

and inductions thereof; and the so-called electric response and existence of life in all matter are due to the polarisation of crude material particles, whereas that of Ether particles produces subtler optical and electrical phenomena such as propagation of light and of electric waves in wireless telegraphy and of x' rays, Becquerel's rays and Lenard's rays &c. By these and by several other examples it can be shown conclusively that all the physical phenomena are nothing but the outcome of different and peculiarly constrained conditions of matter and ether termed as Mass Polarization.

K. D. M.

PAIN.

I pointed out in a former issue that Psychology, like any other positive science, studies facts open to observation, and attempts to discover the laws which govern them. It ought to be as interesting and useful to detect the properties of desire, anger and belief, and to investigate the conditions of their origin and growth as to enquire into the laws governing the growth of plants and societies, or explaining the phenomenon known as earthquake. For if a general knowledge about physical objects is useful to the various arts which contribute to human happiness, acquaintance with the laws of mental development and with the properties of mental objects would be indispensable to the art of education, to the fine arts, and in fact to every person who has to deal with minds.

In this paper I shall try to point out some of the properties of that familiar mental object known as *pain*. And the method that I would employ would be the same as a doctor would follow in discovering the cause, the symptoms and the effects of cholera—viz. observation. Take an ordinary pin, and prick it on any part of your skin; or if that is inconvenient, think of a dear friend who is dead. Pain will appear. Now observe its properties. Like oxygen it is invisible and inodorous, but unlike oxygen it has neither weight nor extension, and instead of supporting life, it tends to destroy it. Its

intensity may be increased or decreased, and as it occurs, it creates a desire to expel it from consciousness. It does not occur alone, but is caused by a sensation (pin prick) or an idea (friend) from which it seems to spring as heat springs from fire. We may therefore define pain as a mental object which creates a desire to expel it from consciousness.

From the above experiment it would appear that pain never occurs alone, but is always the concomitant of a sensation or an idea which is its fainter copy. Pure pain is a fiction, and sorrow, however intense, or pain, however acute, always contains an ideal or a sensational element. Sorrow would not continue if the loss is forgotten, and the pain caused by a blister would vanish if the part affected is rendered insensible.

The pains which accompany sensations I would call sensational pains. All classes of sensations would produce pain under certain conditions. Light, ordinarily pleasant, causes pain when intense. Cold, heat and hardness when excessive, are disagreeable, and we adopt various means to avoid painful tastes, smells and sounds. Hunger and thirst are notorious for the pain they cause, and muscular exertion, if prolonged, is scarcely pleasant to any. Attempts have been made to formulate some law regarding the origin of sensational pains, and it has been established that pain occurs when the stimulus causing the sensation is intense, as dazzling light; that certain stimuli produce pain at all degrees, as the smell of sulphurated hydrogen; that complete absence of change or undue prolongation of a stimulus is disagreeable, as the same curry served everyday, or the same song, or the perpetual repetition of the same phrase; that certain stimuli individually neutral, or even pleasurable, may produce pain if they combine in a certain way as musical discord, or a preparation of milk and garlic; that our organism is so prone to activity that absence or deficiency of stimulus, like its excess, has an unpleasant effect, *e. g.* solitary confinement or enforced idleness on a rainy day.

Coming now to ideal pains we notice that they are not caused by sensations, but by ideas. A person lying motionless on bed does not give us, any more than a person who is asleep, any painful sensation ; but the *idea* that he will wake no more, that he will disappear for ever, and with him, his love and sympathy, causes intense suffering among certain persons. A tiger looked at gives us sensations which are pleasurable rather than painful ; but the *idea* that he is dangerous causes that painful emotion called fear. The words uttered by a judge are not painful sounds ; but the *idea* that they convey a death-sentence produces pain. When the idea is not suggested, the pain disappears even though the same sensations continue, as when the dead body is that of a stranger, or the tiger looked at is secure in a cage, or the words falling from the judge are not intelligible to the prisoner.

In the above instances the idea causing the pain was suggested by a sensation, the look of the tiger, or the sounds produced by the judge ; but ideas themselves are often capable of generating pain, which however does not attain the intensity of the pains produced in the former cases unless the agent is very imaginative. The very idea of some one's death, the very idea of failure in the examination, the very idea of hell may, in some, produce pain whose intensity would vary directly with their powers of imagination.

Now, what is the difference between the sensational and the ideational pains ? By careful observation I find that while sensational pains are caused by actual sensation, *e. g.* cold, hunger, thirst, the ideal pains are caused by the representation of *possible* sensations, *e. g.* cold, hunger, and thirst dimly represented as possible consequences of the death of a friend. In the experience of the race, death of a parent or friend brought in countless cases so many painful sensations occasioned by exposure, extra labour, want of care in disease, and attack by enemies, that even now it dimly revives these sensations, and

their accompanying pain, the peculiar intensity of which is easily explained by the innumerable painful sensations which followed death in the past, and which every death now dimly excites even in cases where children are left in comparative affluence, or the friends who died were useless. Fear caused by a tiger or a ghost owes its painful element to the recalling of certain possible painful *sensations*; failure in the examination causes pain since it suggests loss of reputation and sympathy of parents which always meant in the experience of the race starvation, cold, and bodily injury. Remorse springs from the possibility of some disadvantage of evil conceived as following from the evil act done.

Thus we find that the ultimate cause of all pain is sensation actual or conceived as possible, and like everything in the mind pain owes its origin to the body. But ordinarily we may retain the distinction between sensational pain and ideational pain provided we remember that the distinction is not radical. Retaining the distinction we find some points of difference between the sensational and the ideational pains. We notice, for instance, that while the bodily expression of a sensational pain is simple, that of an ideational one is diffused and violent. A bitter drug would produce a little twitching of the facial muscles, but the expressions of fear or anger are notoriously diffusive and violent. If the above theory of ideational pain be true, this is what we should expect.

As fear involves the revival of various painful sensations inflicted by its object in the past, its expression would be the totality of the reactions of the revived sensations, and hence must be more violent than the individual reaction of a single sensational pain. For instance, fear combines the bodily reactions which, separated, would appear as crouching, running, beating of the heart, opening the eyes, and so forth.

Another peculiarity of ideal pains is this that they are more recallable than sensational ones. Pains of hunger can scarcely

be realised when one is full; that of hard work is forgotten when success has been attained. On the contrary, sorrow can be easily revived by recalling a face; anger by brooding over an insult; fear by picturing an attack of leprosy. In consequence of this, we can imagine and therefore sympathise with the latter class of pain better than the former. Novels therefore deal only with ideal pains and pleasure, and try to excite our sympathy not by the loss of a leg, but by the loss of a friend, though the former, as some one has said, is much more serious.

Ideal pains are not only more recallable, but they are also more prolongable. Pain of a mosquito-bite ceases as the stimulus ceases, but the pain inflicted by words or a friend's death persists. Memory of hunger does not cause pain, but memory of ingratitude does. But though more prolonged than sense-pains they are easier to suppress than the latter. Pain of failure or bereavement or fear may be removed by resolutely forgetting its cause, and by repressing its expressions; but tooth-ache can not be removed by resolution, though I suspect that its intensity may be somewhat reduced by voluntarily transferring our attention to something else.

Another interesting question which we might consider here is this: which pains are more painful, sensational or ideational ones? I suppose in this respect no general proposition can be laid down, since the intensity of pain, so far as it depends upon its kind seems to depend upon the susceptibilities of individuals. To a *suttee* the acutest bodily pain is nothing compared to the pain of widowhood, and of the ridicule which would follow an escape from the pyre. A general prefers the agony of death to the shame of a defeat. On the other hand, there are persons who would prefer any amount of ideal pain to physical suffering. Prisoners asked to choose between thirty stripes and extremely filthy work often choose the latter. In times of famine, parents have been known to sell their children to satisfy

their hunger, and many would choose remorse to the pain of attending a sick bed. I am inclined to think that education and good breeding creates a greater susceptibility to ideational than to sensational pains. In a gentleman the fear of imprisonment is mainly due to the loss of reputation which it involves ; in a cad, to the hard labour which it inflicts.

Lastly we may observe that pain is invaluable as an instrument of discipline. It creates a desire to avoid it and all things to which pain is naturally or artificially attached. If therefore for social good we want people to avoid certain acts like theft which they have a tendency to do, the best method would be to render them unpleasant. All crimes are therefore made painful by punishment and if they continue now it is because through inefficiency of the Police the punishment is not inevitable. Pain has been attached to the violation of our moral and legal duties by the state or public opinion, so that their omission may prove unpleasant and ultimately excite the hatred of the wrong-doer. Some acts, however, which law has converted into offences, as for instance smuggling, do not excite social odium, and even receive popular approbation. In these cases of conflict between law and public opinion, omission of the legal duties is followed only by legal punishment, and not by loss of reputation, and hence is not painful enough to deter criminals who brave the legal sanction to obtain popularity.

The art of education would therefore utilise pain for educational purposes, and would not only create interests in the subjects taught with a view to draw attention, but would also attach pain to all habits or acts antagonistic to proper development of mind. What amount or what kind of pain should be inflicted is a matter for the jurists to discuss. I am inclined to think that they ought to depend upon the susceptibilities of the individual, that while punishing a gentleman ideal pain would be most effective, for the vulgar who have no reputation to lose punishments should take the form of physical pain. It

is true that the State has reserved to itself the right of inflicting physical pain, and has delegated a very small portion of the right to teachers, guardians and parents, and to all persons in case of self-defence ; while the moral duties could be enforced by society only by the infliction of ideal pain, though in some cases sensational pains would be more effective. But on obvious grounds this arrangement appears to be good.

P. L. B.

ফুটবল ।

“ Misery still delights to trace
Its semblance in another's case ”—Cowper.

(১)

মাঠের মাঝারে ঐ কেবা বেগে ধায় ?
এদিক্ ওদিক্ কেন ছুটিয়া বেড়ায় ?
কিবা নাম কোথা ধাম জিজ্ঞাসি সবায়,—
শুনি সবে ওকে নাকি “ফুটবল” কয় ।

(২)

কি হেতু বিকৃত দেহ বল ফুটবল ?
হস্ত পদ আদি কোথা ইন্দ্রিয় সকল ?
কেন বা ছুটিছ সদা আছাড়ি আছাড়ি ?
কোন্ মনোহুখে ভাই দাও গড়াগড়ি ?

(৩)

সবাই ছুটিছে বেগে কেন তব পিছে ?
পদাঘাতে কেন সবে তোমায় তাড়িছে ?
অপরাধ কিবা তব আছে গুরুতর ?
যার তরে পাও শাস্তি'বল নিরস্তর ?

(৪)

(ওদের) নাহি কি সম্বন্ধ কিছু তোমা সনে হার ?
দেখিলেই শুধু করে বিষম প্রহার !
ভাই বুঝি হস্ত পদ প্রহারে প্রহারে
প্রবিষ্ট কীচক সম দেহের মাঝারে ।