

RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Rough Science Takes Off

If you were dropped on a remote Mediterranean island, could you pinpoint your location using a saucepan? Make film with seaweed? Those were some of the challenges facing the scientists who starred in *Rough Science*, a TV series created by the United Kingdom's Open University (OU). The show has been such a success that OU boffins are now designing a course to go with it.

In the series, five scientists—a chemist, a physicist, a molecular biologist, an ethnobotanist, and a marine biologist—were dumped on Capraia, an island off northern Italy. Using only a few basic tools including pliers, a saw, and a radio crystal, they were given 3 days to complete a series of tasks using the natural resources at hand.

One of the more memorable challenges was to make soap from scratch, says the chemist,



Physicist Jonathan Hare tries to make a radio from scrap found on the island as *Rough Science* host Kate Humble watches.

Mike Bullivant of OU. The scientists tried unsuccessfully to produce sodium hydroxide—required to turn fat into soap—by running a current through seawater, using pieces of pencil graphite as electrodes. They finally managed to make soap with wood ash and oil from wild olives. The exercise was a good illustration of the fact that “science is more about failure than success,”

says Bullivant. Another failure was an attempt to create a camera with the aid of seaweed and a silver bracelet.

The program has been a phenomenal success in the U.K.—with over 2 million viewers—and now its influence is spreading across the Atlantic, with negotiations under way to air it on PBS. Both the OU and its U.S.

counterpart USOU are also designing short courses in basic science that incorporate examples of “rough science” and will accompany a second season.

The show may sound like another *Survivor*-style exercise in “reality TV,” but they’re actually polar opposites, says Bullivant. “Reality TV seems to be about backstabbing.... Science is about collaboration.”

Creating the Schizophrenic Pig

Danish scientists are aiming to produce schizophrenic pigs by disrupting fetal brain development.

Past efforts to develop animal models for schizophrenia—a devastating disorder that disrupts thoughts and causes hallucinations, emotional disturbance, and social withdrawal—have been fraught with problems. Researchers have engineered rodents that exhibit stereotyped movements that are reversed by antipsychotic drugs, but they don’t show the social disturbances central to the disease.

Pigs, though, are a lot like us, says psychiatrist Sidse Arnfred of Copenhagen University Hospital. Their “well-developed social hierarchy allows us to study disease-related social changes and their biological basis,” she says. Pig smarts are only at the dog level, but the emotional brain or limbic system, like that of humans, is very large, says Arnfred, who is collaborating with scientists at Copenhagen’s Agricultural University and Århus University Hospital.

To disrupt the fetal pigs’ brain development, Arnfred will inject pregnant sows with methylazoxymethanol acetate, a toxin that stunts cell division. This, she believes, will replicate abnormalities, including sparse and disarrayed-looking cells, seen in the hippocampus of schizophrenics. The researchers will then use brain scans and behavioral tests to see if there are changes resembling those in humans. Schizophrenic pigs might be expected to withdraw socially and sink to the bottom of the social ladder, says Arnfred.

Psychiatrist Rasmus Fogh of Copenhagen’s Skt. Hans Hospital says the approach makes sense in view of evidence suggesting that prenatal toxic insults may play a role in the disease. But skeptics, such as psychologist Michael Miller of the University of Missouri, Columbia, question the model’s relevance, because symptoms such as hallucinations or thought disorder would be hard to assess in pigs. Also, he says, “I would expect a sick pig to have low social status no matter what the cause of its illness.”

But Arnfred is optimistic. “We believe we can create a model in which a wide range of anatomical, cognitive, and behavioral characteristics are present simultaneously,” she says. The scientists hope to have their first schizophrenic pigs by 2004.



Just like us?

Snapping Mars Flashes

Mysterious flashes of light from Mars have been dismissed as illusions having more in common with Loch Ness monster sightings than hard science. But a team of amateur astronomers has now done something Nessie fans can only dream of: They predicted when one legendary flash would recur and then captured it on videotape during an expedition to the Florida Keys this month.

When bright light flashed from a hook-shaped martian feature called the Edom Promontorium in 1958, some overeager scientists suggested that Martians with mirrors were signaling Earth. But the consensus was that a favorable alignment between Earth and Mars caused sunlight to reflect from water crystals in the martian atmosphere.

Thomas Dobbins, a contributing editor of *Sky and Telescope* magazine and author of the book *Video Astronomy*, last year decided to calculate when the 1958 alignment would recur. To his surprise, the computer spat out early June 2001. So he gathered a team of top-notch amateur astro-imagers in Florida to photograph the hoped-for flashes.

Sure enough, at 2:40 a.m. on 7 June, the team observed flares glinting from the edge of the Edom Promontorium for nearly 90 minutes. The flare, and additional ones on 8 June, were captured by a video camera mounted on a 28-cm telescope, the team reports in the 8 June *International Astronomical Union Circular 7642*.

Scientists still aren’t sure about the cause of the flares.

