Flash Force: A Visual History of Might, Right and Light

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Raqs Media Collective

Jimena Canales

**Flash Force: A Visual History of Might, Right and Light**

Perhaps the greatest achievement of civilization has been the creation of a realm of culture which is not dominated by brute force—a place where might does not make right. Science is typically seen as the clearest fulfillment of this ideal, where truth is neither bent by the multitude of opinion nor distorted through the use of brute force. “One of the strongest, if still unwritten, rules of scientific life is the prohibition of appeals to heads of state or to the populace at large in matters scientific,” explained the historian and philosopher Thomas Kuhn.1

How and when was the separation between might and right achieved in modern culture? A key moment of transformation occurred in spaces where “matters of fact” were “made visible.” In the Royal Society of London, where Robert Boyle and Thomas Hobbes debated about the existence of the vacuum, neither of them disputed the matters of fact at hand. “Mr. Hobbes,” claimed Boyle, “does not deny the truth of any of the matters of fact I have delivered.”2 Since then, armies of facts have continued to leave scientific settings to reach much more remote areas, travelling first through expanding networks of print and later of electricity. The problem of seeing matters of fact, that is, of visibility, soon became as important as that of matters of fact themselves. Hence, recently, the philosopher and historian Hans-Jörg Rheinberger firmly asserted that making visible, rather than making facts, constituted the foundational task of modern science: “It is probably not too far-fetched to postulate that making visible something that does not manifest itself directly and therefore is not immediately evident – that is, does not lie before our eyes – is the foundation and at the same time the foundational gesture of the modern sciences.”3

The development of clean sources of illumination, and particular of flash, was essential for making facts visible. The history of the flash belongs to the century-long quest of finding pure sources of light and divorcing these from the potent explosions that initially produced them. It is a history that continued the Enlightenment project that associated light with reason and pure observation and dissociated both from destruction. This process enabled light to become, in the words of Jacques Derrida, “the founding metaphor of Western philosophy.”4 Or, in the words of Marshall McLuhan, it permitted “electric light” to become “pure information”—the ultimate “medium without a message.”5 Light was not always as pure as it turned out to be. Fire, light and smoke were all deeply connected until modern times. Even some of the first flash technologies, such as those based on magnesium flash-powder, were dangerous, at times inflicting “untold damage to the nervous system of unsuspecting subjects.”

The first use of flash is usually attributed to Henry Fox Talbot, one of the inventors of photography. In 1851, in front of a large audience at the Royal Institution, he used a spark flash to photograph a page of *The Times* newspaper pinned on a rapidly rotating wheel—the resulting photograph was readable. Flash spark techniques were subsequently improved by many other scientists. But they were difficult to control, and their field of illumination extended only to a couple of inches. With the invention of light bulbs, scientists started detonating electric sparks within gas-filled glass tubes rendering them captive and, for the most part, harmless. A clear improvement came with the development of the electronic flash, or strobe, in which the burst of light was incredibly quick and which could be used serially, not having to be discarded after each use. These new flash technologies emitted their “powerful light in a fraction of a second, quietly and without smoke or danger of fire.” Subjects did not even blink, and although more brilliant than sunlight, “the eye seeing it is unaware of unusual brightness.”6 How could such an
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intense source of illumination not even cause an observer to blink? Scientists undermined this particular aspect of the new technology after a scandalous incident in which the figure skater Sonja Henie fell while performing and injured herself because of old flash systems. Philosophically and practically, flash technologies were an important step in the gradual production of a visual system which did not disturb the surrounding environment by being safe, harmless and clearly different from violent, explosive technologies.

The transformation of flash (from that given off by natural lightning bolts, to dirty and dangerous flash powder technologies, to clean sources of illumination) marked a stark change in modern visual culture. Sight could be extended into previously hard to reach places, from the interior of private homes it could now travel to caves, catacombs and ocean’s depths. Photojournalism, as a practical medium and a sociopolitical force, depended on steady supply of a practical medium and a sociopolitical force, depended on steady supply of illumination and instead stared directly into a stroboscope became a valuable tool for all to appreciate."9 Strobe photographs were “literal transcriptions” that “provide a unique transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9 Strobe photographs were “literal transcriptions” that “provide a unique language for all to appreciate.”9

Subject stared at the stroboscope, often with closed eyes. Information was then collected from the subject through an Electroencephalographic machine (EEG) attached to a person’s skull and amplified “ten million times or more”. EEG had a long history, usually traced back to Hans Berger’s discovery in 1924, but in the years following Berger’s investigations the technique was increasingly used in conjunction with a stroboscope for diagnosing brain tumors and epilepsy.

The controversial neurophysiologist and artificial intelligence pioneer William Grey Walter (1910-1977) spearheaded these investigations. Studies on the effects of light stimulation on the brain were also not new, but Walter’s research was different from previous investigations since he used a “now available… high power stroboscope…in which the duration of the flash is of the order of 10 usec.”14 The instrument was manufactured by Scophony, Ltd. one of the earliest makers of television sets. The objective of the need for changing into a stroboscope became a valuable source of information. This stood in sharp contrast with Edgerton’s methods. Even when Edgerton aimed his machine at a person’s eye, such as to measure the time of a wink or to capture a delay in the iris’s adjustment to light, the subject’s eyes were open.15 In 1946 Walter published a number of influential articles detailing the effects of strobe light on the brain. The first findings of Walter and his co-authors were revolutionary: the instrument could be used to invoke epileptic fits—“although the patient was under the influence of large doses of anticonvulsant drugs and was almost free from spontaneous attacks.”16

While the strobe produced dangerous reactions on epileptics, it also evoked strange visions on most normal individuals. As Grey Walter slowly increased the strobe frequency, subjects would sometimes report images of fully formed scenes, usually of commonplace objects and events such as trains, cars, street scenes, harbours, animals, people, etc.” Nevertheless, certain patterns (such as alphabetical symbols) never appeared, enabling Smythies to classify them into seven main types. Smythies came to work on the strobe after studying the effects of mescaline with the famous neurophysiologist Humphrey Osmond at the Psychiatric Unit of St. George’s Hospital. With his co-author, Smythies developed the first biochemical theory of
schizophrenia by arguing that a defect in the metabolism of adrenaline could produce in the body a substance similar to Mescaline (called the M-substance) that then created the effects of the disease. Smythies compared the strobe’s “power of addiction” to the powerful drug. While Walter continued his studies by using a strobe in combination with EEG techniques, for Smythies the “stroboscopic patterns” themselves proved valuable. In an article published in the prestigious Nature journal, he explained how scientists had scarcely any means for studying “how large populations of neurons interact in perception and other functions in the intact and unpoisoned cortex.” One technique used a micro-electrode, but it had the disadvantage of recording from only a few neurons. The other technique, electroencephalography, suffered from the opposite problem, it “will only record summed activity of vast populations of neurons.” In contrast to both of these options, strobe patterns could be valuable images displaying the intimate workings of the brain:

It is possible that the stroboscopic patterns, with their many constant and consistent features, and their complexity and geometrical nature, and their consistent response to the change of a number of parameters, can serve as a basis of deductions about the necessary features of the visual mechanisms responsible for them.

Because “the individual features of the patterns could correlate with personality tests or electroencephalograph patterns,” it was necessary to establish their “natural history.” Smythies encouraged his subjects to draw the patterns in pastel colors, and included numerous images in his articles. C.D. Broad, Professor of Moral Philosophy, was one of his subjects. Smythies forcefully backed Walter’s assertion that television uses the same mechanical principles as are used in the physiological mechanisms mediating visual perception. His interest on the strobe was largely philosophical. One of his earliest publications on the topic used it as evidence to fight against a realist view of perception. The change in analogizing the visual mechanisms in the brain as televisual instead of as cinematographic brought with it important changes in philosophy. Smythies established a distinct philosophy of mind connected to his research. Just as a television set does not “give us a direct view of the events televised” the televisual system in the brain also did not provide a direct view of reality. He fought ardently against the view “in which it is believed that the physiological processes of perception mediate a direct view of the physical world.” He disparagingly tagged this position as “naïve realism” and called his own philosophy the “Representative Theory of Perception.”

In subsequent publications Smythies extended Walter’s findings further. He developed a system for finding out details about the inside of a television set without opening it up. The type of patterns on the television screen that appeared when a studio was illuminated by strobe depended on the type of raster mechanism inside the television. Analogously, Smythies speculated that the patterns which a person saw when staring into a stroboscope could “give us information as to details of operation of the mechanisms responsible for their production.” In this way, even if scientists treated the brain “essentially as a ‘black box’” where “the input is a temporally intermittent and spatially uniform light stimulus of the retina” and the “output is a report by the organism of the perception of geometrical patterns,” strobos research could help reveal the contents of the cerebral black box. Support for these studies soon came from the noted scientist Heinrich Klüver, who published an article making a connection between mescaline hallucinations and those “induced by simply looking at disks with black, white or coloured sectors rotating at certain speeds.” Since these effects also appeared in hypnagogic hallucinations, visualizations of entoptic phenomena, and in the visual phenomena of insulin hypoglycemia, both Klüver and Smythies believed that the “form constants of hallucinations represents a worthwhile field of study.”

Experiments with stroboscope spread along with a new experimentation with drugs. In Heaven and Hell (1956), Aldous Huxley explained: “To sit, with eyes closed, in front of a stroboscopic lamp is a very curious and fascinating experience.” His experiences with the strobeoscope followed those with mescaline, which were recounted in The Doors of Perception (1954). Huxley was fascinated by the work of Smythies and Osmond, who advocated a totally new approach to the study of schizophrenia, described by Huxley as “that most characteristic plague of the twentieth century.” He noted that mescaline and LSD acted similarly: “One case in eighty may appear in hypnagogic hallucinations, those ‘induced by light and sound’ that fascinated Huxley was the same that would later intrigue Carl G. Jung, that “represent a useful tool for achieving a state of altered consciousness.”

By the end of the sixties the strobe had become essential paraphernalia of the drug culture. In How to Change Behavior, Timothy Leary explained: “We have recently learned from W. Grey Walter and William Burroughs about photostimulation as a means of consciousness alteration. Concentrated attention to a stroboscope or flicker apparatus can produce visionary experiences.” In 1966 the experimental filmmaker Tony Conrad made the film The Flicker designed to expose the audience to strobe lights for them to experience their hallucinogenic effects. The artist and poet Bryon Gysin was intrigued by the dreamachine in The Process (1969) earning for this the description by the
famous punk rocker Genesis P-Orridge of him being "a Dreamachine [in] human form."

The famous psychologist Carl G. Jung became interested in Smythies's work. He invited him to his home, where they delighted in some harmless Freud bashing. Intrigued by Smythies assertion that mescaleine visions have "nothing to do with the personality having them," Jung saw in the work of Smythies and Osmond a corroboration of some of his work on the collective unconscious. Some of these experimenters not only advocated a new relationship between science and art, and between health and disease, but even asked that observations be considered sometimes as wholly "disconnected" from the person experiencing them. But most researchers continued to simply look away...

Selected Bibliography


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