

ON PAIN.

By W. BURRIDGE, D.M., B.Ch.Oxon.,
Professor of Physiology in the University of Lucknow.

APPLICATION of the previously given formula for mental excitation processes (I), viz.,

$$H + L = T,$$

to the problem of pain indicates that L , the thing felt, is judged through H , and the two together produce the response T .

I assume that cutaneous pain is a special sensation with naked nerve-endings as its "receptors."

When " L " is small, no amount of " H " applied to L can make it definite, just as no amount of attention can enable us to discern things clearly when the light is too dim. Attention, or extra H , only enables us to discern better what is there, but can never make clear that which is below the necessary strength of illumination. Vague and indefinite sensations of uneasiness I take to be mediated by minimal sensations of pain.

In the next and definite stage the sufferer can apply enough H to enough L and, taking an example from the aching tooth, he can tell exactly where the pain comes from and describe its nature. H , however, may be derived from two sources, a part from the nerve-cells mediating the subconscious sensation, and a part derived from other sources sufficing to make the subconscious pain conscious. We are here, in fact, considering the stage where the toothache is brought to consciousness only when the sufferer directs his attention to the tooth. The toothache is then one of many competitors for the field of consciousness and can only hold that field with the help of attention. But when bed-time comes these other competitors cease their activities and leave the aching tooth the only occupant of the conscious field.

As L increases further in intensity, the aching tooth will hold the conscious field against competitors in virtue of its own inherent strength. The sufferer cannot then get away from the fact that he has an aching tooth.

With L increasing still further there must come a time where there is no room left for an adequate amount of H to give good

judgment of the pain's nature and localization. The sufferer now has greater, but less describable, pain which cannot be definitely localized. And, because the source of pain cannot be definitely localized, it seems to spread over the mandible, face, down the arm, etc.

This spread, however, is currently believed to be due to irritation of neighbouring nerve-trunks—a view I consider unsound, because it implies that the insulation of nerve impulse along any one nerve breaks down when those impulses are strong. My equation, on the contrary, indicates that this spread is psychic, and due to one element in an excitation process being so great as to leave insufficient scope for adequate functioning of the other which mediates judgment.

In the final stage *L* becomes so great as to leave no room at all for enough *H* to mediate consciousness of *L*. The sufferer then attains the blissful stage of shock.

Reference.—Burrige, W., *Journ. Ment. Sci.*, July, 1929, p. 384.