

social situations may be to flag individuals and events that are worth paying attention to and remembering. For example, she says, your amygdala might help you scan a crowded party for friends and foes.

The Oxford researchers also found more gray matter in the rostral prefrontal cortex in monkeys housed in larger groups. In humans, regions of prefrontal cortex have been linked to “theory of mind,” or the recognition that other individuals have beliefs and intentions that may differ from one’s own. Monkeys don’t appear to possess this talent, but more gray matter in this region did seem to confer a social advantage. In a subset of 11 male monkeys, the researchers found that those with more gray matter in the rostral prefrontal cortex tended to be more dominant.

The prefrontal cortex may also play a role in social success in humans. A study published in the 15 August issue of *NeuroImage*

found that people with more gray matter in the ventromedial prefrontal cortex (and a few other regions of temporal and frontal cortex) performed better on tests requiring multiple layers of mind reading, such as determining from a short story whether Sam thought Harry intentionally gave him misleading directions. That study, led by Oxford evolutionary anthropologist Robin Dunbar, also found that people with more gray matter in these regions tend to have larger social networks, which the researchers assessed by asking participants to write down the initials of everyone with whom they’d had a social interaction in the past month, using their cell phones to jog their memories.

“With these several studies, you’re seeing a lot of the same sorts of brain areas implicated in correlations with social network size,” says Robert Barton, who studies brain evolution at Durham University in the United

Kingdom. But the evolutionary implications aren’t yet clear, Barton says. “We don’t know what the relationship is between these studies that look at individual differences and the comparative studies that look at differences between species.” It remains to be seen, for example, whether the same regions that are expanded in individuals with large social networks are the same ones that are expanded in large-brained social primates compared with less social species, Barton says.

Dunbar sees it differently: “Variations among individuals provide the platform for selection to act on.” He views the recent findings as strong support for the social brain hypothesis, of which he is an ardent advocate. “The ability to form cooperative networks of individuals is what’s driving the evolution of big brain sizes,” Dunbar says. “The brain is a social tool.”

—GREG MILLER

SCIENTIFIC MISCONDUCT

Psychologist Accused of Fraud on ‘Astonishing Scale’

The worst fears came true. A Dutch committee that has spent the past 6 weeks investigating one of the Netherlands’ leading social psychologists has concluded in a report this week that he made up or manipulated data in dozens of papers over nearly a decade.

Diederik Stapel was originally suspended from his position at Tilburg University in the Netherlands in September after three junior researchers reported that they suspected scientific misconduct in his work. After being confronted with the accusations, Stapel reportedly told university officials that some of his papers contained falsified data. The university launched an investigation, as did the University of Groningen and the University of Amsterdam, where Stapel had worked previously.

The Tilburg commission released an interim report on 31 October, which includes preliminary results from all three investigations. The investigators found evidence of misconduct on an “astonishing scale,” the report says. Stapel made up data in “several dozens of publications,” the committee found, and 14 of the 21 Ph.D. theses he supervised are tainted.

Stapel issued a statement the same day, saying he “failed as a scientist” and is ashamed of his actions. He has cooperated to an extent by giving investigators a list of papers that used fraudulent data, the report says. The ongoing investigations plan to examine more than 150 publications that

Stapel has co-authored, including a paper earlier this year in *Science* (8 April, p. 251) on the influence of a messy environment on prejudice. (*Science* issued an Editorial Expression of Concern about the paper this week.) The fraud will cause “huge damage,” says Susan Fiske, a social psychologist at Princeton University. “His work is very central—or was.”

Stapel’s studies encompassed a broad range of attention-catching topics, including how a position of power influences moral thinking. The committee, which interviewed dozens of Stapel’s former students and colleagues, concluded that Stapel acted alone. The report says he would discuss experimental designs in detail with collaborators and would claim to conduct the surveys at high schools and universities with which he had special arrangements. The experiments, however, never took place, and Stapel gave collaborators made-up data sets, investigators allege. In other instances, the report says, he told colleagues that he had an old data set lying around that he hadn’t had a chance to analyze. When Stapel did conduct actual experiments, the committee found evidence that he manipulated results.



Data discredited. An investigation found that Diederik Stapel forged data in dozens of studies.

Many of Stapel’s students were simply given data to analyze and graduated without having ever run an experiment, the report says. The commission writes that Stapel was “absolute lord of the data” in his collaborations. Colleagues or students who asked to see raw data told the commission they were given excuses or even threatened and insulted.

At least two earlier groups of whistleblowers questioned Stapel’s work, the report notes, but no one followed up. On careful inspection, many of Stapel’s data sets have improbable effect sizes and other statistical irregularities, the report says. Among Stapel’s colleagues, the description of data as too good to be true “was a heartfelt compliment to his skill and creativity,” the report says.

The report recommends that the universities look into criminal charges based on the misuse of research funds and possible harm to Stapel’s students resulting from the fraud. The University of Amsterdam, where Stapel received his Ph.D., has not yet determined whether his dissertation is fraudulent. The committee suggests that the university consider revoking Stapel’s degree, however, based on “unbecoming” conduct.

—GRETCHEN VOGEL