SOCIAL SCIENCES

To Connect More Equitably

Emily Brennan

Women in Minnesota can receive free screening for breast cancer if they do not have any health insurance or are underinsured. In recent years, efforts to make women aware of the free mammograms included a peer-to-peer referral program. "Refer a Friend" encouraged women who had received a mammogram to nominate family and friends who they thought might like to receive some information about the service. Although most women chose not to make any referrals, a close look at the characteristics of those who did revealed some interesting patterns. Referrals were more commonly received from women who had some form of health insurance than from those who were uninsured (*1*). Referral rates were also higher among those living in neighborhoods with a more stable population and a greater number of religious congregations, two indicators of the strength of social ties within the community (*2*).

In this case study, we see an example of the type of information-sharing disparities that concern Brian G. Southwell in his timely *Social Networks and Popular Understanding of Science and Health*. As Southwell (RTI International) explains, social networks—that is, groups of individuals who are connected by formal or informal relationships with one another—are one of the fundamental organizing structures of societies. The role of social networks in spreading information has been acknowledged (to some extent) for decades now. Less well understood are the ways that this information diffusion can occur unevenly across networks. In Minnesota, for example, the chances that underinsured, low-income women heard about the free mammography service were influenced by who they knew—or, more specifically, by the socioeconomic status and geographic location of who they knew.

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Southwell brings together much of the social science research that has documented the ways in which information exposure and engagement are shaped by characteristics of individuals (who we are), networks (where we are), and messages (what information). He demonstrates the potential for disparities in what, if any, science- and health-related information people are thinking about and discussing on a daily basis. Well-documented examples of such disparities have shown that they are associated with discrepancies among groups in terms of what is known, what ideas are most salient, and what behaviors are subsequently adopted. Of central concern, however, is the possibility that these disparities will increase as we move further into the information age.

Social Networks and Popular Understanding of Science and Health
Sharing Disparities

by Brian G. Southwell
Johns Hopkins University Press, Baltimore, and RTI Press, Research Triangle Park, NC, 2013. 145 pp. Paper, $24.95, £16. ISBN 9781421413242.

Here we reach the core of Southwell's argument: increased use of social networks for information diffusion has the potential to exacerbate rather than lessen disparities in science- and health-related outcomes. Despite the widespread enthusiasm for the potential of communication technologies to facilitate information sharing, people (and communities) continue to vary in their opportunities for connecting with one another. At a fundamental level, for example, socioeconomic- and geographic-based gaps in access to high-speed Internet persist throughout the United States (*3*, *4*). And, in a more specific example, adults having a history of cancer are less engaged with social networking sites than are those who lack such a history (*4*).

Yet, not all discrepancies in information exposure and engagement warrant equal concern. Southwell carefully acknowledges the conceptual distinction between differences and disparities. He makes the case that we should be most concerned when disparities stem from unnecessary and unjust structural factors—particularly when these are concentrated among those who historically have been the most disadvantaged.

With this in mind, Southwell identifies three types of initiatives that may, in the long run, facilitate more equitable peer-to-peer sharing. He highlights the need for ongoing investment in both the online and offline infrastructures that enable people to connect with one another. He also proposes efforts to increase collective confidence in both understanding of and willingness to talk about health and science issues—by, for instance, ensuring that people are exposed to information in conjunction with others. The success of public education efforts depends crucially on achieving mass exposure, and Southwell identifies one reason why this is so, collective confidence: Whether people in a community "feel as though they can seek information from others and discuss relevant information with others" likely depends on the extent to which multiple members of the group feel they understand the issue. In a closely linked suggestion, he calls for science and health educators to "meet people where they are" by ensuring that their messages are accessible, usable, and relevant to the everyday lives of their audience.

Southwell has made major contributions to our understanding of the roles that social processes play in driving the diffusion and impact of science- and health-related information. Concise and empirically grounded, *Social Networks and Popular Understanding of Science and Health* cautions against widespread reliance on peer-to-peer sharing strategies to disseminate vital information. In doing so, it challenges all of us—scientists, educators, and policy-makers—to think more critically and creatively about the potential for our communication efforts to increase disparities

Published by AAAS

in access to information that can help people live healthier lives in a healthier world.

References

1. S. Kim, B. G. Southwell, J. S. Slater, paper presented at the International Communication Association Annual Conference, Boston, MA, 28 May 2011.
2. B. G. Southwell, J. S. Slater, A. J. Rothman, L. M. Friedenberg, T. R. Allison, C. L. Nelson, *Soc. Sci. Med.* **71**, 1627 (2010).
3. K. Severson, *New York Times*, 18 February 2011, p. A1.
4. E. Z. Kontos, K. M. Emmons, E. Puleo, K. Viswanath, *J. Health Commun.* **15** (suppl. 3), 216 (2010).

10.1126/science.1250907

EXHIBITION

Wonders from Cambridge Collections

Deborah Dixon

Two Temple Place, built for William Waldorf Astor in 1895 as his estate office, retains many of its original Gothic features. Designed to showcase Astor's art, books, and musical instruments and topped with a gilded weather vane representing Christopher Columbus's *Santa Maria*, the building provides a wonderful backdrop to the Discoveries exhibition. Bringing together objects from eight University of Cambridge museums (*1*), the exhibition highlights art, science, and exploration as separate themes. It also strives to illustrate how these were historically intertwined and, further, how curation can produce new arrangements of objects that allow visitors to "discover" connections and frames of reference—in particular, ones that cut across the art-science divide.

Discoveries
Art, Science and Exploration from the University of Cambridge Museums

Nicholas Thomas and Martin Caiger-Smith, with Lydia Hamlett, curators
Two Temple Place, London. Through 27 April 2014. www.twotempleplace.org/exhibitions/current-exhibition; www.fitzmuseum.cam.ac.uk/discoveries

The collections of the eight museums comprise over 5 million objects. On the exhibition's ground floor, visitors encounter a select few, each chosen for its capacity to inspire curiosity and wonder. For example, Thomas Akilak's *Drum Dancer* (1987), an Inuit sculpture carved from gray serpentine and caribou horn, sits across the room from ten butterflies pinned inside an original wooden display case. These were the models for one of geneticist Reginald Punnett's color plates in a text that sought to suture Darwin's evolutionary theory with Mendel's rules of inheritance (*2*).

Composite dodo.

CREDIT: MARTIN GARDNER/COURTESY TWO TEMPLE PLACE

The exhibition extends into the stairwell, where stands a metal reproduction (2003) of Watson and Crick's model of DNA, and up onto the first floor. There, we find a more concerted effort to place objects into groups that reveal both the messy geographies of cross-cultural contact within an imperial context and the diverse fieldwork and representational practices that defy easy categorization as either art or science.

Sample pages from Wyatt Rawson's Arctic diary (1875) and Alfred Haddon's letters to his son from the Torres Strait Islands (1889) provide fascinating glimpses of the field notes and sketches that together helped explorers make sense of unfamiliar and complex places. A more visually striking group of objects juxtaposes the *Discovery* telescope (which traveled on two polar expeditions aboard ships of that name, as well as on the space shuttle Discovery) with scripturally inspired oil color prints (published in 1846) by Isaac Frost of the Mugglletonians (a group which held that Earth was in fact stationary). These pastel-hued images, each representing a celestial logic, are in turn confronted with James Nasmyth's chalk drawing (mid-19th century) of the Moon's crater Copernicus, based on observations from his garden telescope; W. Watson and Sons' sophisticated home telescope (1910), clockwork-driven to compensate for Earth's rotation; and two sublime prints by Sophy Rickett. Her *Observation 95* (Pluto) and *Observation 123* (comet Hale-Bopp), both created in 2012 using photographic negatives taken by astronomer Roderick Willstrop in the 1980s, conjure a sense of infinite space and deep time. Together, these objects mark the ever-expanding horizons revealed by the enhanced gaze of scientists, but they also reveal a desire to animate these remote reaches with colors, shadows, and textures that render them meaningful.

For many, the exhibition's highlight will be the opportunity to view objects that have never before been on display and will soon return to museum archives. These include a dodo (*Raphus cucullatus*) skeleton, assembled from subfossil bones gathered around 1870 from the Mare aux Songes swamp by Mauritius islanders. Held together by wire, the milky-brown remains perch on a pedestal that raises the dodo's head high above the ground, confronting visitors with a hollow-eyed stare. Next to this weighty and melancholic presence, on its own pedestal, a tinamou (specifically, *Nothura maculosa*) egg collected by Charles Darwin from Maldonado, Uruguay, during the *Beagle*'s voyage, looks very small and fragile. In contrast to the dodo, which became extinct in the late 17th century, tinamous survive today, although several species are vulnerable because of loss of habitat. We are led to wonder, will we soon reach the "last chance to see" moment for them? Through its engaging juxtapositions, Discoveries should spark many reflections.

References and Notes

1. The eight are Museum of Archeology and Anthropology, Museum of Classical Archeology, Fitzwilliam Museum, Kettle's Yard, Sedgwick Museum of Earth Sciences, Polar Museum, Whipple Museum of the History of Science, and the Zoological Museum.
2. R. C. Punnett, *Mimicry in Butterflies* (Cambridge Univ. Press, Cambridge, 1915).

10.1126/science.1252467

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