

SOME CHANGES IN SOCIAL LIFE IN A COMMUNITY WITH A FALLING INTELLIGENCE QUOTIENT

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I. ORIGIN OF THE PROBLEM

FROM a recently completed survey (5, 7) of reproduction rates obtaining at various levels of intelligence in the population of Great Britain, I have drawn the conclusion that, at the present moment, the average level of native mental capacity is falling at the rate of approximately one point of I.Q. per decade.

This conclusion depends upon two premises: (1) that throughout the whole intelligence range the average size of family for each intelligence class is inversely related to the intelligence level, and (2) that, although the gene complex determining individual intelligence is far from being understood, the facts of psychological measurement indicate that, even for quite small groups, intelligence of children may be predicted from intelligence of parents, as if mental capacity were a product of heredity.

Though the observation that mental capacity is largely inborn has long been accepted by the majority of psychologists, it has not always been so favourably received by workers in sister sciences. The truth of the observation need not be discussed afresh here, since the evidence up to date has been comprehensively summarized elsewhere(6), but it is relevant to point out that even the most generous allowance for environment which those wishing to stress environment have dared to claim, would fail to account for more than a small fraction of the variability of intelligence quotient existing in our population.

Calculations of the differential birth-rate based on surveys in rural or urban areas remote in space or culture from those investigated in this first enquiry, or separated by an interval of time sufficient to permit of changes in birth-control practice, may cause us to modify the above figure for rate of decline. Consequently the present study will not depend upon the assumption that the figures are accurate. Indeed it will not depend for its *raison d'être* on the assumption that any decline at all has been proved, but will take its justification from the fact that the relation of community mental capacity to social and cultural habits has been grievously neglected in both discussion and investigation, in spite of its great theoretical and practical interest.

Should the above survey be confirmed in its findings, this hypothetical treatment of the relation of culture to the biological quality of the units constituting the group would become relevant to practical politics, for the methods of combating the decline must depend upon a sound analysis of cause and effect among the conditions accompanying it.

II. LIMITS OF THE DISCUSSION

Social consequences might conceivably follow either from changes in the absolute level of intelligence, the distribution form remaining constant, or from changes in distribution, e.g. standard deviation, the average level remaining unchanged.

Both kinds of change appear to be taking place, for a bulge in the distribution curve at the 70-90 i.q. level would increase standard deviation if, as seems likely, the upper intelligence levels are passing out of the phase of greatest family restriction; but in a first attack on the problem it seems best to limit the discussion largely to the downward shift of the distribution curve as a whole.

To argue that certain social changes must of scientific necessity follow the posited changes in biological character is not to expect that they will do so as a matter of historical fact. For intelligence is only one of many independent factors, and the cultural influences among the latter, e.g. the influences of individual leaders, are more rapid and unpredictable in action though, of course, their action is itself modified by the factor we have to consider here. Secondly, the primary social and economic consequences of the intelligence change will interact among themselves, masking, transmuting and producing consequences of a second order. These consequences are too numerous and complex to be discussed in a first study. Moreover it would be premature to attack them until the first set of direct consequences has been approved

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by argument and research. Except in rare instances the discussion will therefore confine itself to the first and direct influences of a falling intelligence level.

III. METHODS OF SOLUTION

To look for the effects entirely, or even mainly, in the cognitive field—in educational, academic and technical industrial efficiency—merely because the variable we are dealing with is a cognitive one, would produce an altogether false solution of the problem.

Clinical experience has convinced the present writer that the researches of, for example, Burt⁽¹⁾, Healy⁽¹⁰⁾ and Terman⁽¹⁶⁾, showing mental capacity to be one of the more important factors determining the individual's character development, tend to understate, by simplifying, the extent to which character education is limited and modified by the individual's mental capacity. If this is true of the individual, it must apply even more powerfully in society, which to a far greater extent creates its own environment. For, apart from the heritage of skills and intellectual furniture handed down from previous cultures and now almost constant the world over, the mental capacities of the members of a group (and whatever other psychological qualities, if any, are fixed by inheritance) are themselves the environment shaping the formation of character and limiting the patterns of emotional adjustment in living individuals and in the coming generation. It is true that this heritage, which may seem disposed of over-lightly in the above sentence, includes the use made of the (constant) physical world and also the economic system, its level of energy supply and its structure. But these, in a community which has long had various alternatives open to its choice, must in the end be selected largely according to the community intelligence level.

The fields in which these effects will be felt and their particular character must, of course, in the end be decided by experimental and statistical methods, like any other problem of social psychology. Suitable experimental situations may not easily be found, for groups of differing intelligence average generally differ also in racial type and cultural history, whilst to pick out groups within the same race and nation does not provide all the conditions required, for such groups would rarely have had any extensive control over their own legal, economic and social customs. Studies of a sufficient number of groups, even if differing racially and in social heritage, should, however, permit some general conclusions to be drawn, just as the gathering of data on a sufficient number of

individuals will enable one to eliminate all individual differences other than that to be studied.

There is no reason why valid answers to some issues should not emerge from experimental study on a relatively small scale of groups of children, equated in age and other respects but differing by a known amount in average I.Q. or standard deviation within the group. Observations could be made on the qualitative differences in their manners of organization, rules, customs and moral standards. Quantitative results could be obtained by comparing their scores in competitive games and community projects; whilst the technique for measuring attitudes, interests and allied questions of energy disposal, would almost certainly yield interesting general laws.

Doubtless the findings would be far more surprising than any to be deduced from armchair analysis. The present writer once had the opportunity of seeing a team of mentally defective youths play at football a team of normals of the same age and weight. The former won rather easily, this result being seemingly due to the fact that, thwarted in mental expression, they had given more time to acquiring physical skills, and also to the more ready renunciation of individual success to which these youths had become accustomed earlier and which gave great solidarity to their team work.

This article, presenting a first approach to the problem, must unfortunately depend largely on deductive reasoning, employing our knowledge of the nature of mental capacity and an analysis of social situations. But there are already, here and there, valuable empirical studies connecting intelligence and behaviour in special fields of social life, and upon these we can draw for the construction of foundations. These fields are the applied sciences of industrial psychology, child guidance, and educational psychology, plus a few specific studies in social psychology. Since the consequences in the educational field are relatively certain and clear cut, and since effects elsewhere to some extent ensue naturally from them, it would be best to consider education first.

IV. NATURE OF CHANGES DEDUCED

(a) *In education*

Probably the most significant improvement of our educational system during the past decade has been the progress of the precise classification of children according to real ability, extending from the special schools, through the C, B and A classes of the elementary schools, to the A classes

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of selective secondary schools. In these distinct streams the children proceed at very different rates for, as Burt has shown, the variability in mental age tends to result, at least in some of the main school subjects, in an even greater variability of attainment age.

But of greater significance to society is the fact that in the 'child-centred' school of to-day the curricula and methods are adapted, not only in levels but in quality and range, to the capacities of the children; for interest is a function of capacity and teaching without interest is futile unless tyranny is invoked. This means that any alteration in the numbers of children born at the various intelligence levels will lead inevitably to changes in the proportions of young citizens having the various kinds of training and curricula. To take an instance from one end of the scale: the 24 % increase predicted in the numbers of feeble-minded will result in a similar increase in the school leavers trained only in crude handwork, barely able to read and unable to carry out elementary calculations. The modern child-centred school only serves to bring out more clearly the truth inherent in all educational systems: that the standards and types of education, when the community is giving the best it can to all children, are at the mercy of birth-rates.

This general change, in which those fitted for advanced and abstract studies dwindle whilst those profiting only by simple, concrete education increase, needs next to be considered quantitatively with regard to the maintenance of scholastic standards in all types of school, with their existing curricula and goals. The fall of intelligence with which we have to deal amounts to six months of mental age in a generation. Such a fall might be offset by greater time given to the main subjects of education, either by economising on the unfortunate 'frills' or by increasing the length of school life.

Although the results of education can closely simulate native wit, the product of substitution will not be quite the same.¹ Proficiency in such subjects as arithmetic and English (notably style and vocabulary) correlates much more closely with 'g' than does proficiency in simple manual and mental skills. Consequently in the former a point is soon reached in the decline of intelligence beyond which insufficient intelligence is compensated for by a quite exorbitant expenditure of time, or not at all. Teachers who complain that an extra year or two of schooling will

¹ As every academic teacher knows, education beyond a student's actual capacity can have a sterilizing effect on the mind and a stultifying effect on personality; but these psychological complications cannot be followed up here. Whilst this article was being written a landlady, describing a visitor to the writer, said, in good faith, "He was an educated man, but not stupid..."

be wasted on a certain proportion of their charges are naturally referring to abstract and conventionally 'cultural' subjects, not to manual skills.

The ultimate consequences in education have not been considered until we look at economic effects. Since the feeble-minded child costs £36 per annum (the residential defective costs far more) against £12 or £13 for the average child, and since at every level the less intelligent pupil costs more (whilst never reaching the same finished level), existing scholastic standards cannot be maintained without deflecting more state expenditure into education. And this sets up a chain of more remote effects through the economic drain upon the other social services.

(b) *In economic life*

Recent studies^(4,7) in this country and several in America have provided us with knowledge of the distribution of intelligence in various occupations. There is a definite and significant grading of average I.Q. according to the complexity of the occupations or to the level of rewards to be expected from the occupation.¹ A good deal of overlap in intelligence exists,² the lowest quartile of the medical doctors, for example, being at the same level as the highest quartile for precision fitters or shop assistants.

At first sight we might suppose that a fall in the average intelligence quotients, with the distribution form remaining constant, would result in a shortage of men with suitable capacity for the more skilled or 'professional' occupations, and an excess of those able to absorb only that minimum of lore necessary for unskilled labour.

This assumes that in most occupations men have already reached the limits of their educability. Such a saturation point in education has perhaps been reached in the professions, where men fail to be better teachers or doctors not through any lack of training but through their own limitations, but it is scarcely true of, for example, the ranks of unskilled labour, in which, as our scatter diagrams show⁽⁴⁾, there is still undoubtedly a fair proportion of men of high capacity not using that capacity.

Because of this last-mentioned fact, the dwindling of the actual supply of natural capacity could easily be met for a generation or more

¹ Substantially the same order is found for the children of fathers in these occupations, but with more overlap between groups, probably owing to the regressive effect of the mothers, a result of incompletely assortative mating.

² It would be a mistake to assume that the scatter of 'total effectiveness' is as great as the scatter of 'g'. Among those successful in teaching, for example, it seems that lower intelligence is systematically associated with better temperamental endowment^(2, 4).

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by a better utilization of available ability. Gray & Moskinsky (9),¹ among others, have shown that in our school population only about half of those with secondary school ability actually go to secondary schools.

On the other hand a more thorough combing of the school population, a more complete extraction of good ability from the unskilled occupations, may lead to costly inefficiency where we least expect to find it. For it is a mistake to assume that the occupation requiring the longest training is necessarily that requiring the highest general ability. A good foreman or charge hand needs a high level of general intelligence for the complex human and material problems which not infrequently crop up. And even in mechanized factory work, as G. H. Miles (13) has recently pointed out, "countless . . . operations have arisen which demand little bodily activity and much specialized mental effort and concentration". It may be more important to avoid incompetent surgeons than incompetent railway foremen, and this combing of the population for good brains is indicated also by social justice; but it is not a solution of the problem of declining intelligence, even temporarily.

Though it is obviously untrue to say that in all occupations men are called upon to behave in ways characteristic of their intelligence at its upper limits, they are, in a great number of acts and decisions, working close to this upper limit. Any fall of intelligence might be expected to involve industry in a disproportionate increase in training to compensate for deficiencies or to avoid difficulties which would not have arisen with the more self-sufficient worker.

When such education is not given, or where it is useless to seek in education compensation for the lack of native wit, the result of a heaping up of individuals at a certain low intelligence level will be unemployment at that level. In all branches of industry, commerce and administration, a certain ratio of the number of highly trained to less trained has been established by the nature of the work to be done. The employment of a certain number of men of lesser ability requires the catalysing and directive influence of men more gifted. A falling off in the numbers of the latter means unemployment for the former.

Looking at the matter more broadly, we may say that any given culture establishes a certain distribution curve of demand for intelligence at various levels, and that harmony must exist between this curve and the curve of supply given by the birth-rates at various intelligences.

¹ These workers obtained 42.9% as going to secondary schools, but their age group was from 9.0 to 12.6 years whereas 11 + is the normal age for transferring to a secondary school.

Originally these curves must have been identical, for a society could not invent or borrow a culture more complex than it could understand. But dislocations might take place through alterations in either of the curves. A widespread earthquake, for instance, or a war, by creating immense demands for relatively unskilled labour, would be inappropriate to the present curve of supply (Fig. 1), but any bulge in the lower part of the

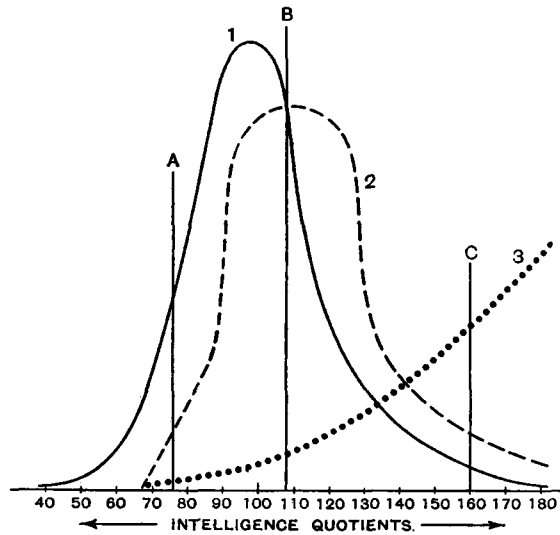


Fig. 1.¹ A. Supply greatly in excess of demand at 75 i.q.—negligible wage. B. Supply and demand equal—normal wage. C. Demand greatly in excess of supply—disproportionate wage. (1) ——— Distribution of actual i.q.'s. (2) - - - - Distribution of demand for i.q.'s. (3) Rate of rewards arising from relation of (1) and (2).

intelligence distribution curve such as is caused by the present change in the curve of birth-rates would adjust to such a curve of demand. In stable, progressive conditions of civilization, on the other hand, such a change in the curve of supply must result in unemployment being greatest at the lower levels of intelligence.

In confirmation of this we may consider Fig. 2, showing the intelligence levels of children of unemployed in the two areas surveyed in the original research. It may be objected that in any period of unemployment it is only natural that the more intelligent will in competition secure jobs; but it is yet to be proven that these are too intelligent for the jobs they take.

¹ I am indebted to the *Eugenics Review* for permission to reproduce the diagrams shown in Figs. 1 and 2.

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Students of population have long seen the errors of the naïve view that unemployment is due to overpopulation; next they have passed to studies of the economics of production and distribution; but it is possible that they will find at the root of the economic problem a psychological problem arising from the social effects of too great a range of innate individual differences in mental effectiveness.

Any attempt to discover the more direct effects upon wealth of changing intelligence levels must rest upon generalities. Recent work has shown a correlation of 0.9 to exist between the earning power of occupations and their mean intelligence demand (7). It has been argued

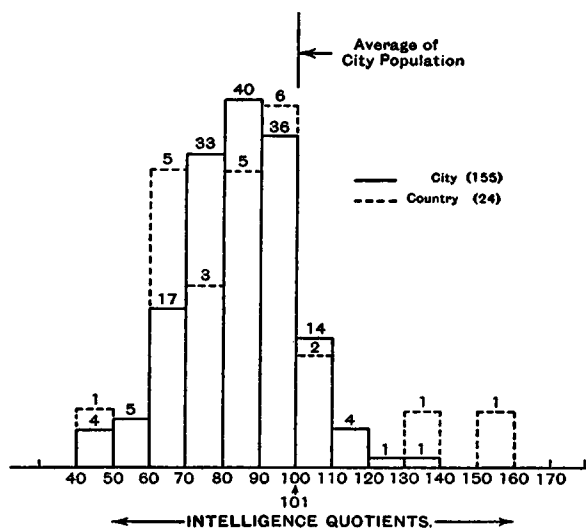


Fig. 2. Intelligence distribution of children of unemployed persons.

by some serious sociologists that the capacity to produce wealth is associated with inheritable mental attributes such as intelligence, but the facts of persistence of wealth in certain families may prove equally well an association of the capacity to seize property from others with inheritable or environmentally produced deficiency of character.

Nevertheless, it cannot be denied that the wealth of a community possessing a given quantity of raw material depends upon the quality and number of its inventive and organizing brains—and if inventive capacity is high enough, almost anything can become raw material. A decline in the numbers of high intelligence quotients must consequently mean a decline in the amount of goods and energy available for distribution in that community.

(c) In moral standards

The experiences of Child Guidance Clinics and the repetition in various parts of the world of the researches of Burt⁽¹⁾ and Healy⁽¹⁰⁾ indicate that delinquent children are on an average of significantly lower intelligence than non-delinquent children from the same social stratum.

Among the probable causes of this connexion seem to be: (i) The duller child does not so easily foresee the consequences of his actions or the likelihood of detection. (ii) Low intelligence is associated with suggestibility to evil counsels. (iii) In a complex environment the less able child is less successful in finding the normal amount of self-expression for psychic energy. He is more frequently frustrated or exploited by others. He is, in general, more hard pressed by economic restriction. In short, he has to handle a greater load of suppression. (iv) Whilst he suffers from this greater curtailment of direct instinctive expression, he is at the same time less able to achieve satisfaction in alternative indirect expression; for adequate intelligence is a condition of satisfaction in sublimations through art, music, science, social service and the activities approved by civilization. (v) Since he is of low intelligence there is a statistical probability that he has been brought up by parents of low intelligence, who have followed inconsistent and short-sighted policies in character education.

The relative importance of each of these processes would be better understood if there were evidence as to whether delinquency is associated with absolute low intelligence, or merely with intelligence which is low relative to the average for the group.

If the latter, then a decrease in average intelligence, the scatter remaining constant, would not result in increased delinquency, for the tendency to delinquency is in proportion to the maladaptation of the lower ranges to the culture standards of the pervasive average. This argument, however, overlooks the fact, long pointed out by such psychologists as McDougall, that the crust of custom and tradition has a persistent life of its own, beyond that of the individuals creating the custom. Though the average of intelligence may fall, therefore, the standards of behaviour, discrimination and sublimation can be expected to persist for a generation or more, with only sporadic patches of decrepitude. It is the discrepancy between the level of this persisting culture and that of the mental capacity of the new generation of living individuals which is crucial to the development of delinquency.

Under delinquency we commonly think solely of delinquency against society, yet there are some forms of behaviour damaging to the individual and society which might be called delinquency against nature, for they arise from a mishandling of human dealings with nature. Such behaviour extends from the small child hurting himself because he refuses to recognize the physical properties of a chair to a society injuring itself through reckless use of an obviously limited supply of natural resources. In child-guidance work it is often very strikingly illustrated that the child whose stupid reactions bring him into excessive conflict with his fellows is also excessively scarred through accidents arising from a stupid handling of natural objects. This delinquency against nature involves the group as well as the individual; for the group suffers from the individual's excess of activity over judgment.

From such considerations it seems reasonable to conclude that delinquency as it is commonly understood—'delinquency against society'—is a function of the difference between the individual's intelligence and that of the average of the society to whose standards he is constrained; whereas delinquency in the wider sense—'delinquency against nature', resulting in any kind of damage to society and the individual—is a function of the absolute level of intelligence.

Owing to that persistence of culture habits described above, however, the fall in average intelligence which we are discussing would, in fact, result in an increase of both types of anti-social action. It would be interesting to know what part of the present increase in juvenile delinquency is attributable to intelligence distribution changes.

Throughout it has been the plan of this enquiry to confine the investigation to the direct psychological effects. Nevertheless it cannot be overlooked that these would often be powerfully accentuated or modified by simultaneous effects operating in other fields, e.g. the increase in economic divergence discussed above would increase the provocation to delinquency. The possible reciprocations of primary consequences, resulting in consequences of a second order, are too numerous to study here; but in the matter now being discussed there is a point of such interest that it would seem to justify departing from the condition that other things are equal, and following up the result of another social variable varying along with intelligence.

Above we have supposed that the demands of culture will persist at their present level. Although culture habits in their deeper levels have considerable persistence, there are times, e.g. at the birth of some new religious impulse, or the impact of one culture upon another, when few

things can change more rapidly. It is possible, therefore, that instead of persisting the present restraints will either slacken, in response to the fall of intelligence, or that an attempt at over-compensation will be made by tightening up inhibitions to a hitherto unobtained level.

Before looking at the consequences of these alternatives, it is necessary to consider the ways in which instinctive expression is modified by culture. Generally the original biological goal of hunger, sex, gregariousness, etc., is maintained, being reached, however, by a longer circuit. Instead of hunting his food a man may earn it by working as a clerk. This involves a certain psychological strain and demands, generally, more intelligence than the original mode of behaviour. But instincts may even become what Freud has called 'aim inhibited', i.e. sublimated to some goal resembling but not as satisfying as the original biological goal. This renunciation demands 'plasticity' in the nervous system, a thing about which we know little, but generally it also requires intelligence, for the substitutes offered are generally of a complex kind.

Neither of these instinct changes is, in itself, better carried out by reason of good intelligence (unless it should be proved that 'plasticity' correlates with intelligence). Pascal is said to have responded to a disappointment in love by becoming increasingly entranced with the higher mathematics, and this sublimation is clearly not possible without such an intelligence as would make mathematics fascinating; but a feeble-minded person might respond equally well to the same situation, as in cases I have observed, by an interest in painting walls or smashing stones with a hammer. Similarly a man who doesn't get his food by the enjoyment of hunting may earn it, if he has a low I.Q., by turning a crank, with no more long-circuiting than occurs in the individual with a higher I.Q. who does the work of a clerk.

The chief reason, therefore, why the person of greater capacity is less delinquent and more able to tolerate either long-circuiting of instinct or its sublimation must be that civilization offers more opportunities for long-circuiting and sublimation at higher levels than at lower levels of complexity.

For all individuals some of the time, and some individuals all of the time, the psychological strain of these instinct modifications—which I shall call 'deflection strain'—must approach the limit of toleration, so that delinquency is threatened. This problem has been dealt with from one aspect by Freud in *Civilization and its Discontents*. From the present aspect we see that any marked fall of average intelligence with the same

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standard of culture is going to increase 'deflection strain' to an explosive pitch.

In individual psychology it frequently happens that free-floating emotion from unexpressed unconscious sources irrationally fastens itself upon some chance external object, or that unconscious attitudes are 'projected' upon innocent objects. The irritation engendered by the frustrations of 'deflection strain' may well be one of the main drives for acts of war, and for the projection of hostile attitudes upon foreign countries. A fall of intelligence in a civilization which retains its complexity in spite of the less adequate mentalities of its bearers may, therefore, be associated with an increased readiness to action which relieves the tension of 'deflection strain' by war.

The first solution of the 'deflection strain' arising from intelligence decline which is likely to appeal to a community conscious of its cause, would be a systematized relaxation of moral standards, permitting more direct instinctive satisfactions and harmless and culturally valueless long-circuitings. The widespread creation of easy amusements in the cinema, the radio and the best-seller novel show that this is going on to-day, and these institutions might cater for a fall in average intelligence in such a way as to handle 'deflection strain' without allowing any increase in delinquency. Economic measures might do the same, for 'deflection strain' is greater for low than for high intelligences under conditions of material deprivation. The substitution of lower for higher recreational values is, however, a moral loss to the community in the fullest sense of morality.

There remains the alternative of the community being provoked, as it were, by the threatened decline into an actual increase of restraints and the imposition of higher standards, such as might occur in a strongly religious society. Granted sterner inhibition the limits of deflection strain would then be indicated not by an increase in delinquency but by a mounting incidence of suicides, melancholiacs and perhaps neurotics generally. At the same time there would be a loss of expressiveness and *joie-de-vivre* throughout the community, with resultant changes in the creativity and in the general type of culture. To maintain the same percentage of delinquency with a falling intelligence average, therefore, it seems that the community must either invent substitute satisfactions at a low level or revert to Spartan or Puritanical standards of suppression.

(d) In political and social life

We are confining consideration in the main to consequences of a fall of intelligence, but the kind of change actually foreshadowed in the birth-rate survey described almost certainly includes also an increase in the standard deviation, principally through a relatively large increase in the 70-80 i.q. range remote from the present mode.

The political consequences of such a change may be expected to arise directly through the increasing mental distance between individuals, and indirectly through changes in economic status brought about by the change. Outstanding among the latter would be the development of a larger 'social problem group' or at least of a group supported, supervised and patronized by extensive state social welfare work. Even if, through the supersession of *laissez-faire* by control of earnings, increased economic divergence were prevented, the direct 'distancing' effect would still persist: people may have uniform wage-rates and yet diverge greatly in social life and habits through differences in complexity of occupation, prestige and the presence or absence of intellectual interests. Any increase in the standard deviation is inimical to that human solidarity and potential equality of prestige which is essential to democracy.

Experimental evidence in the political field is slight but consistent. In three American Universities⁽¹⁴⁾ where the students had already been tested for intelligence, a questionnaire permitting a rating on a Radical-Conservative scale and in which the political views were given adequate place, showed a significant relation between higher intelligence and more radical views. Other researches^(8,11) confirm this relationship. Terman⁽¹⁶⁾, having worked out from childhood records the i.q.'s of eminent men in political life, afterwards sorted them into radical and conservative groups. The latter had the lower average intelligence.

Psychological analysis suggests that the above is not the whole story. To see all sides of a question, to make a discriminating and qualified, rather than an all-or-nothing response, requires higher intelligence. A fall of average mental capacity means an increase in the number of people capable of being led into extremist positions.

It is a commonplace in education that freedom can generally be safely given to a child in proportion to his intelligence. Newer systems of education, allowing the child considerable rights of self-determination, work admirably with gifted children; but at the other end of the scale, among border-line feeble-minded children in special classes, it is noticeable that children neither desire nor tolerate much individual freedom. It is

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as if, intuitively, or through experience, they realize that the greatest happiness of all concerned depends upon their being given rigid rules of conduct prescribing behaviour even to the extent of most detailed traditions and taboos. In social behaviour, as in arithmetic, they cannot safely be left to proceed far on their own.

Though the above relation of conservatism with lower intelligence has been described in the political field, the failure to appreciate reform or to desire the freedom to which reform will lead is shown equally, by the questionnaire study⁽⁸⁾, to hold for progressiveness in the social field. Reformers during a generation suffering a falling average of intelligence will consequently experience greater difficulty in finding support for intelligent modification of obsolete, unadjusted habits and a slowing down of social change may therefore be expected.

The above considerations combined suggest the probability of political changes of a complex kind. They include lack of cohesion between social groups, together with changes of mental attitude such as might lead to the dissolution of the ideal of democracy; a decrease of the tempo of liberal progressiveness, an increase in those who pin their faith to simplified extremist formulae; and a hardening of rigid disciplines which preclude individual freedom.

(e) In general culture

There remain for discussion certain effects of a more general kind on the mental life of the group as a whole.

Among people exposed to much the same cultural influences, it is surprising how highly the amount of general information at the command of any individual is dependent upon mental capacity. Correlations of 'g' with size of vocabulary, for example, are commonly as high as 0.8.

The smooth and efficient running of social life in a civilization of a complex kind, having many specialized institutions, requires a reasonably high level of general knowledge in all its members. Civilization is, after all, largely a body of knowledge—words, for example, do not live in dictionaries, but in the minds of writers—and people who cannot heed important parts of that background certainly cannot acquire the appropriate attitudes. Furthermore, any specialized question, affecting the life of the community as a whole, must be able to impinge upon a sufficient number and variety of alert people to ensure that the reaction is such as to be in the interests of the community as a whole. A decline in average intelligence means a shrinkage of the field of general knowledge which each person is capable of absorbing, and consequently a reduction

in the number of people aware of anything but the simplest issues within the ambit of their daily lives. This must lead to an inertness of society and a dangerous slowness or lack of integration in responding to political and social dangers.

This problem has already been studied experimentally in the previous section with regard to politics; we may here look at it in a more general way. Any new idea appearing in a community can be reacted to by those who understand it either in a friendly or a hostile fashion. But the people who do not understand it will usually treat it in a hostile fashion. Every idea must have, according to its complexity, a certain percentage of the community capable of appreciating it. It can percolate downwards very rapidly so far but, reaching the larger stratum of people who understand it with difficulty, it moves very slowly and must depend for its progress upon emotional pressure and extraneous historical factors.

There is thus for every idea a certain I.Q. which may be called its 'demostatic level', down to which it may be fully understood, and an I.Q. stretch below that over which it has some lesser influence, which may be called its 'percolation range'.

Thus in the field of literary art Leavis⁽¹²⁾ complains that "the rate at which *cultural* news penetrates is surprisingly slow... considering the elaborate machinery for disseminating such news which civilization possesses", and continues "the Book Clubs are instruments not for improving taste but for standardizing it at the middlebrow level, thus preventing the natural progression of taste that in the later eighteenth century, for instance, was assisted". The phenomenon would be explicable on the present hypothesis on the grounds that in the eighteenth century 'taste' had still not penetrated to its demostatic level, whereas to-day it has, and the maligned Book Clubs are only stabilizing each variety of taste at its most natural and stable level. The naïve supposition that progress of ideas downwards through society is continuous though slow, arises from the observation of slow movement in the 'percolation range'; but in fact no idea can get beyond its percolation range, and may be proceeding to an arrest at an I.Q. level which must be quite high in certain instances, e.g. the Special Theory of Relativity.

The vigour with which mental energy invests an idea or course of action is a function of the simplicity of the latter. Corresponding to the demostatic level and percolation range in society there is for each individual, in the range of ideas which assails him, an upper limit of easy comprehension ending in a point beyond which no further complexity can be handled at all. To the range beyond this point he can generally

apply nothing but a passive hostility; to the middle range of dim comprehension he can give only weak support or criticism; to the lowest range he can give the full weight of his emotional life. Consequently the amount of energy available in society for any given idea must depend on the demostatic level for that idea and the percentage of people in the given community above that I.Q. level, plus a value obtained by multiplying the numbers in each level of the percolation range by a fraction which diminishes from one to zero in passing from the top to the bottom of the percolation range. This we may call the 'psychic energy investment' of the idea, and it will vary from community to community according to the average level of I.Q. and the distribution of I.Q.

Between any two minds in the same culture there is bound to be more or less overlap in knowledge, interests and sentiments. This we may call 'mental overlap', and upon its extent depends the amount of social cohesion in any purpose which may attract the energy of society. Good mental overlap does not ensure common purpose, but it is the necessary fruitful soil of common sympathy in which the latter may grow. A reduction of average mental capacity means a reduction of mental overlap in all minds and a failure of any mental overlap whatever in the socially, geographically and occupationally more remote minds; so that social cohesion, and the size of the group in which successful cohesion can be maintained, are diminished. Reduction of mental overlap arising from that diminution in the radius of individual minds produced by the substitution of lower for higher I.Q.'s thus has two major consequences:

(1) The impairment of social cohesion.

(2) Reduction in the intensity of cultural life, which is the sum of these overlaps, or, otherwise expressed, of the total psychic energy investment of a given set of ideas—the ideas which give form to that culture.

A similar process must take place within the limited fields of the special sciences and arts. The inability of what we regard as the intelligent person to cope with the increased complexity of modern culture has been met by accepting the device of specialization. Versatile minds, capable of taking all knowledge for their province, are far rarer to-day than in Elizabethan times; indeed it has begun to be considered presumption to attempt proficiency in more than one field of learning. Yet co-ordinating minds are always urgently needed, and the progress of one science often depends upon its being brought into relation with another. Either a further increase in accumulated but undigested

information, or a decline of mental capacity in the workers serving those sciences, or both, would have the effect of bringing major progress to a halt and of preventing a synthesis of sciences either for the practical good of the community or for the attainment of truer philosophical perspectives.

The relation of intelligence to the type of interests, particularly social and recreational interests, must next be considered, for the latter react subtly yet strongly on the individual personality as a whole, and consequently upon the effectiveness of the individual as a member of society.

In a research in which children's preferences for various tests were studied, the present writer found that the obtained order of preference was practically the reverse of the order of 'g' saturation(3). Above a certain modest intelligence demand the occupations were most liked which demanded least use of intelligence. The same is found with school subjects; the brilliant child may prefer English or Mathematics, both highly 'g' saturated, but the dull child takes a natural interest principally in handwork, games and simple repetitive tasks.

In the recent research on popular reading habits, mentioned above(12), the literary student scornfully compares the standard of the accepted newspaper of 1850 with that of to-day, adding some scathing comments on fifty years of free and compulsory education. But, as indicated in the discussion on demostatic level, the difference is far more simply explained as being due to the increased social range in the reading public, necessarily accompanied by an increased percentage of readers from the lower ranges of the intelligence distribution curve, a change equivalent to a decline in the average mental capacity of the reading public. Even so the decline in standards might not have occurred without the newspaper magnates' devotion to "supplying the public with what it wants". But had this not been done on commercial grounds it would have been done on grounds of freedom; indeed in most fields of recreation it is in any case impossible to prevent people doing the things for which their level of intelligence best fits them. It is a short-lived mistake to force Aldous Huxley on people who want all-in wrestling, or Beethoven on those who can only enjoy the crudest of cinema drama.

When coercion by schoolmaster and highbrow ceases, as it is ceasing, because of its fruitlessness, a more subtle kind of coercion in the reverse direction will have to be taken into account. Comparing the tone of the Press in America and in this country, H. G. Wells has cautioned us that there are no more fools in America than in Great Britain. It is only that they are more vocal there.

Once free expression is conceded it is clear that the type which constitutes the mode of the intelligence distribution is going to become the most loudly expressed. Owing to the emotional force of the gregarious instinct and the wear and tear which the individual constantly suffers in trying to detach his reactions from those of the dominant average, the modes of expression of the more intelligent are always constrained towards those of that average. Without a sharper splitting of the social life of intellectual classes this is inevitable, and since intellectual classification is not the same as social classification, being less organized, only societies based on special interests keep the rarer interests alive.

These psychological forces quickly bring in their train material and economic associates. Thus when publishing becomes a purely commercial proposition, no publisher is likely to take on a 'highbrow' author with small circulation when he can employ a 'best-seller' author. The more widely used commodity actively pushes that desired by a few people off the market, whether that minority happens to be merely eccentric or culturally important.

Some alienation of the recreational and cultural interests of various classes may well occur if we continue to facilitate, through equalization of opportunity, the sorting out of classes according to intelligence, and if the natural variability of intelligence is at the same time increased through the present birth-rate trends. In any case the fall in the I.Q. level of the mode itself must result in a significant impoverishment and stultification of the cultural life of the average and the superior.

Finally we have to consider a general change towards which many primary and secondary changes are working. We have seen that there must be some decline in the cultural level attained by education, and some arrest in economic progress. To these effects must be added a decrease within the community as a whole of qualities of foresight and resistance to suggestibility, for deficiency in these is particularly characteristic of persons of defective intelligence⁽¹⁵⁾.¹

Increasing deflection strain not alleviated by any deliberate or accidental lowering of cultural demands may be reacted to, as we have seen, either by individual delinquency or war. But since all the above changes in education and economics, the diminished foresight and increased suggestibility, are such as to produce minor or major internal or external sufferings or calamities, the course of history may well lead

¹ An academic acquaintance, visiting the dentist remarked, "seeing a dentist before a tooth hurts is an act of pure intelligence", and though foresight is a conative rather than a cognitive quality it undoubtedly correlates with intelligence.

to adjustment by way of increased inhibition rather than by way of appropriate reduction of deflection strain.

In that case two responses are possible; either the traditional reaction to frustration by religious emotion and observance or the newer expression of thwartings through the phantasy of the novel and the cinema. This phantasy expression is to-day reaching tremendous dimensions, and we have probably not seen the end of its development or begun to appreciate its damaging effects on 'reality thinking' habits concerned in other spheres of life.

As regards the increase in a religious type of adaptation, it is clear that the trend of rationalist education may be powerfully against this, but the increased conservatism, suggestibility and limitation of mental range are in its favour. And rationalist notions, at least constructive rationalist notions attempting to give a philosophic conception of life in keeping with all the established findings of modern science, are bound quickly to reach their demostatic level, whereas the cruder symbolisms and approximations to the same truths contained in religion will readily acquire, owing to the bulge in the lower ranges of the I.Q. distribution curve, a far higher psychic investment energy. The imponderables, especially in this final calculation, are too many to justify the statement that a back-to-religion movement in the conventional sense of religion is probable, but the rough draft of a formula for the social response to an I.Q. decline can at least be given, and one possible solution of it is clearly an increase in religious forms of self-expression.

V. SUMMARY

This thesis, elaborated partly on experimental and partly on analytical grounds, indicates that the probable consequences of a downward shift in the intelligence distribution curve are as follows:

1. A fall in academic standards in the schools.
2. A change in the curriculum of schools towards less abstract and generalized studies.
3. An increased cost of education.
4. Increased unemployment in the less-skilled occupations.
5. Decrease in the average real earning capacity of the community as a whole.
6. A rise in the frequency of delinquency (unless there is a deliberate lowering of moral standards) or/and proneness to aggression between nations.

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7. Alternatively, if inhibitory forces prevail, either (a) an increase in the social equipment provided for phantasy compensations, or (b) an increase in religious expression.

8. An increase in the percentage of people adopting extreme or uncompromising political view-points, together with the growth of a generally conservative position.

9. An increased retardation in the percolation of 'cultural news', together with a lowering of the intensity of cultural life and a diminution in the rate of scientific discoveries and other specialized advances.

10. A shift of cultural and recreational interests to cruder tastes and forms of expression, together with an increased divergence of interest between different groups and a greater domination by the average.

11. A check to the growth of social and political freedom and a reversion to a more detailed prescription of individual behaviour.

REFERENCES

- (1) BURT, C. (1925). *The Young Delinquent*. London: University of London Press.
- (2) CATTELL, R. B. (1931). "The assessment of teaching ability." *Brit. J. educ. Psychol.* I, 48.
- (3) CATTELL, R. B. & BRISTOL, H. (1933). "Intelligence tests for mental ages of 4-8 years." *Brit. J. educ. Psychol.* III, 142.
- (4) CATTELL, R. B. (1934). "Occupational norms of intelligence, and the standardization of an adult intelligence test." *Brit. J. Psychol.* XXV, 1.
- (5) — (1936). "Is national intelligence declining?" *Eugenics Review*, XXVIII, 3.
- (6) — (1937). *The Fight for Our National Intelligence*. London: P. S. King.
- (7) — (1937). "Some further relations between intelligence, fertility and socio-economic status." *Eugenics Review*, XXIX, 3.
- (8) ECKERT, R. E. (1935). "Analysing the superior college student." *School and Soc.* XLI, 69.
- (9) GRAY, J. L. & MOSKINSKY, P. (1935). "Ability and opportunity in English education." *Sociol. Rev.*, XXVII, 113.
- (10) HEALY, T. (1920). *The Individual Delinquent*. Chicago.
- (11) HOWELLS, T. H. (1929). "A study of religious orthodoxy." *Univ. Iowa, Service Bull.* XIII, No. 38.
- (12) LEAVIS, Q. D. (1932). *Fiction and the Reading Public*. London: Chatto and Windus.
- (13) MILES, G. H. (1937). "Fatigue from the industrial point of view." *The Human Factor*, XI, 8.
- (14) MURPHY, G. *et al.* (1937). *Experimental Social Psychology*. New York: Harper.
- (15) PORTEUS, S. D. & BABCOCK, M. E. (1926). *Temperament and Race*. Boston.
- (16) TERMAN, L. M. (1925). *Genetic Studies of Genius*, vol. I. California: Stanford University Press.

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