Psychology and Social Problems*

By DR. SHEPHERD DAWSON

SOCIAL problems are partly material and partly mental. Every society consists of interdependent personalities whose harmonious co-operation is necessary for the general well-being, and the really serious problems of life concern this co-operation. Very great progress has been made in the solution of the material problems; but much less attention has been given to the study of the mental aspects of social welfare. Nevertheless, for a proper understanding of the numerous problems that arise from life in a community, such as those of supply and demand, labour and capital, law and order, hygiene, housing, transport, education, the conflict of traditions and ideals, and local and international rivalries, the study of mind is just as important as is that of matter. The solutions to these problems are to be found ultimately in the forces that move men to action, in their inherited tendencies, in their acquired habits, in the mentality of the groups to which they belong, and in their relationships to those groups.

Social problems can be approached either from the point of view of the individual or from that of the group to which he belongs. Neither approach can be consistently maintained to the exclusion of the other, for the problems of the individual are the problems of society and vice versa: a man is not independent of his fellows; his social environment is part of himself; his thoughts, feelings and desires vary with his environment; he is socially a chameleon, and any account of him which fails to consider his environment is as distorted as is an account of society itself which fails to consider the variety of aptitudes, motives, knowledge, manners and customs of its members. A social group is a complex structure which contains within itself other groups and sub-groups, professional, economic, linguistic, etc., whose harmonious co-operation is necessary for the welfare of the whole. The big social problem is the dual one of fitting the individual into the group and fitting the group to the individual. This is essentially an educational problem, one for education in the widest sense of the word; it concerns the home, the school, the university, the Press, and broadcasting and other publicity agencies. Its solution demands some knowledge of the natural endowment of the individual, his impulses and intellectual capacities, and of methods of making the most of them; and this in its turn implies the need for, and the use of, methods of assessing human endowment and achievement.

I wish to consider especially the scientific assessment of natural capacity and some of the problems connected with it; therefore, it is necessary to keep clearly in mind the distinction between ability and capacity. Ability is actual, capacity is potential. Ability is measured by what can be done here and now; capacity can usually be estimated by what can be done after a course of training. Knowledge and skill at games are forms of ability; they depend on certain natural capacities and on upbringing. All examinations are tests of ability.

The measurement of ability is difficult enough, but the estimation of the parts played by native capacity and upbringing respectively in determining such ability is very much more so. Innate qualities do not exist *in vacuo*: they exist with reference to certain external conditions and they must be diagnosed and measured in relation to these conditions. Every test is directly a test of ability, and can be a test of capacity only indirectly. Where training has no effect on the expression of a capacity, then a test of ability is a test of capacity; but few, if any, capacities are unaffected by training. If opportunities and incentives are so widely scattered that they are available for everybody, or if similar training has been given to all, then differences in performance indicate differences in capacity; but where the essential training and environmental conditions vary, inferences regarding capacity can be made with much less certainty. It is difficult to convince oneself regarding the uniformity of external conditions: for example, it is sometimes supposed that mental differences between children of the same parents are due solely to genetic differences, but some of them are certainly due to variations in the family environment: the health and age of the mother are not the same at the birth of each child (unless they be twins); families move from easy to difficult circumstances and vice versa; parents become more experienced, or more indulgent, in the management of their children; school-fellows vary; and the children themselves vary in their relationships to one another and to the rest of the world. The conditions of the experimental chemical laboratory cannot be exactly reproduced in the study of human and social phenomena; we have to be content with approximations to these conditions.

It is necessary to stress these considerations of method, for psychologists have hitherto been more concerned to distinguish and measure different kinds of ability which *seem* to be dependent on

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native capacity than to prove their innate basis. An example may make this clear. It is a common belief that people differ in respect of mechanical ability, that some have little difficulty in understanding the working of a motor-car, a dynamo, a clock or other piece of mechanism, and that others find these things unintelligible; it is also commonly believed that these differences are due to differences in natural capacity. Now, the first thing that must be done is to find whether there is actually a positive correlation between ability to solve one kind of mechanical problem and ability to solve other kinds, for until such a correlation has been established, it is futile to talk about mechanical ability. This is the kind of problem on which much effort has been spent, especially in Great Britain: but after a correlation has been established, it is still necessary to find to what extent this ability is the expression of a specific inborn capacity. This more difficult problem is usually attacked by using test situations so novel that there is little probability of one examinee having any advantage over another through familiarity with the situation, or by using problems such as occur so often that it can be presumed that inability to solve them is due ultimately to innate incapacity. In practice, the difficulty, once it has been recognised, is probably not so great as may appear, for the opportunities of, and the need for, exercising most of one's native capacities are in fact numerous; a person who fails to pass a properly designed and properly conducted test of colour-blindness is almost certainly colour-blind.

All kinds of capacities are being investigated with varying success, and it may be possible some day to evaluate mental characters with some approximation to the accuracy with which physical characters can be assessed. Most progress has been made in the evaluation of intellect by the so-called intelligence tests, largely under the pressure of educational needs.

Repeated application of mental tests to the same children suggests that mental development, as measured by the tests, proceeds along lines analogous to those of physical development and that it reaches its maturity about the age of adolescence, as do stature and other physical characters. The *rate* of development is expressed by the ratio of the level reached by the individual to that reached by the average of his age—for example, a boy of age ten years who has reached only the level of the average nine-year-old is said to have an intelligence ratio (mental ratio or intelligence quotient) of nine tenths or 90 per cent. This figure seems to measure some innate capacity or capacities, for, though it varies from one person to another, yet it remains fairly con-

stant for each individual, and appears to be little affected by external circumstances. Even serious and long-continued spells of illness appear to affect it very little: it is only ailments producing progressive deterioration of the central nervous system, especially of the brain, such as encephalitis lethargica and some forms of epilepsy, that reduce it. Absence from school may interfere with a child's education and so promote social inefficiency without affecting his intelligence ratio.

Changes in social and physical environment have very little effect in modifying this ratio unless they be very great. Residence in an institution does not appear to make the ratios more alike than they were on admission, and children who have never seen their parents, but have been reared in the same homes, show the same differences of intellect as do their parents. It is very hard to find the necessary data to decide this question of the effect of environment. In Glasgow about 300 children were tested at the time of their removal from slum houses to a rehousing area, and again about eighteen months later. It had been intended to allow an interval of two or three years to elapse between the examinations, but so many of the children—about 20 per cent—left their new homes, that the interval had to be shortened. The ages of the children varied from five to nine years, an age at which they might be expected to react quickly to the new and improved environment. At the second test they did on the whole show a just appreciable improvement—their average ratio was raised from 90.6 to 92.1. A control group that did not move from their slum homes showed no such improvement. The result of this investigation is cheering for those who are trying to improve the external amenities of life; but the improvement is so small that it suggests that any improvement in the social virtues that is to attend the initiation of social welfare schemes may have to rely on the formation of new habits of thought, feeling and action, habits that will have to be learned, rather than on any improvement in intelligence.

Here, in the interest of scientific accuracy, a word of caution is necessary. While the constancy of the intelligence ratio raises a presumption that this ratio is determined by genetic constitution, it may, however, to some extent be partly determined by other conditions, ante-natal, natal or post-natal: birth accidents are certainly responsible for some cases of dullness and defect. There are, however, several considerations which suggest that in most cases the ratio does measure something that is innate.

As might have been expected, the average intelligence of the children of men engaged in professional and skilled occupations is higher than

that of the children of unskilled workers; but more interesting and more significant for social problems is the fact that the variability within the different occupations is so great that there is much overlapping; in other words, high-grade intellect is not the exclusive property of any social class or professional grade.

Perhaps more important still is the information regarding the distribution of intellect through the whole population. An investigation was conducted in June 1932 by the Scottish Council for Research in Education with the assistance of education officers, teachers and others, in which a group test was given to practically the whole of the school population in Scotland born in the year 1921 and so of age $10\frac{1}{2}$ – $11\frac{1}{2}$ years, 87,498 in all. The result agreed with previous estimates, but the dispersion proved to be greater than had previously been supposed—in other words, there were more who were dull and more who were bright. About half the population examined had mental ratios between 89 and 111 (instead of between 91 and 109, as was previously supposed), and it was estimated that, in the whole population, between $1\frac{1}{2}$ and 3 per cent fell below the 70 line, that is, below the line which is commonly supposed to mark the boundary between mental defect and normality. The average of the boys was the same as that of the girls, but their dispersion was greater, that is, there were amongst them more who were very bright and more who were dull. This distribution has important implications, of which I shall consider only one, and that very briefly—namely, its bearing on the rate at which boys and girls leave school after completing the work of the primary school.

In Scotland about 44 per cent of the children of age twelve embark on a secondary school course; of these 70 per cent begin the second year work, 43 per cent the third, 22 per cent the fourth, 15 per cent the fifth, and 9 per cent the sixth. Of those who pass to the 'Advanced Divisions' only 14 per cent enter on a third-year course. These educational casualties are due to many causes; some fall out for economic reasons, others find—or think they find—a better preparation for the serious business of life elsewhere (and these include some of the brightest), but probably most drop out because school seems to be a testing-ground rather than a training-ground, a means of picking out the brightest. This suggestion finds some support in the fact that it is the duller pupils who drop out first, the very pupils who are most in need of training. It has been estimated that a boy or girl must have an intelligence ratio of 115 or above to profit without undue strain from a secondary school education; this may be an over-estimate, but there can be little doubt that

the average secondary school curriculum is unsuitable for the boys and girls whose ratios fall below the mean, that is, for half the school population. The bulk of the population are of average or nearly average intelligence—about 68 per cent have mental ratios between 84 and 116—and it seems reasonable to ask whether a national system of post-primary education should not give first consideration to these rather than to the 16 per cent at the upper end of the scale who have the intellect and temperament that fit them for professional and administrative work.

It may be suggested that the mental development of the duller elements of the population ceases at the age of twelve or thirteen and that, therefore, they have learned all they can learn by that age, whereas the mental development of their more brilliant fellows continues for several years longer. This suggestion is probably incorrect. We know that intellect develops more slowly in the dull, so that they fall farther and farther behind, but there is some ground for thinking that it reaches its maturity at about the same age. Further, the suggestion that the dull child has learned all he can learn by the age of twelve or thirteen implies a certain confusion of thought. Whatever may be the age at which maturity of intellect is reached, and whatever may be the level of development reached, it is certain that learning does not cease at that age: it can continue until senile decay sets in. The age at which maturity is reached has little or nothing to do with the age at which training must cease.

The 'open school door' is a well-established tradition in Scotland: here the gifted child has ample opportunities of developing his talents; but the practice of pushing all children along the same scholastic course, studded with hurdles which must be jumped, under penalty of being left behind, is one which could be improved upon. As the intelligence ratio seems largely to determine scholastic success, and as it remains approximately constant, at any rate during school life, and can be determined early, it should be possible to organise education on a basis of natural capacity.

The study of mental inheritance has suffered sadly from a readiness to take over the crude concepts of everyday life: it has been concerned mainly with marked abnormalities—mental defect and insanity—and this, too, has hampered the study of the subject, for there is widespread opinion that these deficiencies and ailments are morally reprehensible—an opinion which is rarely expressed openly, but is enshrined in everyday speech and conduct.

One serious difficulty in the study of mental inheritance has been that of defining and measuring

accurately the characters under investigation : for example, mental defect can be, and is, defined in several ways, legally, clinically, psychologically, etc. In the legal sense it is a social concept, for according to the law the feeble-minded are "persons in whose case there exists from birth or from an early age mental defectiveness so pronounced that they require care, supervision, and control for their own protection or for the protection of others ; or, in the case of children, that they, by reason of such defectiveness, appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools". However satisfactory this may be as a legal definition, it is useless both biologically and psychologically, for in the absence of any definition of mental defectiveness or arrested mental development, it means just inability to look after oneself and one's affairs without proper supervision. If social environment becomes more complex and makes higher and higher demands on natural capacity, then, unless that capacity improves, the proportion of feeble-minded must increase. Some think that feeble-mindedness is increasing, and that this is due to differential birth-rate, but it is equally possible that the cause lies in the increasing complexity of

civilised life : intellects that could live happily in a simpler environment may be finding the complexities of modern civilisation too much for them : there can be little doubt that to-day bigger demands are being made on children in the 'ordinary schools' than were made on them fifty years ago.

The clinical varieties of mental deficiency which medical men meet—mongolism, cretinism, microcephaly, hydrocephaly, etc.—are distinguished by anatomical rather than by either social or psychological characters. Psychologically, mental deficiency is usually defined in relation to performance at intelligence tests : the legal mental defective usually has an intelligence ratio below seventy, so this figure is often taken as marking the line that separates the mental defective from the normal. This is an arbitrary method of defining mental deficiency ; it has the merit of precision, but it is a precision which may be misleading when we begin to investigate its genetic basis, for it is possible that feeble-mindedness may be due to one or more of a large number of genetic factors ; there may be different forms of feeble-mindedness which are not distinguishable by means of intelligence ratios.

From Log Cabin to Royal Observatory

By PROF. ALLAN FERGUSON

THE British Association has seen many excursions and occasions, but few can compare, in real romantic interest, with the excursion which set out from the Marischal College in Aberdeen on Monday, September 10, to attend the unveiling of the Lamont memorial above Braemar. Most of us had a vague notion, based mainly on the 'A' appearing on our excursion ticket, that Lamont had some connexion with physical science, possibly with astronomy. A few said, "Why Braemar ? Wasn't Lamont a German ?" ; and, did one seek information concerning Lamont's life and labours from an eminent astronomer, invariably he

"Dallied with his golden chain,
And, smiling, put the question by."

The setting was perfect. The road through Braemar climbs along a precipitous hillside and looks down on the Dee falling ever farther and farther below. Four or five miles past the spot where, as tradition tells, the Standard on the Braes o' Mar was up and streaming rarely on a September day in 1715, is the clachan of Corriemulzie where Lamont was born on December 13, 1805, and a couple of miles farther on is the village

of Inverey where he had his schooling. Here, on a natural platform a few yards above the road, stands a severe obelisk of grey granite bearing, below a cross of St. Andrew carved on its face, the inscription

THIS STONE
COMMEMORATES
JOHN LAMONT
1805-1879
WHO WAS BORN AT
CORRIEMULZIE.
HIS NAME IS WRITTEN
IN THE HISTORY OF SCIENCE
AS
JOHANN VON LAMONT
ASTRONOMER ROYAL OF BAVARIA.

On the back of the stone, below a representation of the constellation of Orion, is the text, "Day unto day uttereth speech, and night unto night showeth knowledge", which text is repeated on the west and on the east sides in Gaelic and in German.

The memorial was as yet hidden under a canvas covering, and at four o'clock Prince and Princess Arthur of Connaught arrived and were escorted to the memorial, the pipes playing the Lamont march. The president of the British Association,