

51. Lilly, John C. 1957. "'Stop' and 'Start' Systems" in Neuropharmacology.
Transactions of the Fourth Conference, Josiah Macy, Jr., Foundation, Princeton,
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Reprinted from *Excerpta Medica's* special issue containing abstracts of papers read at the Fourth International Congress of Electro-encephalography and Clinical Neurophysiology, and the Eighth Meeting of the International League against Epilepsy, Brussels, July 21-28, 1957

FREE COMMUNICATION 29

LILLY, J. C. (Bethesda, Md. U.S.A.). A state resembling 'fear-terror-panic' evoked by stimulation of a zone in the hypothalamus of the unanesthetized monkey. - Un état ressemblant à la 'peur-terreur-panique' réalisé par stimulation d'une zone dans l'hypothalamus chez le singe non anesthésié.

In the walls of the third ventricle above the stalk of the pituitary (anatomically confirmed in one monkey, Horsley-Clarke coordinates in two) we have found a region, the stimulation of which evokes a clinical appearance of 'fear-terror-panic' in the unanesthetized monkey. During this state the pupils and palpebral fissures are dilated; the whole body shakes non-synchronously; the directed movements are those of escape in an older monkey and those of 'holding on' (as if to the mother's fur) in a young one; if a non-food, potentially damaging object is brought within the visual field near enough to bite, the monkey reaches with his head and jaws and bites the object repetitively, so strongly that teeth are broken out of the jaw; this biting is continued until either the object is removed or the stimulation stopped.

There is no evidence that pain in the gums stops the biting during the stimulation; following the train, behavior connected with pain in the gums is seen (licking, refusal of food, etc.). We succeeded in training the monkey to switch off trains of stimuli at levels of current 1/5 to 1/2 the levels at which the clinical signs of 'fear' appeared. In one monkey this habit was not extinguishable with a 12-day gap in training, whereas that for an apparently extremely 'painful' stimulus in the trigeminal nucleus extinguished within this period, and required re-training. This state is clearly differentiable clinically from a state resembling 'pain' evoked from more caudal central structures in the same animals.

These observations extended over a period of at least 4 months in each animal and have led us to conclude that this evoked state has both the outward expression and, presumably, the inward feeling of a true emotion. In these non-truncated, unanesthetized animals there does not appear to be any 'sham fear' or 'sham pain'.