

As the blind folds

Studies of psychotherapy and psychiatric drugs aim for a double-blind design, one in which neither people getting treatment nor clinicians gauging responses to treatment can consistently distinguish between a genuine intervention and a placebo. The latter may consist of a sugar pill or sessions with a physician not designed to offer specific psychological help.

However, a new report suggests that clinicians participating in such studies often correctly guess the treatment status of participants, possibly leading to inflated estimates of how well psychotherapy and psychiatric drugs work.

"The effectiveness and significance of blinding procedures have been unduly ignored in psychotherapy research," assert Kathleen M. Carroll, a psychologist at Yale University School of Medicine, and her colleagues. Evidence already exists that volunteers and investigators frequently figure out who is getting a genuine drug and who is receiving a placebo, they note, because of the absence of side effects in people taking placebos. The impact of accurate guessing on treatment ratings for antidepressants and other psychoactive drugs remains controversial (SN: 10/10/92, p.231).

Carroll and her coworkers studied 73 cocaine abusers for 1 to 3 months. Volunteers randomly entered one of four treatment groups: psychotherapy focused on strategies to prevent relapse plus an antidepressant drug (desipramine); psychotherapy plus placebo pills; general support and medical monitoring (placebo psychotherapy) plus desipramine; and placebo psychotherapy plus placebo pills.

Reduction in cocaine use and other improvements occurred about equally in all four groups. The most severe abusers benefited more from relapse therapy than support; less severe abusers did better with desipramine than placebo pills.

When treatment ended, two clinicians involved in the study correctly guessed volunteers' psychotherapy and drug treatment status in three-quarters of the cases, Carroll's group reports in the April *JOURNAL OF CONSULTING AND CLINICAL PSYCHOLOGY*. These clinicians rated active treatments as substantially more effective when they had accurately guessed that a participant was receiving one or both of them.

Investigators should work to maintain "blind" treatment and placebo groups, the scientists argue.

Call of the left brain

For most people, parts of the brain's left hemisphere handle basic aspects of language. Adult rhesus monkeys display a similar cerebral setup, with the left half of the brain often taking responsibility for vocalizations intended to signal aggression, fear, and friendliness, two anthropologists report in the April 26 *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES*.

Scientists have yet to confirm whether rhesus monkeys' vocal calls convey information in a structured, languagelike way or purely through the emotional quality of specific calls, note Marc D. Hauser of Harvard University and Karin Andersson of Radcliffe College in Cambridge, Mass.

The researchers studied monkeys living on Cayo Santiago, Puerto Rico. When an animal sat down at one of three open-air food dispensers on the island, a speaker hidden in vegetation behind it played one of the three categories of rhesus calls or a seabird alarm call frequently heard by the monkeys.

Overall, 61 of 80 adult animals turned the right ear (which sends acoustic information to the left hemisphere) toward the speaker in response to rhesus calls; they usually turned the left ear toward the seabird call. In contrast, 37 rhesus infants showed no ear preference for monkey or seabird calls.

Left-hemisphere structures able to discern what various calls mean may not emerge in rhesus monkeys until at least 2 years of age, Hauser and Andersson propose.

MAY 21, 1994

1958: Not a bad year for ozone

Over the last decade, atmospheric scientists have gathered more than enough evidence to convict chlorofluorocarbons (CFCs) of creating the ozone hole over Antarctica. But that hasn't kept skeptics from trying to launch an appeal.

One point they frequently raise concerns a sketchy report of extremely low ozone readings over Antarctica in 1958, well before CFCs reached dangerous concentrations in the atmosphere. If accurate, such measurements would exonerate CFCs and recast the ozone hole as a natural phenomenon.

Although atmospheric scientists have long since written off these early low-ozone reports, researcher Paul A. Newman of NASA's Goddard Space Flight Center in Greenbelt, Md., decided to look at the 1950s data to settle the issue. In the April 22 *SCIENCE*, he concludes that "there is no credible evidence for an ozone hole in 1958."

The original readings came from French researchers who participated in the International Geophysical Year in 1958 by performing experiments at the Dumont d'Urville station on the Antarctic coast. For one of their studies, they exposed spectrographic plates to light from the moon, sun, and stars outside the solar system in order to gauge the amount of ultraviolet radiation reaching Earth's surface. Because atmospheric ozone blocks incoming ultraviolet light, the French researchers used their data to infer the amount of ozone in the sky. They recorded concentrations as low as 110 Dobson units (DU) in September and 120 DU in October 1958.

Newman, however, reports that the Dumont d'Urville readings don't square with measurements taken at three other Antarctic sites and a fourth on a nearby island. Ozone amounts dipped no lower than 293 DU in October at these sites. Researchers there took measurements with the Dobson spectrophotometer, a reliable and easy-to-operate tool still in use.

Newman regards the Dumont d'Urville readings as unreliable, for several reasons. Ozone readings at this site varied much more from day to day than did measurements at other locations in 1958. Furthermore, satellite measurements of the Dumont d'Urville area going back to 1978 suggest that the French data from 1958 do not match the typical ozone patterns observed in the region.

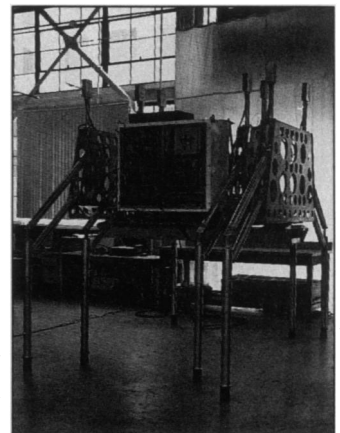
Dante to descend into Mt. Spurr

In the *Divine Comedy*, Dante showed that he was no quitter. The poet slogged his way through hell and then purgatory before finally reaching paradise.

Likewise, the mechanical Dante (below) won't stop after one defeat. Created by researchers at Carnegie Mellon University in Pittsburgh, this rappelling robot suffered setbacks while trying to descend into the smoking crater of Antarctica's Mt. Erebus in early 1993 (SN: 1/9/93, p.22).

But this summer, a strengthened version of Dante will rise to its eight feet and make another mountaineering attempt, this time at the opposite end of the world.

Dante will explore the crater of Alaska's Mt. Spurr, an active volcano that erupted three times in 1992. The blasts disrupted air travel and rained ash on Anchorage, 125 kilometers to the east. If Dante can reach Mt. Spurr's crater floor, it will measure the temperature and composition of escaping gases and take photographs.



Carnegie Mellon Univ.

333