

PSYCHOLOGY

Emotions of Inequality

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One of the most reliable research results in the relatively new field of social neuroscience is that a particular part of the brain—the medial prefrontal cortex (mPFC)—becomes activated when people think about other people. This suggests that the mPFC is critically involved in all social processing (1). Yet, in a brain-imaging study conducted in the lab of Princeton psychologist Susan Fiske, students' mPFCs did not light up when they viewed images of homeless and drug-addicted individuals—two social outgroups who elicit high levels of disgust (2). An accomplished social scientist and leader in the field of social psychology, Fiske writes in her thoughtful, data-driven book *Envy Up, Scorn Down* that the absence of a neural response in this single experimental condition suggests that certain social groups are perceived by human brains as, quite simply, “less typically human.”

This fascinating data point is one of many Fiske corals to support her central argument, that we humans constantly compare ourselves to one another and our groups to other groups. The two emotions that result from all these comparisons—envy and scorn—lie at the heart of a vast number of interpersonal, societal, and international problems. Thus, understanding the psychological processes that elicit and result from these emotions will help us understand a wide range of otherwise inexplicable interpersonal events: from why we often resent a close friend's success to why George W. Bush likes to portray himself as a cowboy (it undercuts his elitism, making him less likely to trigger envy). Though Fiske occasionally draws on cross-cultural work to apply her analysis to global problems, her argument is largely directed toward the United States, a country that, despite its tremendous wealth and the general tendency for richer nations to be more egalitarian, ranks among the lowest third in equality. This makes it an outlier, and Fiske blames Americans' “just world” beliefs (the view that people get what they deserve) buttressed

by a cross-cultural tendency to equate poverty with incompetence.

Fiske devotes most of the book to reviewing the large body of psychological research on prejudice, social emotions, and intergroup conflict that, together, support her case. She begins by asking why humans are comparators. Her explanation includes a primer on the neuroscience of social cognition and an evolutionary account of social comparisons. In Fiske's view, these comparisons are the foundation of self-knowledge, as knowing how we stack up against others tells us where we stand. Fiske then explains how social comparisons promote the two emotions named in the book's title: envy (the result of comparisons revealing someone else's superiority and our own inferiority) and scorn (the result of the reverse).



Fiske links these emotions to two broad classes of motives thought to underlie human social behavior—agency and communion (3)—or, in her words, “competence” and “warmth.” These two dimensions shape first impressions (e.g., is she more powerful than me? Is he dangerous?), stereotypes, and even thoughts and feelings about those closest to us. As Fiske explains, we envy people who are high in competence but low in warmth, and we scorn people who are low in competence (either by pitying them, if they are high in warmth, or becoming disgusted by them, if they are not). When these distinctions are applied to social groups instead of individuals, the result is a set of distinct emotional responses toward various stigmatized outgroups, shaped by stereotypes about each group's competence and warmth. Among Americans, some of the stereotypically low-

warmth and low-competence groups who elicit disgust are poor Blacks and welfare recipients. In contrast, the elderly and disabled are two high-warmth and low-competence groups that elicit pity, while Asians and Jews are low-warmth and high-competence groups that elicit envy. The only groups spared these emotions are those assumed to be high-warmth and high-competence, such as the middle class (4).

These dimensions also feed into national stereotypes. The United States is widely considered powerful but cold, and thus it faces envy and distrust from much of the rest of the world. Indeed, the real-world applications Fiske draws from her model make for some of the book's most interesting sections. She notes that the “ambivalent combinations,” such as low competence and high warmth, “shine a new light on persistent societal tragedies.” For example, institutionalizing older and disabled people provides them with both “active help” and “passive harm”—it ensures their safety but removes them from normal social circles. Conversely, envied high-competence and low-warmth groups such as successful immigrants “receive passive help (associating) but also active harm (attacking, sabotaging). This volatile mix aptly describes mass violence under social breakdown, from rioting that destroys immigrants' shops to genocide that eliminates elites and entrepreneurial outsiders.” Potentially stigmatized group members savvy to these social consequences have historically manipulated their apparent location on both dimensions. While women and certain minority groups have fought to be perceived as smart, elites struggle to convey their warmth, through charitable donations (in the case of rich CEOs) and attendance at small-town barbecues (in the case of Ivy League-educated politicians).

Fiske is the author of several social psychology textbooks, and *Envy Up, Scorn Down* certainly has a textbook-like emphasis on empirical data. Readers unfamiliar with the psychological literature on prejudice and intergroup relations will acquire a solid grasp of these two areas of mainstream social psychology. Fiske's occasional asides add to the book's rich voice, although they are somewhat few and far between. Instead, the book's color comes largely from frequent references to famous nonpsychologists, including philosophers, novelists, playwrights, and journalists. That said, Fiske's focus is on the science, and her writing is accessible even when describing complicated methodologies and results.

Overall, Fiske makes a strong argument

Envy Up, Scorn Down How Status Divides Us

by Susan T. Fiske

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for the cognitive and emotional processes that underlie everyday inequalities and their social consequences. Her point—that these processes are the same whether they play out between two people, two social groups, or two nations—is hard to dispute, and it reveals the broad impact of social psychology. Readers who have wondered why the Tea Party is angry, why Harvard students avoid “dropping the H-bomb,” or why John Kerry’s presidential campaign was over after he was photographed windsurfing, may find the

answers from psychology fascinating. Furthermore, the social issues examined here are those that often go unnoticed—there is a taboo against discussing the scorn we may feel toward those of lower status or the envy felt toward those above us. Highlighting her work’s implications for improving one’s own interpersonal relationships, Fiske ends the book with guidelines for managing these emotions in daily life. More broadly, I would recommend *Envy Up, Scorn Down* to any social worker, policy-maker, or politician

attempting to understand the persistent struggles between people, groups, or nations that, in one way or another, are not equal.

References

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MATERIALS SCIENCE

Charging Up Electric Cars

Jay F. Whitacre

Bottled Lightning: Superbatteries, Electric Cars, and the New Lithium Economy takes a meandering path through university labs, General Motors’ front office, and South American high deserts, with stops at car shows and academic conferences. Although the journey is interesting and enjoyable, a unified or focused theme is not immediately evident. Additionally, Fletcher (an editor at *Popular Science*) leaves critical questions—about the near-term economic viability of large-format batteries and the enormous manufacturing advantage maintained by Asian companies in this technology—largely unaddressed.

In the opening chapters, Fletcher sketches the history of electrochemical cells, examines attempts to develop large and efficient batteries in the 1970s and 1980s, and then focuses on the lithium-ion battery through the lens of portable consumer electronics. Subsequent chapters use the history of the Chevrolet Volt as a centerpiece, while following many appropriate tangents that add color to the story of large-format lithium-ion batteries.

Fletcher then takes us on a detour into the scientific and legal battles surrounding lithium iron phosphate, a material commercialized for cathodes by several prominent battery manufacturers. While fascinating, the description is somewhat incongruent with the earlier chapters. The phosphate cathode material is used in

only some of the batteries being designed for electrified transportation (the Volt, for example, uses a lithium-metal-oxide and graphite system), nor are future high-energy density batteries likely to incorporate it.

There is a well-chronicled road trip to Bolivia and Chile. Two chapters address global lithium resources and the question, “Is there a near-term shortage of economic lithium?” Fletcher describes in vivid terms why the world will not come up short on economically obtainable lithium anytime in the near future. These chapters make an important point. Many in the popular press (and political arena) still wrongly assert that there is some question about the future of lithium-based batteries because of a limited supply of low-cost lithium-containing salts.

A series of visits to North American labs offers an overview of the future of energy storage, and an epilogue covers the current state of electric vehicle production. This content captures compelling aspects of the topics but falls short of being comprehensive.

I would very much have liked to have seen Fletcher treat two key issues in the same way that he examined the lithium shortage question: Can any of the battery systems currently under aggressive manufacturing development actually reach cost and price points that will make cars with large batteries favorable to the average consumer in the next 5 to 10 years? And can the U.S. manufacturing base compete favorably with the international battery giants?

Fletcher partially addresses the first ques-

tion. He offers quotes from a number of battery developers and U.S. Department of Energy (DOE) researchers and program managers, who all claim that the technology is on a path to economic viability. He doesn’t, however, include voices critical of this opinion. There are many, and they have valid points that should be examined. On this particular topic, the book appears to eschew what could be meaningful debate in favor of echoing the talking points adopted by the DOE as well as the battery and automotive industries.

I found it frustrating that the second question was left largely unexamined. By some accounts, there are between 500 and 1000 battery factories in operation or being built in China, and most of the contracts going to large-format pack-builders are being won by Asian manufacturers. Fletcher focuses his chapter “The lithium wars” on the clashes among several prominent North American personalities in battery research. I propose that the real lithium wars are being fought overseas by huge research and development and manufacturing teams who are fostering incremental and meaningful improvements to their existing technologies. The fate of the electrified transportation battery business is probably in the hands of these people. I am left wondering why the author was willing to take a trip to rural Bolivia but did not similarly cover the state of the industry in Asia. That would have allowed him to offer a compelling contrast to the recent (relatively anemic) efforts undertaken in the United States.

Despite these shortcomings, *Bottled Lightning* is very much worth reading. Fletcher’s account serves as an engaging introduction to the current world of energy-storage technology and portrays a fascinating cross section of the battery industry. I recommend it to anyone interested in this field—and hope that those who do read it follow up with further investigation into some of the unanswered questions brought up here.

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Bottled Lightning
Superbatteries, Electric Cars, and the New Lithium Economy

by Seth Fletcher

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