

We have not done much more than establish his hypothesis a little more firmly.

The explanation of the higher level of haemoglobin found in multiparae may be that although primiparae and multiparae undergo similar weight changes in pregnancy (Stander and Pastore 1940) the primiparae possibly tend to return more slowly towards their original weight; their blood may therefore be a little more dilute on the seventh day. No satisfactory reason can be offered to account for the difference in the mother's haemoglobin according to the sex of the child. It is not related to the different weights of male and female children at birth, because the weight seems to be without influence on the mother's haemoglobin. It may possibly bear some relation to different amounts of circulating sexual hormones which have some effect on water balance, but this is conjecture which cannot at the moment be supported.

Summary

The results of the analyses of about 1,500 haemoglobin estimations made on women seven days after delivery in Wuppertal, Germany, in 1946, indicated that there was no correlation between the haemoglobin level and the yield of breast milk on the fifth day after delivery; that post-partum haemorrhage did not affect the yield of milk on the fifth day; that the haemoglobin level bore no relation to the size of the child at birth; that multiparous mothers and those with female children had a slightly higher haemoglobin level than primiparous mothers and those with male children; and that the haemoglobin level did not vary with the age of the mother.

My warmest thanks are due to Professor Anselmino, Director of the Landesfrauenklinik, for the co-operation which enabled me to carry out this investigation. The collection of the data was largely the work of one of his assistants, Dr. R. A. von Finck.

REFERENCES

- Cazeaux, P. (1845). *Traité de l'Art des Accouchements*, 2nd ed. Paris.
- (1850). *Ibid.*, 3rd ed., Paris.
- Committee on Haemoglobin Surveys (1945). *Spec. Rep. Ser. med. Res. Coun., Lond.*, No. 252.
- Dean, R. F. A. (1950). *Spec. Rep. Ser. med. Res. Coun., Lond.*. In the press.
- Denis, P. S. (1830). *Recherches expérimentales sur le Sang humaine considéré à l'Etat sain*. Paris.
- Hamilton, W. J., Boyd, J. D., and Mossman, H. W. (1945). *Human Embryology*. Cambridge.
- König, H. (1939). *Münch. med. Wschr.*, **86**, 497.
- McLennan, C. E., and Thouin, L. G. (1948). *Amer. J. Obstet. Gynec.*, **55**, 189.
- Mull, J. W., and Bill, A. H. (1941). *J. Lab. clin. Med.*, **26**, 1487.
- (1945). *Ibid.*, **30**, 458.
- Nasse, H. (1836). *Das Blut*. Bonn.
- Reid, W. J. S., and Mackintosh, J. M. (1937a). *Lancet*, **2**, 1389.
- (1937b). *Ibid.*, **1**, 43.
- Robinson, M. (1947). *British Medical Journal*, **2**, 126.
- Roscoe, M. H., and Donaldson, G. M. M. (1946). *J. Obstet. Gynaec. Brit. Emp.*, **53**, 430.
- Scott, J. M., and Govan, A. D. T. (1949). *British Medical Journal*, **2**, 1083.
- Stander, H. J., and Pastore, J. B. (1940). *Amer. J. Obstet. Gynec.*, **39**, 928.
- Venn, J. A. J., McCance, R. A., and Widdowson, E. M. (1947). *J. comp. Path.*, **57**, 314.
- Widdowson, E. M. (1939). *Lancet*, **2**, 640.
- Willcocks, F. (1881). *Ibid.*, **2**, 944.

RESEARCH INTO THE ORIGINS OF DELINQUENT BEHAVIOUR*

BY

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Research into the origins of juvenile delinquency, urgent and necessary though it is for its own sake and to the problems to which this paper is directed, is but one of several approaches to the scientific study of co-operation and strife amongst mankind. It may well be that a full understanding of the forces at work in our chosen field will illumine problems of even greater social gravity. However this may be, there can be no doubt that the present prevalence of juvenile delinquency and our impotence to prevent it demand much greater understanding of the forces responsible for it. The purpose of this paper is to explore some of the principles which must be borne in mind in framing research into its origins and to give especial attention to those factors which lie within the child's family life and personality.

Basic Assumptions

Much research into delinquency in the past has been vitiated by three false assumptions: (1) that delinquency is something clear-cut and distinct from other forms of behaviour; (2) that there is no necessity for qualitative distinctions, and that all cases can be dealt with as though they were essentially similar; and (3) that the problem can be studied by concentrating on cases brought into court.

These three assumptions have much in common, and to some extent support each other. As Lewin (1931) has shown, they are characteristic of the pre-scientific phase in the study of a subject and are reminiscent of the days when physicists thought in terms of heat and cold instead of degrees of heat, of lightness and heaviness instead of in terms of mass and gravity.

Perhaps the point can best be illustrated by an analogy from the field of nutrition research. If the same assumptions were to be made, we should believe: (1) that malnutrition was something essentially different and could be clearly separated from good nutrition; (2) that all cases of malnutrition are essentially similar and that there is no need to distinguish one kind from another; and (3) that the problem can be studied satisfactorily by concentrating on cases brought into hospital.

All three are clearly absurd. If the assumptions which actually underlie nutrition research are adopted in the study of delinquency we should accept the following:

1. That the extent to which any of us conform with the social and criminal codes is a matter of degree. There are no blacks or whites, only shades of grey.

2. That those who violate social and criminal codes do so for very many reasons, and that before studying our cases we must do our best to group them into different sorts. Such a sorting must not be done in terms of the individual's offences. The relevant criteria for sorting are twofold: (a) those relating to the individual's personal make-up and his capacity for making relationships to his fellow-men, and (b) those relating to the social structure of the community and its capacity for making relationships with him.

3. That we must not confine our attention to those brought before the courts, but must investigate all cases of uncooperative and antisocial behaviour wherever found.

*Based on a paper read to a conference on the Scientific Study of Juvenile Delinquency at the Royal Institution on October 1, 1949.

The Report for 1948 of the Pest Infestation Research Board of the Department of Scientific and Industrial Research has recently been published (H.M.S.O., 1949, 1s.). It describes work on grain storage and on some major insect and mite pests, particularly the flour mite. There is an account of the work done on insecticides, with special reference to the transfer of D.D.T. from impregnated sacking to foodstuffs. Insecticidal smokes have been studied, and further work has been done on the control of blowflies in slaughter-houses and on the use of methyl bromide in silo bins. Some preliminary investigations have been undertaken on apparatus and methods which will be employed for isotopic tracer studies.

Before proceeding further it is necessary to comment on the planning of research. Research is of two kinds, the unplanned and the planned. Though many of the most fruitful hypotheses are born to individuals working without a set plan, hypotheses can rarely be tested for validity in such conditions. The purpose of planned research is to put promising hypotheses to the test, and, since these are not lacking in our chosen field, research proposals which do not clearly state the hypotheses to be tested cannot be taken seriously, for projects so based are likely to be stillborn.

Note on Social Factors

It will be realized that these assumptions carry with them far-reaching implications. In the first place, if we deny the scientific validity of "being charged in court" as a criterion of delinquent behaviour and extend our inquiry to "all cases of uncooperative and antisocial behaviour wherever found," we not only extend our sphere of inquiry but may call in question the behaviour of citizens who, because they obey the written law, have hitherto been regarded as "good." For instance, with juveniles we have to consider whether the behaviour of parents and teachers who use severe disciplinary measures is to be regarded as co-operative or antisocial. Such inquiries may not be to society's liking, but concentration on the so-called criminal to the exclusion of the people with whom he lives is to study only half the problem. It takes two to make a delinquent as it does to make a quarrel.

Studies of the attitudes of dominant social groups and individuals towards the less successful members of the community, or of the effects of different social structures on delinquency rates, have been conspicuous by their absence. Yet both common experience and exact social research suggest that inquiries of this kind are essential. For instance, it is well known in the armed Services that crime rates are a function of the unit's morale, and that this morale in turn is in no small measure a function of the personalities and attitudes of the officers, in particular the commanding officer. To understand crime in a unit it is clearly necessary to investigate the morale of the unit and the personality of its officers as well as the personalities and attitudes of offenders.

The importance of such studies has been emphasized by the classical experiments of Lippitt and White (1947) on the effects of the "climate" of social groups. These demonstrated the way in which the behaviour of 11-year-old boys varied according to the attitudes of their group leaders. The same boys who under a "democratic" leader had been hard working and co-operative became quarrelsome and bullying, either towards other groups or towards each other, when their leader treated them in a dictatorial way.

Enough has been said to show not only that social research into delinquency is a large and complicated field of its own but that it is in serious need of reformulation to take account of factors hitherto neglected.

The Problem of "Susceptibility"

In discussing the importance of influences such as bad companionship, cinemas, pin-table saloons, lack of playing-fields, and so on, Reckless (1943) has emphasized the fact that, despite exposure to these allegedly bad influences, the great majority of children remain well behaved. Why is it that some succumb? "At several critical points in the study of situational factors the question persistently arises as to the differential responses of persons. What is the difference between those who are and those who are

not affected? What sorts of individuals are they who succumb and what sorts are they who remain immune?"

Carr-Saunders *et al.* (1942) pose the same problem, using the term "susceptibility" as an equivalent for Reckless's "differential response." "We shall not begin to know what to do with regard to susceptible types," they write, "until progress has been made in this [psychological] field, and unless we have well-founded lines of action in regard to susceptibility we cannot make any attempt to cope with one half of the problem." That it is in truth one half of the problem is indicated by the little-known fact that, of the men and women whom we commit to prison, one-half have been there before and one-quarter are going for at least their sixth time (Report of the Departmental Committee on Persistent Offenders, 1932). Even at the age of 16, one-third of those charged in the courts have been charged before (Carr-Saunders *et al.*, 1942), whilst the Borstal failure rate is about 40% (Hansard, February 24, 1947). Thus one-half of the problem is that of a "susceptible-stage" army. Whether or not an individual enlists in this army is clearly a psychological problem—Why is it that some individuals grow up to be more susceptible to antisocial influences than do others?

On the basis of a large amount of clinical work certain working hypotheses regarding "susceptibility" have been framed and underlie most child-guidance work in Britain to-day. It is these hypotheses which should be subjected to rigorous testing. If they prove true, an answer will have been found to one of our central problems, and once they are accepted as a basis for action far-reaching changes in our preventive and penal machinery will be called for. If on the contrary they prove false, much mistakenly directed effort will be saved and time and energy put to better use.

Hypotheses Regarding "Susceptibility"

Research in child development on both sides of the Atlantic suggests that the extent to which an individual makes trusting, affectionate, and co-operative relations with others and the extent to which he develops an effective conscience depend to a high degree on the relationship which he had with his parents, especially his mother, in his early years. This is a many-sided relationship, comprising within it nourishment and care, training and discipline, and companionship in the joys and sorrows of life. Though the shape it takes depends on many external factors—poverty or wealth, housing, health, employment, war, number of children—every study has shown that such factors are subsidiary to the all-pervasive influence of the personalities of the parents. The relationships within a home cannot be understood unless we concern ourselves with such seeming imponderables as love and hate, jealousy, nagging, fairness and favouritism, generosity and charity, loyalty, dishonesty, and self-sacrifice. It is these "springs of action of the human heart" which go to make or mar the family and to shape the characters of the children growing within it.

That the problem of the origin of delinquency is bound up with human feeling and family atmosphere has been emphasized in many of the studies of the past 25 years. In his estimate of the significance of environmental conditions Burt (1925) enumerates defective discipline, vicious homes, and defective family relations as of first importance, and conditions outside the home and poverty as of less importance. Aichorn (1935), describing 12 exceptionally aggressive and delinquent boys, writes: "In every case there was a severe conflict between the two parents

or with the child, so that the child was found to take sides with either the father or the mother or against both. All these children had been brought up without affection and had suffered unreasonable severity and brutality." Healy and Bronner (1936) conclude: "No one finding was so discriminatory between the pairs [of delinquent and non-delinquent sibs] as the fact that at least 91% of the delinquents gave clear evidence of being or having been extremely disturbed because of emotion-provoking relationships with others, mainly with others in the family. We could detect the presence of similar inner stresses in not more than 13% of the controls, and even then to a much lesser degree."

Bowlby (1940, 1944), in comparing a group of 44 juvenile thieves with a control group of other maladjusted children, demonstrated both clinically and statistically that prolonged mother-child separation in the first five years of life bears a specific aetiological relationship to persistent stealing. This finding has been confirmed by Bender (1947), who bases her conclusions on some hundreds of cases of psychopathic behaviour disorders in children. "This group of children presents a clinical picture which forms a syndrome in that the causative factors in the early life of the individual are known, the developmental course may be anticipated, the behaviour pattern is typical and closely resembles the classical description of the so-called constitutional psychopathic personality. . . . The cause of the condition is emotional deprivation in the infantile period due to lack or a serious break in the parent-child relationship. . . . The defect is in the ability to form relationships, to identify themselves with others."

Finally, Stott (1950), who, under the auspices of the Carnegie United Kingdom Trust, has recently been studying a consecutive group of approved-school boys aged from 15 to 18, concludes: "It was discovered in every case that the boy had been conditioned to an anxiety over his parents or to an enhanced emotional dependence upon them by one or more influences operating during his earlier childhood," and instances as being especially prevalent: illnesses in early life, more or less prolonged early separation from the mother, and the irritable character of the mother herself. That Stott, who admits he began his work critical of such conclusions, should have found such factors in every case of a random group of approved-school boys is highly significant. His report, which gives detailed evidence about all his cases, will be published shortly and is likely to become a standard work.

Two Common Factors

Indeed, the evidence that the quality of the young child's human experiences within the family affect his later social behaviour is now too strong to be ignored and demands systematic study. In undertaking this, it is useful to consider as a basic function of the human being his capacity to make affectionate and lasting friendships with others. This function, like vision or digestion, can either develop favourably or be subject to varying types and degrees of disorder. Taking it as our focus, we can proceed to the systematic study of the effects upon its development of different experiences in early childhood. Work to date suggests that, within the main body of hypotheses regarding the child's social development, two factors can be picked out which are especially common in the history of persistent delinquents and differentiate them from children suffering from other forms of maladjustment. These are:

1. Prolonged separation of the child from his mother, or established foster-mother, during his first five years. Such separations are of not less than six months, during which the

child is with complete strangers—for example, in hospital, an institution, with unknown relatives, etc. Changes from one mother-figure to another during these years may have the same result. The evidence presented independently by Bowlby (1944) and Bender (1947) supports this hypothesis, and suggests that this one factor alone accounts for a high proportion, perhaps half, of the most intractable cases.

2. A child's being more or less unwanted by parents who are themselves unstable and unhappy people and whose attitudes towards him are, on balance, hostile, critical, and punishing. This hypothesis arises particularly from the work of Healy and Bronner (1936) and of Stott (1950), though it emerges from several other studies—for instance, those of Aichorn (1935) and Bowlby (1944). These unfavourable parental attitudes themselves need explanation. The evidence available shows that they spring from the parents' own unhappy childhood, which has made them prone to a resentful and hostile attitude towards people. Though they recall their unhappy relations with their parents, they are often quite unconscious of the way it is affecting their treatment of their own children. The abuse and criticism so often meted out to these parents is unprofitable and frequently worsens their attitude. Instead they need skilled and understanding help.

Not only is it believed that these two factors would be found in highly significant degree amongst the "susceptible" but on the basis of clinical experience it can be predicted that the children who have suffered these two sorts of experience will as a rule be readily distinguishable from each other, both in their general social relations and in their delinquencies.

It must of course be emphasized that these two classes of delinquent, each with its own aetiology, are not to be thought of as exhausting all types of "susceptible" personality. Apart from mixtures between the two, other classes almost certainly exist, including those of hysterical or depressive make-up whose condition follows a traumatic bereavement in childhood. The two classes described, however, are believed together to account for a majority of the more intractable cases, including the "constitutional psychopaths" and the "moral defectives."

Hypotheses regarding the effects of particular sorts of family experiences on social development can be stated with much greater precision and in far greater detail. It is to be noted that they in no way contradict theories postulating the influence of hereditary factors, except in so far as these are held in the extreme form that hereditary factors alone account for all differences in human behaviour. All that this body of hypotheses claims is that the child's early social environment is relevant in a highly significant degree to an understanding of later social behaviour. Most of those subscribing to this view believe that in the final analysis hereditary factors will also be shown to play a part.

Considerations Regarding Research Procedure

It would be inappropriate in a paper of this kind to attempt the description of particular projects for child-study. There are very many ways in which these hypotheses could be put to the test; our difficulties arise when we come to select out of the many just the one or two which, with the minimum of effort, will give the maximum of relevant information. The planning of the right project is itself a technical and time-consuming task requiring both theoretical exploration and reconnaissance in the field.

There are certain considerations, however, which apply to any project in this subject, research in which is far from easy. If we are to make a realistic assessment of the child's early social experiences we must take account of very many significant factors and go into them in great

detail. Blanket generalizations regarding "family atmosphere" or "broken homes" are useless. Nothing but a thorough and detailed analysis of the young child's "social diet" is adequate in studies of the origin of co-operative and antisocial attitudes. There are, however, very great difficulties in obtaining reliable data on these factors. Some of these difficulties are inherent in any research which seeks to study the connexions between events occurring many years distant in time from one another. The day will no doubt come when we have reliable and agreed tests for assessing a person's "susceptibility" without resort to the cumbersome and crude method of watching his behaviour over many years of social living—tests which will perform the same function in our field as the Mantoux and the Schick perform in the field of infectious illness.

Meanwhile, if we are to validate our hypotheses, we have no option but to accept as criteria for "susceptibility" the individual's social behaviour and to seek to establish a connexion between that and events which have occurred many years earlier in his life. To achieve this there are two possible procedures—either to follow a group of infants over ten or fifteen years, obtaining first-hand information about their experiences as we go, or else to strive to unearth the past histories of children or adolescents. The first, the current method, has the serious disadvantage that the research has to be carried on over ten or fifteen years before any results are available. The second, the retrospective method, is dependent for half its data being furnished many years later by untrained and by no means disinterested observers—the children's parents.

In the long run the current method has many advantages, and several projects of this kind are being undertaken in the United States. The retrospective method, however, can still be of great value provided it is used with more understanding and insight than has often been the case in the past. For obvious reasons the longer the interval the less reliable the data and the more time required to unearth it. Experience suggests that reliable information is usually obtained within a reasonable time in children under 7, but that for every year after 7 the difficulties rapidly increase. Given much time and skill these difficulties can sometimes be overcome, but it is very doubtful whether children of over 10 are suitable subjects for a really intensive retrospective study.

The Therapeutic Approach

Not only must we contend with the absence of witnesses and the forgetfulness of parents: suppressions and distortions of the truth, either conscious or unconscious, must be regarded as usual and inevitable. Such suppressions and distortions are only human when people feel themselves to blame, and it is obvious that the parents of children who are in trouble will tend to give a sugared picture of their influence on them. Though there is no complete solution to this problem, we know of one mode of approach more likely than any other to elicit the data we need—the therapeutic approach.

If people feel that the research worker is not merely an investigator but is also trying to help them, they will, as their confidence grows, reveal more and more of the truth, however discreditable and painful it may be. It is because mental-health workers have been prepared to help their patients that they have been relatively successful in elucidating problems of personal motivation and family dynamics. "No research without therapy" has become a slogan of the Tavistock Group, and by this is meant not only that it is unfair to human beings to subject them to

an inquiry into the most intimate and perhaps most painful experiences of their lives without in return giving them such help as lies within our power, but that it is not possible to obtain accurate and meaningful research data unless we do so. An illustration may help.

A 6-year-old boy was brought to the clinic on account of bed-wetting, nervousness, and being generally miserable. The mother, who was intelligent and co-operative, was dealt with by a very experienced psychiatric social worker. The initial account of the family situation was that it had been a happy marriage and the baby was wanted. Not for twelve months did the mother acquire the courage to tell the true story of the boy's birth. He had been conceived before marriage, and as a result she had felt forced to marry a man whom she felt quite unsuitable. Had the psychiatric social worker not been experienced, patient, and helpful, the account of this boy's early social experiences would have been pitifully inaccurate and misleading.

The reliability of data is of course a major issue in all research, and in no field is it more difficult to ensure or to test than in the psychiatric. One check which should be used is the employment of two research teams trained together and working on identical lines and on similar samples, but independently. If there are no significant differences in their findings, there is a strong presumption that the findings of each are reliable; if there are significant differences, these can be measured.

Enough has been said to demonstrate that effective and reliable research work in this field can be done only by highly trained workers, familiar with both research and therapeutic techniques, and that the number of cases which can be dealt with by any one worker in the course of a year is necessarily small. This is a pity, but unless we face these realities squarely we shall merely waste our money and efforts on inadequate investigations, leading to ambiguous and erroneous conclusions.

REFERENCES

- Aichorn, A. (1935). *Wayward Youth*. New York.
 Bender, L. (1947). In *Handbook of Correctional Psychology*, edited by R. M. Lindner and R. V. Seliger, pp. 360-77. New York.
 Bowlby, J. (1940). *Int. J. Psycho-Anal.*, 21, 154.
 — (1944). *Ibid.*, 25, 19, 107. Republished by Baillière, Tindall and Cox, 1946. London.
 Burt, C. (1925). *The Young Delinquent*. London.
 Carr-Saunders, A. M., Mannheim, H., and Rhodes, E. C. (1942). *Young Offenders*. Cambridge.
 Healy, W., and Bronner, A. F. (1936). *New Light on Delinquency and its Treatment*. New Haven.
 Lewin, K. (1931). *J. genet. Psychol.*, 5, 141. Republished in *A Dynamic Theory of Personality*. New York, 1935.
 Lippitt, R., and White, R. K. (1947). "An Experimental Study of Leadership and Group Life." Chap. in *Readings in Social Psychology*, edited by T. M. Newcomb and E. L. Hartley. New York.
 Reckless, W. C. (1943). *Social Science*. Research Council Bulletin No. 50. New York.
 Report of the Departmental Committee on Persistent Offenders (1932). H.M.S.O.
 Stott, D. A. (1950). *Delinquency and Human Nature*. (To be published by the Carnegie U.K. Trust.)

A study of the National Health Service, particularly its operation in the field of preventive medicine, forms part of the programme arranged by the British Council for Dr. Benjamin Viel, Professor of Hygiene and Preventive Medicine in the University of Chile, Santiago, who is spending two months in the United Kingdom under the council's auspices. Dr. Viel, who is 36, studied under a Rockefeller Fellowship at Harvard and Johns Hopkins Universities, qualifying as Master and Doctor in Public Health. He was appointed Professor of Epidemiology in the University of Chile in 1944 and two years later took up his present position. He has represented Chile at the Pan-American Public Health Congresses in Washington and Rio de Janeiro, and was awarded the "Corvalan Melgarejo" prize for the best work presented to the Sociedad Medica of Santiago in 1943.