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Designing the Virus

At the root of the COVID-19 pandemic is something undetectable to the naked eye: the SARS-CoV-2 virus. At the end of January 2020, as the virus spread across the globe, the United States Centers for Disease Control and Prevention (CDC) released a medical illustration of the virus, in an effort to bring visual form to this invisible threat (Fig. 1). Dubbed "The Spiky Blob Seen Around the World" by the *New York Times*, its image now looms large in the COVID-infused visual culture of the country of its origin—an ever-present icon on media sites, in public health information, and the TV news stream—while mirroring the virus itself in its border-crossing ability.[1] This medical illustration, however, says much more than what the virus "looks" like. The CDC's coronavirus close-up has come to act as a piece of wordless risk communication that implicitly reinforces a specific position within the politics of risk that have been unfolding in the US during the pandemic: that the overriding threat is the virus itself, divorced from the social, political, and environmental factors that shape how lives across the globe are affected by this pathogen.

Typically, graphic design is mobilized to communicate public health risks. Efforts like the activist group ACT UP's posters with the message "Silence = Death" agitating for attention to the AIDS crisis, or Brazil's Zika virus

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The following abbreviations are used: CDC, United States Centers for Disease Control and Prevention; COVID-19, coronavirus disease 2019; ACT UP, AIDS Coalition to Unleash Power; Isotype, International System of Typographic Picture Education.

1. Cara Giaimo, "The Spiky Blob Seen Around the World," *New York Times*, 1 Apr 2020.

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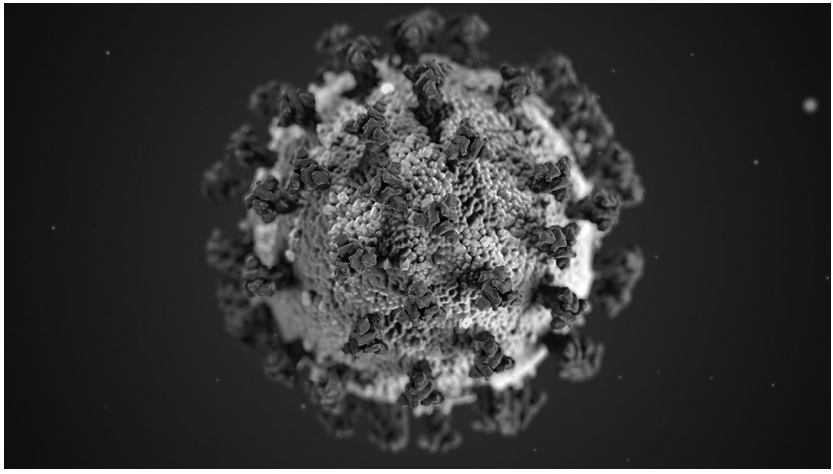

FIGURE 1. SARS-CoV-2. *Source:* Alissa Eckert and Dan Higgins, Coronavirus illustration created at the CDC, 2020. CDC Public Health Image Library no. 23311.

information posters designed to attract and kill mosquitos during the 2016 outbreak are vivid examples.[2] Since early 2020, design has been deployed across the globe not only to make the risks of the virus visible, but also to shape public risk perception and response: through the posters exhorting us to wash our hands, for instance, or the street markings near my home in London instructing pedestrians to "keep 2m apart."

At first glance, the CDC's stand-alone virus illustration does not look like conventional design for risk communication. There is no bold type, no step-by-step instructions. Pictured as if through a microscope, the illustration may evoke the notion of a "raw" scientific image, rather than typical public health messaging. The image does not even have a stable visual context: its remixable potential as a free digital file downloadable from the CDC's website, rather than a ready-made public information poster, has seen it incorporated into countless platforms and visual compositions. Yet, perhaps because of these features, it operates as a powerful form of risk communication.

Scholarship in history and philosophy of science has long recognized that scientific images are informed by the "strategic purposes" to which they are

2. Further information on both examples can be found in Sarah Schrauwen, Lucienne Roberts, and Rebecca Wright, eds., *Can Graphic Design Save Your Life?* (London: GraphicDesign&, 2017).

put.[3] In selecting information to present or emphasize, the creators of scientific representations make design decisions. The CDC's coronavirus image is no different. One of its medical illustrators, Alissa Eckert, has said that the "main goal" guiding her decisions in designing the virus image was to persuade viewers that the coronavirus "actually exists." The digital illustration conventions used result in a photorealistic rendering. The narrow depth of field and evocative blur do more than simply make the virus visible. It is as though the viewer has gained access to a realm visible only through an electron microscope and is "seeing" the virus face-to-face. The virion also has the illusion of three-dimensionality and tactility. It looks like you could pick it up and run your fingertips over its "velvety" spikes.[4] The illustrator's mission thus mirrors an overarching challenge faced by the CDC: effective COVID-19 risk messaging in the US must overcome not only literal invisibility, but also skepticism abouts the virus's severity and even its very existence.

The coronavirus illustration was also designed as a warning. Its foreboding shadows and bold red spikes are aesthetic choices (there is, after all, no color at the scale of the actual virus). Although Eckert says she thinks of her illustrations for the CDC as offering "just an educational opportunity," she designed the coronavirus image to grab the viewer's attention, much like a "public health emergency alert." It is a contemporary update on the traditions of the public health poster, utilizing not only top-down dissemination, but also an informal mode of broadcast as the image is reproduced, shared, and cut-and-pasted wildly.

Visual communication for public health transmits, and helps to shape, cultural ideas about risk. These ideas include what is considered to constitute a risk, who is at risk, and what is thus worthy of attention. With this in mind, what does it mean when a biomedical image takes on this role? Although it is unusual for a medical illustration to become an "emergency alert" in itself, much public health risk communication has traded, visually, on the cultural authority of science. It is instructive to consider the example of the Isotype approach to visual communication developed by Otto and Marie Neurath in the 1920s. An acronym for "International System of Typographic Picture

3. Annamaria Carusi, Aud Sissel Hoel, Timothy Webmoor, and Steve Woolgar, "Introduction," in *Visualization in the Age of Computerization*, ed. Annamaria Carusi, Aud Sissel Hoel, Timothy Webmoor, and Steve Woolgar (New York: Routledge, 2015), 1–15, on 5.

4. Alissa Eckert, interview by Alice Rawsthorn, "Alice Rawsthorn Interviews Alissa Eckert," Design Emergency IGTV, 15 May 2020, https://www.instagram.com/tv/CAQSHtejvSo/ (accessed 4 Aug 2020).

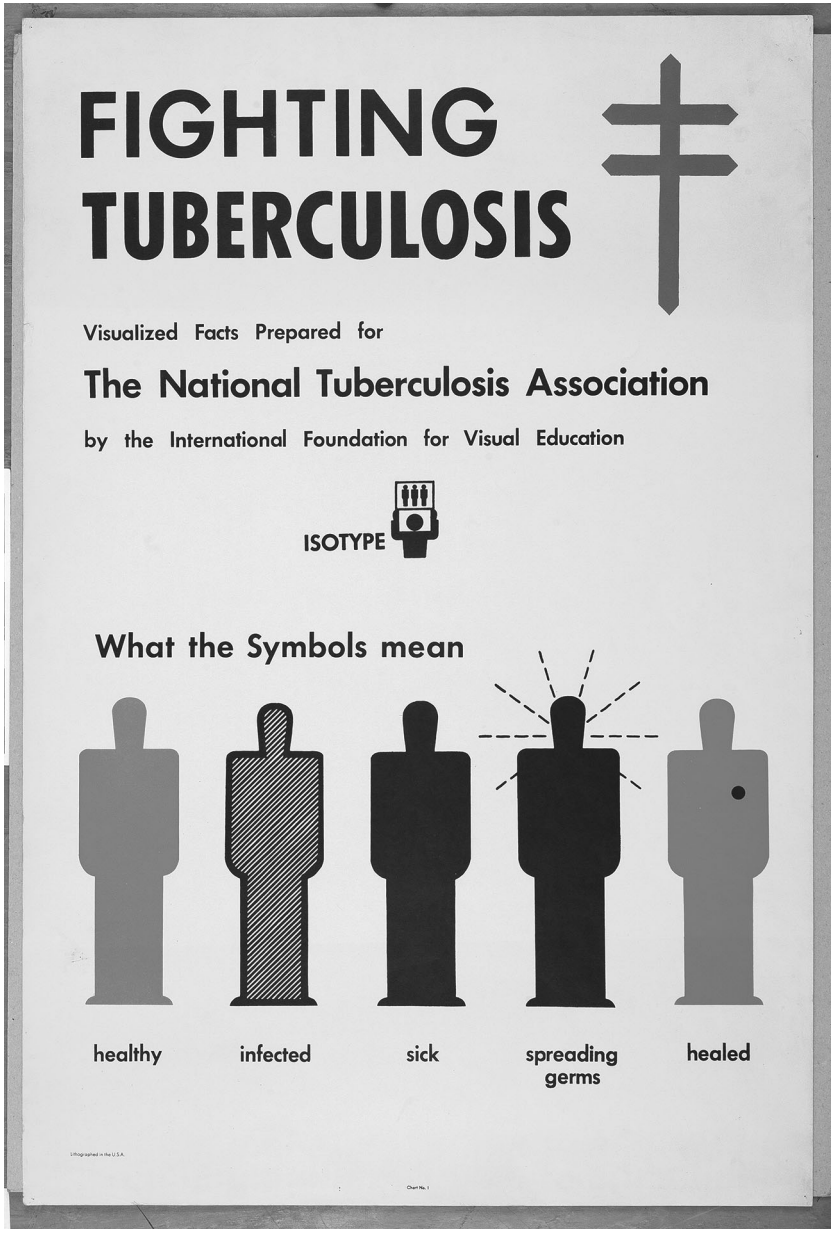

FIGURE 2. Image from the Isotype "Fighting tuberculosis" exhibition produced for The National Tuberculosis Association, USA, 1938. *Source:* Otto and Marie Neurath Isotype Collection, University of Reading.

Education," Isotype aspired toward a form of universal visual communication. Its flat schematic style, frequently deployed for communication using social statistics, was underpinned by positivist notions of neutrality associated with science (Fig. 2). It inspired a raft of public health communication design in the US in the 1930s that marshalled "the associated visual messages of scientific accuracy and visual neutrality."[5] As Gregg Mitman has pointed out in relation to a 1938 exhibition designed by the Neuraths about tuberculosis, however, the Isotype approach "whitewashed the politics of disease and race in America," neglecting the ways in which Black Americans were placed at higher risk.[6]

The "spiky blob" also renders a public health crisis through visual signals of the scientific gaze, and similarly comes with the danger of erasing the virus's significant social and political aggravators. The "natural" or scientific subject that is the virus is the element of the current crisis most readily cast as neutral. A rhetoric of neutrality is widespread—think of how "the virus does not discriminate"—even among those who know that historically marginalized populations have been disproportionately affected.[7] As a symbol, the virus illustration only captures that part of the current crisis deemed "natural." In doing so, the coronavirus image-as-icon forcefully asserts that such a disaster *can be* regarded as a natural, or biological, process.

This flawed conception of disaster is detrimental to developing effective risk response and resilience. The United Nations Office for Disaster Risk Reduction's definition of disasters highlights their roots in "hazardous events interacting with conditions of exposure, vulnerability and capacity."[8] It is not the hazard alone, whether a flood, earthquake, or pathogen, that causes a disaster's

5. Dori Griffin, "Posters for Public Health: WPA Posters and National Dialogues About Healthcare in the United States," *Communication Design* 3, no. 2 (2015): 124–41, on 133. See also Ellen Lupton, "Reading Isotype," *Design Issues* 3, no. 2 (1986): 47–58.

6. Gregg Mitman, "The Color of Money: Campaigning for Health in Black and White America," in *Imagining Illness: Public Health and Visual Culture*, ed. David Serlin, Liping Bu, and Lisa Cartwright (Minneapolis: University of Minnesota, 2010), 40–61, on 42.

7. This phrase has been invoked in the media when a powerful or famous figure contracts the virus. For example, when UK Prime Minister Boris Johnson tested positive for COVID-19, the cabinet minister Michael Gove announced it as evidence that "the virus does not discriminate." Sky News, "Coronavirus: 'Virus does not discriminate'—Gove", 27 Mar 2020, https://news.sky.com/video/coronavirus-virus-does-not-discriminate-gove-11964771 (accessed 24 Sep 2020). On disproportionate effects, see (for example) National Urban League, *The State of Black America: Unmasked* (New York: National Urban League, 2020); Public Health England, *Disparity in the Risk and Outcomes of COVID-19* (London: Public Health England, 2020).

8. United Nations Office for Disaster Risk Reduction, "Disaster," https://www.undrr.org/terminology/disaster (accessed 8 Aug 2020).

disruption, destruction, and loss. It is important, therefore, that visual communication for public health emergencies, which has so much power to shape values and priorities around risk, reflects the dictum voiced by disaster risk scholars Ksenia Chmutina and Jason von Meding, and which has become ever more apparent in 2020: "disasters are not natural."[9]

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9. Ksenia Chmutina and Jason von Meding, "A Dilemma of Language: 'Natural Disasters' in Academic Literature," *International Journal of Disaster Risk Science* 10, no. 3 (2019): 283–92, on 283. See also Scott Gabriel Knowles, *The Disaster Experts: Mastering Risk in Modern America* (Philadelphia: University of Pennsylvania Press, 2013).