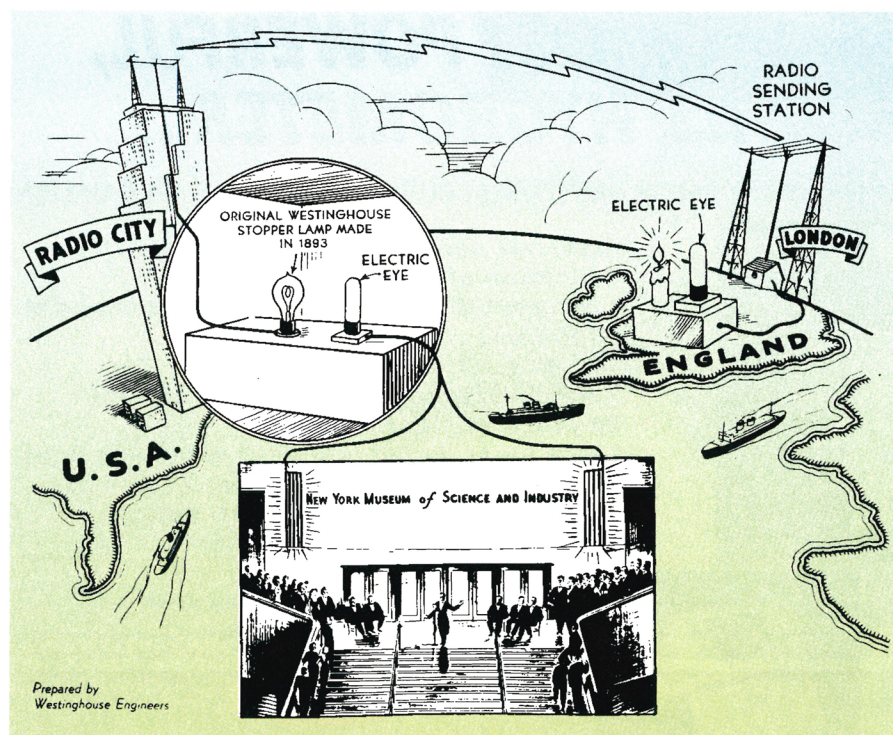
As I have already noted, the existence of a museum of science in New York City in the 1930s came as a surprise to me. I grew up in the Boston area, and as a youthful visitor to New York, I became acquainted with many of the city's museums. But the Museum of Science and Industry was not among them. The massive and authoritative *Encyclopedia of New York City* has an extensive treatment of the city's museums.⁶ And yet, in the nearly five columns devoted to a historical account of museums in the city, there is nary a mention of the Museum of Science and Industry.

The seeming invisibility of the museum spurred on my pursuit. I learned from one of the guidebooks produced by the Work Projects Administration in the 1930s⁷ that the museum had been established by a bequest from Henry Robinson Towne, an engineer who had been president of the lock maker Yale and Towne Manufacturing Co from 1868 to 1915. Originally housed in the Scientific American Building, the museum had moved to the Daily News Building on 42nd Street in 1930.

Searching the *New York Times* index, I found a page-one item from 3 March 1931 in which an anonymous official said the city was considering building a new skyscraper to house the museum somewhere in the Grand Central Station area, at a cost of about \$10 million, and it was hoped that the new building would be well under way within two years.

In the years that followed, occasional *Times* stories reported increases in museum attendance, new exhibits and administrative changes. Editorials and letters to the editor emphasized the need for the science museum in the city and supported drives for funding. But the new building never materialized, and the museum continued to struggle along until 1935, when plans were announced to expand and relocate the museum to Rockefeller Center.⁸

In February of the following year, the museum celebrated the opening of its new home. In the *New York Times* of 12 February 1936, a front-page piece by William L. Laurence documented the formal dedication in considerable detail. It was a spectacular. "Among the distinguished spectators that stood watching in fascination the working of a present-day miracle was Dr. Albert Einstein," Laurence wrote. The "miracle" was a novel demonstration of modern technology: In London, William Bragg, president of the Royal Society, struck a match to light a candle that stood on Michael Faraday's desk. The lighting of the flame was detected by a so-called electric eye and relayed by radio across the Atlantic to Radio City Music Hall, where an original Stopper lamp of the late 19th century (borrowed from the Westinghouse Museum) was switched on by the radio signal. A second electric eye, detecting the Stopper lamp's glow, then switched on "two banks of high intensity mercury vapor lamps bordering the en-



A 1936 DIAGRAM illustrates how a Westinghouse stopper lamp at Radio City Museum Hall in New York City was switched on by a candle flame in London. The light of the stopper lamp was detected by an electric eye, which then switched on two banks of high-intensity mercury vapor lamps at the Museum of Science and Industry in Rockefeller Center. The demonstration kicked off the dedication ceremony for the museum on 11 February 1936.

trance inside the museum." This was the first public demonstration of the gas vapor lamp.

Bragg, speaking by shortwave radio, lauded Faraday's epoch-making discoveries relating electricity to magnetism, and he spoke of the powers that science can make available. Einstein emphasized the need for civilized people to have a clear idea about the nature and origin of things they use and consume. "Each one has a right to share in the knowledge and understanding which society provides," Einstein said, adding that this is "why I consider the creation and the furthering of an institution like this museum as beneficial and important."

Dedicatory remarks were also made by Harold C. Urey of Columbia University, New York City's ebullient mayor Fiorello LaGuardia and Frank B. Jewett of the Bell Telephone Laboratories. Robert A. Millikan of Caltech and pilot Amelia Earhart were heard speaking from California by radio.

The purpose of a science museum, Millikan said, was, first, spreading of the knowledge of science and its results "and, second, spreading of the rational attitude of mind used in science throughout the whole population." He cited Aristotle: "All who have meditated upon the art of government have been convinced that the fate of empires depends upon the education of youth." Urey emphasized the need for a proper distribution of the products of science and industry to the people who need and can use them, and he bemoaned the fact that people still went hungry and cold and still lived in miserable tenements or shacks, despite the accomplishments of recent years. Earhart called attention to the benefits to women that had come from scientific research laboratories and stressed women's growing economic independence as deriving from the applications of science. Jewett called the museum a place where people could learn simply and accurately that apparently disconnected things "are in reality intimately related parts of a common science and that they all conform to and spring from a relatively few fundamental

concepts." LaGuardia, concerned with statesmanship, argued that "the science of government must improve and keep abreast of development and progress in other fields of human activity."

Despite this auspicious beginning, the Museum of Science and Industry seems not to have run the full term of its 15-year lease at Rockefeller Center. As Victor Danilov noted in his book *Science and Technology Centers*, the museum moved in 1950 to a smaller space in the Hotel Claridge, and "it went out of business a few years later from the lack of interest and support."⁸

Unlike the mythical Phoenix, another Museum of Science and Industry did not arise from the ashes of its predecessor, at least not in Manhattan. But elsewhere in New York City, a new science museum was created for the 1964-65 World's Fair, held in Flushing Meadow Park in the borough of Queens. Initially called the Hall of Science of the City of New York and later renamed the New York Hall of Science, the museum had displays that featured space travel and atomic energy. The hall continued to operate until 1979, when it closed for renovations. The museum reopened in 1986, and its many hands-on exhibits continue to attract hundreds of thousands of visitors each year. (See *PHYSICS TODAY*, March, page 77.)

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