Combat vets show shifting trauma memories

In the past few years, controversy has raged over whether some people lose mental access to highly traumatic experiences, such as childhood sexual abuse, only to remember the disturbing material years or decades later.

A study of combat-related memories among Operation Desert Storm veterans, published in the February AMERICAN JOURNAL OF PSYCHIATRY, now enters the fray. It offers preliminary evidence that the veterans' memories of personally encountered traumatic events changed markedly in the 2 years after returning from the war zone.

"We found a lot of inconsistency in traumatic events recalled by individuals shortly after the war and again 2 years later," says study director Steven M. Southwick, a psychiatrist at the Veterans Affairs Medical Center in West Haven, Conn. "But we have no way to know how accurate those reports were."

Of 59 male and female National Guard reservists who completed questionnaires 1 month and 2 years after returning from Desert Storm military units, 52 exhibited changes in their memories of traumatic wartime incidents, Southwick and his colleagues report. Of that number, 41 recalled an event at 2 years that they had not reported at 1 month, and 27 did not remember an event at 2 years that they had cited at 1 month.

The kinds of events for which memory most commonly changed were confronting an extreme threat to personal safety, witnessing bizarre disfigurement of wounded bodies, seeing others killed or wounded, and being stationed close to enemy lines.

A number of possible reasons exist for the observed memory changes, the researchers note.

Some events noted at first but not later may have been simply forgotten, screened off from consciousness through repression or other defense mechanisms, or minimized in memory following media accounts that played down the traumatic nature of Desert Storm. Events reported only at 2 years may have been gradually recalled as a result of nightmares, flashbacks, or other symptoms of post-traumatic stress disorder (PTSD), or they could reflect exaggerations of past events by individuals struggling to explain worsening PTSD symptoms.

Veterans displaying the most severe PTSD symptoms showed the greatest number of inconsistencies in their combat-related memories over time, Southwick holds. However, the data do not yet demonstrate that PTSD directly modifies memory, he adds.

Shifting memories of combat trauma reported by Southwick's team have implications for the treatment of PTSD, write psychiatrists Robert E. Hales and Douglas F. Zatzick, both of the University of California, Davis Medical Center in Sacramento, in an accompanying editorial. Since recollections of such events often change, clinicians may need to focus most closely on current PTSD symptoms and an individual's functioning at work and at home, Hales and Zatzick assert.

In contrast, psychiatrist Bessel van der Kolk of Harvard Medical School in Boston views the new study as inconclusive. "This is an article about people's willingness to report traumatic experiences to strangers," van der Kolk contends. "It says nothing about the critical issue of whether these recollections are in fact reflections of reality."

Traumatic events are first processed as sensations or feeling states and may not be transcribed into a verbal account until much later, setting the stage for delayed recall, van der Kolk proposes. He describes clinical and neurobiological evidence supporting this theory in *Traumatic Stress* (New York: Guilford Press, 1996).

Southwick hopes to check the accuracy of Desert Storm veterans' trauma memories through military and medical records. For now, he says, "I really don't know why we got so many discrepant memory reports." —*B. Bower*

New gene clearly resolves an eye debate

In Greek myth, the Cyclopes were a race of fierce giants equipped with a single eye in the middle of their foreheads. It's a sad reality that a similar affliction, a single eye or the fusion of two eyes, strikes human fetuses and that this rare condition is invariably accompanied by fatal developmental abnormalities.

Both legend and fact pose a provocative question for developmental biologists: Does a normal pair of eyes originate from two independent regions in an embryo, or must a single precursor area split in two? In the Feb. 1 DEVELOPMENT, researchers reporting on the embryonic activity of a new gene called *ET* choose the latter answer.

Yi Rao and his research group at Washington University School of Medicine in St. Louis found *ET* during a search for the transcription factors involved in the embryogenesis of the frog *Xenopus laevis*. Transcription factors are DNA-binding proteins that control gene activity.

Rao's group discovered that *ET* is active in two regions of the embryo, one a stretch of tissue that develops into a secretory gland and another that forms the retinas of the eyes. More important, the biologists noticed that the *ET*-active retinal area emerges early in frog development as a single band of tissue and later splits into two distinct regions.

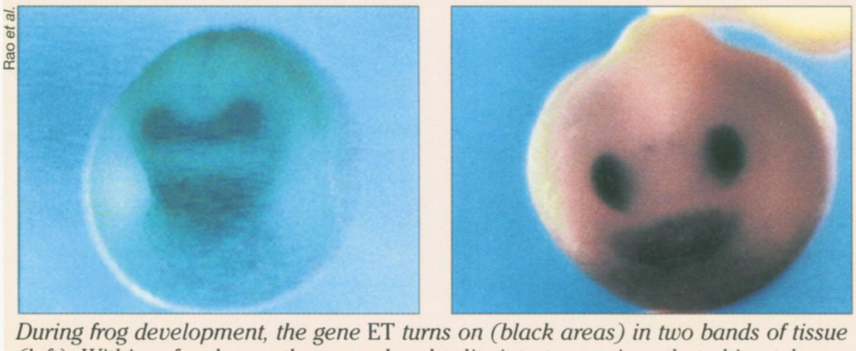
Further experiments in chick embryos and with another eye development gene called *Pax-6* buttressed the argument that vertebrate eyes start as a single patch. Finally, the scientists determined that a nearby piece of the embryo, the prechordal mesoderm, induces the single region to split.

"The middle of this region gets turned off, or suppressed, from eye formation," says Rao, noting that when the prechordal mesoderm is removed from a developing chick or frog embryo, a single eye forms.

Although early embryologists did not have the powerful tools of genetics, they often deduced the same answers that today's scientists can obtain more definitively, observes Robert M. Grainger, who studies eye development at the University of Virginia in Charlottesville. By the 1930s, embryologists had already put together a strong case that the eyes stem from a single embryonic area, he argues.

"A lot of biologists have used new techniques to revisit old problems. What Rao has done is to bring to [this problem] some technology that makes the answer much clearer. There's no doubt about that," says Grainger. —*J. Travis*

Rao et al.



During frog development, the gene ET *turns on (black areas) in two bands of tissue (left). Within a few hours, the upper band splits into two regions that ultimately form the retinas of the eyes (right).*