

PREVENTING JUVENILE DELINQUENCY

SEVERAL years ago the United States Children's Bureau, as part of its programme on juvenile delinquency, published a report about the effectiveness of measures in delinquency prevention. The analysis was based on evaluative studies conducted over the previous twenty-five years or so.

The review led to the conclusion that programmes for the prevention of juvenile delinquency had not been notably effective. This conclusion was tempered by two facts. First, few programmes, relatively speaking, had been evaluated, and most of those not adequately. Secondly, many of the evaluative studies were out of date since they dealt with programmes and methods that to-day might not be considered the best. Moreover, there were hints that good results had been achieved with certain types of delinquent children in certain circumstances. This was notably the case in child guidance work and was perhaps also true of the kind of neighbourhood work associated with the name of Clifford Shaw.

Some of the newer programmes and methods seemed, however, to give promise of more favourable findings. Among those mentioned in the report were various devices for 'reaching out' to youngsters and their parents with services they were unlikely to seek for themselves; for example, group work with delinquent and pre-delinquent gangs, case work or group work with 'resistant' families. These and other newly devised programmes seemed to be succeeding where older ones had failed and to be benefiting both from the experience of their predecessors and from recent advances in knowledge about human behaviour and motivation.

In an issue of the *Annals of the American Academy of Political and Social Science*, measures of delinquency prevention and their effectiveness are con-

tinued with reports from practitioners and research workers who have been closely associated with these efforts (322, March 1959).

The most striking change, according to Helen L. Wilmer, of the U.S. Department of Health, Education and Welfare, is in the level of sophistication shown in the reports. This is shown in the way the work with delinquent youngsters and their parents is carried on, in the psychological and sociological knowledge underlying the work, and in the methods employed in its evaluation. Much has been learned in all these areas in recent years. These articles show programmes of delinquency prevention both benefiting from that advance and contributing to it.

Perhaps the most important contribution of this series of articles lies in the picture it provides of the kinds of young people who are likely to become chronically delinquent and of the kinds of homes and neighbourhoods they live in. The picture is not a new one but is drawn in a way that reveals, more vividly than usual, the fears, the discouragement and the wish to be like other people that characterize these young people and their parents. The treatment measures described, both those that would improve the environment and those that are directed toward the individuals, take their direction from this knowledge. The knowledge itself is rooted both in the social sciences and in psychology and demonstrates their interrelatedness.

The articles deal with small programmes and, in part, short-lived efforts. Few of them report scientifically established results. Nevertheless, in their conception of what needs to be done and in their suggestions for some ways of doing it, they hold the hope that the problem of delinquency can be reduced if communities are willing to put the effort required into the work.

THE ORIGINS OF LOVE

PSYCHOLOGISTS, sociologists and anthropologists commonly hold the view that the infant learns to love through the association of the mother's face, body and other physical characteristics with the alleviation of internal biological tensions, particularly hunger and thirst. Psycho-analysts have tended to emphasize the importance of attaining and sucking at the breast as the basis for affectional development. Recently a number of child psychiatrists have questioned such simple explanations. Some argue that affectionate handling in the act of nursing is a variable of importance, whereas a few workers suggest that the composite activities of nursing, contact, clinging and even seeing and hearing work together to elicit the infant's love for his mother.

It is difficult, if not impossible, to use human infants as subjects for the studies necessary to break through the present speculative impasse. For several years a group at the Primate Laboratory of the University of Wisconsin has been using baby rhesus monkeys in a study that has begun to yield significant insights into the origin of the infant's love

for his mother. A report has been prepared by Harry F. Harlow*.

The interest in infant-monkey love grew out of a research programme that involved the separation of monkeys from their mothers a few hours after birth. The investigators were impressed by the deep personal attachments that the monkeys formed for the diaper pads, and by the distress that they exhibited when the pads were removed briefly once a day for the purposes of sanitation. The behaviour of the infant monkeys was reminiscent of the human infant's attachment to its blankets, pillows or rag dolls. These observations suggested a series of experiments to compare the importance of nursing and all associated activities with that of simple bodily contact in engendering the infant monkey's attachment to its mother. Two surrogate mother monkeys were prepared. One is a bare welded-wire cylindrical form surmounted by a wooden head with a crude face. In the other the welded wire is cushioned by a sheathing of terry-cloth. Eight new-born monkeys

* *Scientific American*, 200, 6; June 1959.

were placed in individual cages, each with equal access to a cloth and a wire mother. Four of the infants received their milk from one mother and four from the other, the milk being supplied in each case by a nursing bottle, with its nipple protruding from the mother's 'breast'.

The two mothers quickly proved to be physiologically equivalent. The monkeys in the two groups drank the same amount of milk and gained weight at the same rate. But the two mothers proved to be by no means psychologically equivalent. Records showed that both groups of infants spent far more time climbing and clinging on their cloth-covered mothers than they did on their wire mothers. As the monkeys grew older, they tended to spend an increasing amount of time clinging to and cuddling her pliant terry-cloth surface. Those that secured their nourishment from the wire mother showed no tendency to spend more time on her than feeding required, contradicting the idea that affection is a response that is learned or derived in association with the reduction of hunger or thirst. These results indicate the importance of bodily contact and the immediate comfort it supplies in forming the infant's attachment for its mother; the cloth-covered mother surrogate is an eminently satisfactory mother.

The time that the infant monkeys spent cuddling on their surrogate mothers was a strong but perhaps not conclusive index of emotional attachment. Would they also seek the inanimate mother for comfort and security when they were subjected to emotional stress? With this question in mind the monkey infants were exposed to the stress of fear by presenting them with strange objects, for example a mechanical teddy bear which moved forward, beating a drum. Whether the infants had nursed from the wire or the cloth mother, they overwhelmingly sought succour from the cloth one; this differential in behaviour was enhanced with the passage of time and the acquisition of experience. All tests show that the infant monkey's relationship to its surrogate mother

is a full one. Comparison with the behaviour of infant monkeys raised by their real mothers confirms this view.

While bodily contact clearly plays the prime part in developing infantile affection, other types of stimulation presumably supplement its effects. A search has been made for these factors. Western culture parents appreciate that rocking a baby or walking with him somehow promotes his psychological and physiological well-being. The responsiveness of infant monkeys to two cloth mothers, one stationary and one rocking, was now compared. All preferred the rocking mother, though the degree of preference varied considerably from day to day and from monkey to monkey. Motion does appear to enhance affection, albeit far less significantly than simple contact. The act of clinging, in itself, also seems to have a role in promoting psychological and physiological well-being.

Still other elements in the relationship remain to be investigated systematically. The warmth of the mother's body would appear to play its part in strengthening the infant's ties to the mother. Observations have not yet confirmed this hypothesis. Heating a cloth mother does not seem to increase the attractiveness of the mother to the infant monkey and infants readily abandon a heating pad for an unheated mother surrogate. Visual stimulation may forge an additional link. It is also possible that particular sounds and even odours may play some part in the normal development of response or attention.

The depth and persistence of attachment to the mother depend not only on the kind of stimuli that the young animal receives but also on when it receives them. Experiments with ducks show that imprinting is most effective during a critical period soon after hatching; beyond a certain age it cannot take place at all. From preliminary experiments with monkeys it has been found that their affectional responses develop, or fail to develop, according to a similar pattern.

NORTH-SOUTH ANISOTROPY AND ANTICIPATORY INCREASE OF INTENSITY ASSOCIATED WITH THE COSMIC- RAY STORM OF FEBRUARY 11, 1958

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THE time variations of cosmic rays have been measured during the International Geophysical Year with standard instruments at a large number of places on the Earth, and several studies have been made of the energy dependence of the primary variations and the anisotropy which is often associated with primary variations of intensity. From an examination of Forbush-type decreases, Fenton, Fenton and Rose¹ have come to the conclusion that the cause of the transient intensity decreases is variable in its energy dependence from a few BeV. to more than 30 BeV. The variation in response to

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transient decreases observed with similar equipment at different stations suggests that a primary anisotropy is present at these times. Lockwood² has examined the detailed structure of several Forbush-type decreases in the intensity of local neutrons during 1955-58. He finds that in most of the decreases there was a magnetic storm at the onset. Flare activity during the preceding 30 hr. was high and there was some indication of an intensity maximum during the 12-hr. period preceding the start of the decrease. He comments that such an anticipatory effect might be due to the albedo of the moving magnetic gas cloud, but that further results are