Behavior

The things they do for love

A lot of people will tell you that it takes hard work to make a romantic relationship satisfying. Several psychological researchers will tell you that it takes more than that. The most satisfied couples, they say, contain individuals who consistently pay attention to their own emotions and motivations and those of their partners.

Stephen L. Franzoi and his colleagues at Indiana University in Bloomington used a series of questionnaires to analyze the influence of "private self-consciousness" — the tendency to focus on private aspects of oneself — and "perspective taking" — a disposition toward adopting the psychological point of view of others — on the members of 131 male-female couples attending the university. The couples were married, engaged or dating one another exclusively.

The investigators report in the June JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY that men and women who pay more attention to their private thoughts and feelings are more likely to disclose private aspects of themselves to their partners. Surprisingly, self-disclosers experienced more satisfaction with relationships but their revelations had little effect on their partners' feelings of satisfaction. There may be an important psychological need, say the researchers, to reveal one's "private self" to others, regardless of how the listeners are affected.

Perspective taking also aids relationships, they explain, by helping to ease tensions occasionally fanned by the collision of two different points of view. A considerate, tactful approach by females had a significant effect on male satisfaction, note the psychologists, while the same behavior by males had little impact on female satisfaction. In these couples, say Franzoi and co-workers, women may take the traditional role of attending to the nurturant, emotional needs of both members; men may still be primarily concerned with jobs and financial security.

Those old familiar faces

Some people, primarily certain victims of Alzheimer's disease, amnesia, strokes or herpes encephalitis, also suffer from prosopagnosia, a brain disorder that renders its victims incapable of visually recognizing the faces of people they know — including their family and friends. Many prosopagnosiacs claim they rely upon other cues, such as voices, in order to identify people.

Researchers at the University of Iowa College of Medicine in Iowa City have now found that the nervous system of a prosopagnosia patient does respond to familiar faces, even though the patient isn't consciously aware of it.

Daniel Tranel and Antonio R. Damasio report in the June 21 SCIENCE that they measured electrical charges on the skin of two prosopagnosia patients while the patients were each shown 50 photographs of faces, eight of which were faces of people the patients knew: family members, close friends or famous people. When the patients were shown the photographs of the people they knew, the electrical conductivity of their skin increased, even though they claimed the faces were unfamiliar. They did not respond in this way to unfamiliar faces.

The nervous system responses may mean, the researchers say, that even though the patients' ability to activate memories associated with the faces has been destroyed, the brain's records — both of faces and of associated memories — are intact.

"Our brains store different types of memories in different places," Damasio told SCIENCE NEWS. Images of faces, he says, are stored separately from the memories associated with them. But people with prosopagnosia, which is caused by twin lesions in the part of the brain believed to control the central visual system, can't activate the associated memories, he says. And these memories must be activated, or "brought into the conscious mind," he adds, "in order for us to consciously experience visual recognition."

Earth Sciences

Corals that glow with the flow

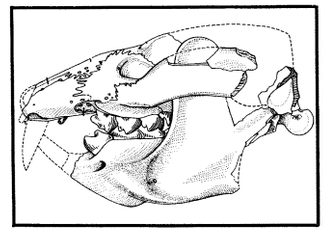
Like trees with rings, corals embody a record of past environments. Wide growth bands and dense skeletal colonies of corals mark times when the temperature, sea level and climate were to their liking. Last year, Peter Isdale of the Australian Institute of Marine Science in Queensland discovered that *Porites* corals of the Great Barrier Reef house yet another clue to the past: bands that fluoresce yellow-green when the coral is exposed to ultraviolet light. In the May 30 NATURE, he and colleague Kevin Boto examine the origin of these bands.

The researchers knew that all regions of the corals contain fulvic acids, derived from organic matter most probably in seawater, that give off a blue background fluorescence. They found that the yellow-green bands also contain fulvic acids, but with a greater proportion of low-molecular-mass compounds.

These compounds, they suspect, originate on the land because the timing, width and intensity of the yellow-green bands match peaks in rainfall and coastal runoff and because only the corals situated within 20 kilometers of the shore have the yellow-green bands. Indeed, Boto and Isdale were able to induce yellow-green fluorescence in fast-growing corals by incubating them in a mixture of seawater and fulvic acid extracted from local soils.

The researchers conclude that the wide distribution of *Porites* corals combined with the ubiquity of fulvic compounds in rivers and runoff suggests that fluorescent banding is common in near-shore corals. This means that centuries of rainfall and runoff data are available in corals the world over.

Mammal-like reptile skull from Mexico



Claire Vandersliice/NATURE

One of the paleontologist's best weapons in the creation-versus-evolution debate is a family of mammal-like reptiles called Tritylodonts, which clearly show the movement from bones in the lower jaw of reptiles to the ears of mammals. A new fossil — representing the most advanced Tritylodont — found in northeastern Mexico doesn't add that much to the understanding of the reptile-mammal transition per se, but it does help scientists sort out the relationships between the seven or so Tritylodont family members.

James Clark and James Hopson of the University of Chicago discovered the skull of what they call a new species, *Bocatherium mexicanum* (named after the La Boca rock formation where it was found), which they believe dates to the middle Jurassic, roughly 180 million years ago. This would make the creature Mexico's oldest terrestrial vertebrate and the first mammal-like reptile to be found there. The researchers think that *Bocatherium* was a rodent-like herbivore that coexisted with early carnivorous mammals for 50 million years before becoming extinct in the late Jurassic some 150 million years ago. As reported in the May 30 NATURE, the *Bocatherium* skull has a snout structure — in which the bone holding the upper teeth in more primitive species has become cylindrical in shape — similar to two other species found in China and Great Britain, enabling the researchers to diagram how the various Tritylodonts are related to one another.

According to Clark, scientists are divided as to whether Tritylodonts or another reptilian family — the Ictieosaurs — are the true ancestors of mammals. Ictieosaurs, like mammals, are meat eaters, but Tritylodonts share a more similiar skeletal structure with mammals. Clark hopes that the Mexico site where *Bocatherium* was found will bear more fossils that will help explain how mammals came to be.