

hand, and on the other the prevalence of the 70-hour week applied to the armament industry in its various aspects throughout the country.

Conclusion

No attempt has been made in these observations to investigate or discuss the subject from the standpoint of industrial psychology in any scientific way. Nor has reference been made to methods of treatment found effective in the cases concerned. While it is true that in the majority prognosis is favourable, the conditions responding satisfactorily to psychological treatment and general measures, the object has been to call attention to the discrepancy between previous scientific findings as to working hours and conditions of work such as are current industrial practice under the exigencies of our present rearmament programme, and thereby to lay emphasis upon prevention as distinct from amelioration. If the nation is to "stay the course" in the most efficient way possible this problem will require to be looked into, and it is felt that a definite case has been made out as to the urgent necessity for detailed scientific investigation in collaboration with those whose duties bring them in touch with working conditions as they affect large groups of workers. The very demand for supreme national effort is also the argument for the closest study concerning productive capacity in its fullest and most lasting sense. The spontaneous, haphazard, and irrelevant remark of a psychoneurotic patient (a fitter), under treatment for a complaint other than anything connected with his work, may summarize and illumine the importance of this question: "Next week we'll be going on seven days—a 70-hour week. The thought comes to me, 'How long shall I stand up to that? How much shall I damage my resources for the future?'"

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The annual report for 1938 of the National Association for Supplying Medical Aid by Women to the Women of India (Countess of Dufferin's Fund, including the Women's Medical Service) reveals a gratifying increase in the support of this organization while indicating the great amount of work that still needs even more financial and other kinds of help if the intense demand for its services is to be at all adequately met. A very strong case is presented for enlarging hospitals for women and for building new ones. A tour in the North-Western Province, for example, taken at the request of the Inspector-General of Civil Hospitals showed that the women in that Province, as is also the case in other parts of India, are becoming much more "hospital-minded"; the number of maternity patients has more than doubled there in the last few years. The present hospital accommodation is quite inadequate to meet the demand, and the existing hospitals for women are all overcrowded and understaffed. It is gratifying that the unhealthy "purdah" system has been broken down, but there are still very many Indian women who would rather risk death than enter a general hospital, and a still larger number of women who would much prefer to be treated by members of their own sex for their confinements and for special diseases of women. Hospital equipment needs modernizing, and medical and nursing staffs should be brought more nearly up to the standards existing in Great Britain and the United States. Many local authorities seem to be unable to give proper financial support to the hospitals under their administration.

DOES POLIOMYELITIS AFFECT INTELLECTUAL CAPACITY?

AN INVESTIGATION ON 98 CASES

BY

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The question as to how far infections of the central nervous system have any influence on basal intelligence is one which has not been widely explored. In this country Dawson (1931) has investigated a series of cases of chorea in which he found no variation from the normal, and another of encephalitis lethargica in which he demonstrated a progressive deterioration; but, as far as we can discover, no investigation on the effects of anterior poliomyelitis has been undertaken. It might be said that poliomyelitis, being a disease whose chief incidence falls on the anterior horn cells of the spinal cord, was hardly likely to affect intelligence, but it should be remembered that it is now reasonably certain that the path of invasion is by a droplet infection lodging the virus in the post-nasal mucous membrane, whence it travels by the perineural path through the cribriform plate, and so transcerebrally to its subsequent nidus in the anterior horn cells. Furthermore, many cases show at least transient initial cerebral symptoms, which are sometimes of considerable intensity.

Mollaret (1937) in his chronaxial studies of the nervous system sums up certain experimental results on anterior poliomyelitis, which included the introduction of the virus by non-cerebral routes (intraperitoneal, etc.). The interest of this study is that it suggests the existence of a cerebral disturbance occurring before the evident onset of symptoms. Moreover, this disturbance is found as constantly in abortive or asymptomatic cases as in those which develop typical paralysis. It bears witness without doubt to the constancy of a hitherto unsuspected early encephalitic dissemination of the virus. For these reasons it seemed worth while to attempt to determine whether poliomyelitis affects general intelligence, as measured by standard tests, especially as it is not unusual for parents or teachers to express anxiety as to how far this disease may affect the intellectual as well as the physical integrity of the unfortunate victim.

Selection and Testing of the Group

All the cases were derived from those coming under the scheme of the Bath and Wessex Orthopaedic Hospital and clinics, to the surgical staff of which we wish to express our gratitude for allowing us access to them. All children between the ages of 4 and 16 who during the period of investigation were under treatment at the central hospital for the acute stage of poliomyelitis or its residual effects were tested on the Stanford-Binet scale. In order to increase the numbers, and to include cases the onset of whose disease had occurred several years before the tests were applied, a further group was examined at some of the clinics. The children tested were those who

happened to attend on the days of the visits of the psychologist; apart from this there was no selection.

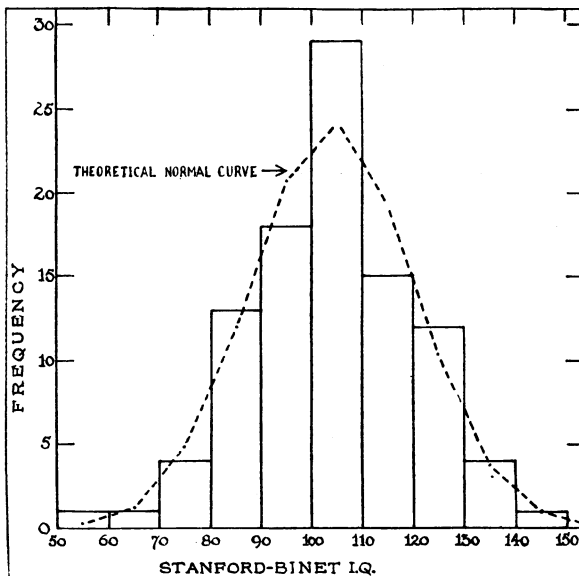
Rather more than a hundred cases were tested, but subsequently this number was reduced to ninety-eight after a very rigid clinical survey with the object of excluding those who did not present unequivocal evidence that their disability was due to poliomyelitis. Some of the cases came from rural areas, others from urban areas, but all were of the economic status represented by the elementary school population. Some had been hospitalized at the onset of the illness; others subsequently, for the purpose of orthopaedic treatment of residual disabilities, whether by operative or other measures; while some had not been hospitalized at all, but had been under observation at the clinics.

Results

The following table shows in somewhat condensed form the Stanford-Binet I.Qs. of the ninety-eight children. The diagram presents the same results graphically.

Binet I.Q.	No. of Cases	Binet I.Q.	No. of Cases
50-59	1	100-109	29
60-69	1	110-119	15
70-79	4	120-129	12
80-89	13	130-139	4
90-99	18	140-149	1

Mean I.Q., 103.91. Standard Deviation, 15.89. (Ungrouped figures.)



The problem is this: Does this sample of children yield the same average result as would a sample of normal children drawn from the general population? Furthermore, does the variability, the spread, of the results indicate a range of variation similar to what would be found in a representative group of healthy children?

The Stanford-Binet scale has been very widely used over many years, and it has been found that an I.Q. of 100 is, in fact, very close to the average I.Q. of the general population. Thus it is clear that the average performance of the present group does not fall below what could confidently be expected from a random group of normal children. A more thorough examination of this point is, however, possible. In recent years a survey of school children, selected by age only, was made in the city of Bath (Roberts and Griffiths, 1937). The city of

Bath is a part of the area from which were drawn the patients included in the present study, and represents the most considerable urban district within that area. In view of the fact that it is generally recognized that the mean intelligence in rural areas is somewhat below that in urban areas, it is to be expected that a random sample drawn from the whole area covered by the present study would certainly not yield a sample superior to the previous one.

The Binet testing was carried out by one of us (Ruth Griffiths), who was also responsible for most of the testing in connexion with the Bath survey; such testing in that survey as was carried out by others was standardized in detail to correspond to hers, so that the figures for the two groups are strictly comparable. The mean I.Q. for the Bath school children was 98.8 and the standard deviation 15.2. It will be seen, therefore, that the present group exceeds the Bath group in respect of mean performance, while in variability, as shown by the standard deviation, there is no significant difference.

Actually the present group is significantly higher in mean I.Q. than the previous complete group, but the absolute difference is of course small. The discrepancy may well be due to a difference in age at test. The children composing the present group were considerably younger than those composing the Bath group, and it is known that the Stanford revision is slightly too difficult at older ages and slightly too easy at younger ones (Terman and Merrill, 1937). Small though this effect is, it is probably sufficient to account for the somewhat higher figure yielded by the present group, though that group is too small to permit a demonstration of the slight fall in I.Q. as age increases.

There is therefore very strong evidence that in mean performance a group of children who are suffering from, or have suffered from, poliomyelitis do not fall below the performance that would be shown by a random group of normal children drawn from the general population.

It has already been mentioned that in variability of results, as measured by the standard deviation, the present group does not differ appreciably from the random Bath group or, in fact, from the results obtained by many investigators on school children in various parts of the world. A more precise examination was, however, made, and showed that the distribution of I.Qs., summarized in the preceding table, did not show any significant departure from what would be expected on the basis of the normal curve; this result, too, is what would be yielded by a sample of similar size drawn from the general population. It can be concluded, therefore, that a comparatively large sample, adequate for this discussion, shows clearly that children who suffer from poliomyelitis give just the same average results as do ordinary normal children, and that the variability of the results also, their spread, their range, is simply that of a normal group.

In view of the unequivocal nature of the foregoing results it is of course very unlikely that any subdivision of the children could reveal an association between the level of general intelligence and any special factors. This proved to be the case in regard to all the analyses we have made. The results are set out, accordingly, in very brief form.

1. *Sex Distribution.*—46 girls: mean I.Q. 102.1. 52 boys: mean I.Q. 105.5. The difference is not statistically significant.

2. *Age at Onset of Disease.*—There was no association, as is illustrated by the following table:

Age at Onset	No. of Cases	Mean Binet I.Q.
Less than 4 years	30	104.1
4-7 years	32	103.8
8-14 years	36	103.9
Total	98	103.9

3. *Interval between Onset of Disease and Performance of Test.*—Once again there was no association.

Interval between Onset of Disease and Test	No. of Cases	Mean Binet I.Q.
0-11 months	21	104.5
1-4 years	38	103.7
5-15 years	39	103.8
Total	98	103.9

Thus there is no evidence either of a depression of intelligence which passes off or of a depression which is produced by the after-effects during the years of childhood.

4. *Occurrence of Clinically Recognizable Cerebral Symptoms at Onset of Disease.*—Group 1: None; 60 children. Group 2: Minor symptoms; 22 children. Group 3: Pronounced symptoms; 16 children.

Group	No. of Cases	Mean Binet I.Q.
1	60	103.4
2	22	105.4
3	16	103.8
Total	98	103.9

The occurrence of cerebral symptoms is therefore of no subsequent significance in regard to the level of general intelligence.

Conclusion

This study shows that an attack of poliomyelitis does not, either at the time or subsequently, depress the level of general intelligence as estimated upon the Stanford-Binet scale. The anxious parent may therefore be reassured so far as basal intelligence is concerned, but two other points must be kept in mind by the physician. In the first place the child affected by poliomyelitis may be absent from school for long periods; unless provision is made by home tuition or, as is done in orthopaedic hospitals, by the provision of special educational facilities, his educational achievement may be very much behind that of his contemporaries, even though his basal intelligence is not affected. Secondly, the child crippled by poliomyelitis may, unless care is taken, develop emotional reactions to his environment which may result in serious personality maladjustments; these may determine definite educational backwardness simulating true mental retardation.

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THE PREVENTION OF DEFAULTING FROM V.D. TREATMENT CENTRES

BY

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With the recent advent of the new chemotherapeutic methods of treating gonorrhoea there is likely to be a considerable increase of "defaulters" from the venereal disease treatment centre. Defaulters are patients who cease to attend before all the necessary treatment has been given or before the complete tests of cure have been performed. In addition, many will not seek medical aid. They will depend on a limited amount of self-administered chemotherapeutic treatment. Consequently, these patients receive no thorough tests of cure. Should this tendency be allowed to develop an increase of venereal disease is possible. Methods of dealing with the question are discussed below and an analysis of male defaulters at the Leicester V.D. centre follows.

Public V.D. Lectures

The education of the public on the dangers of venereal disease is now an important part of the V.D. scheme in Leicester. It may be of value to record some of the results. Two periods of six years are compared—1926 to 1931, and 1932 to 1937 inclusive. During the first period practically no propaganda was conducted.

At first some people opposed the idea of public lectures on such a subject. Indeed, the term "venereal diseases" was avoided in the public notices which advertised the lectures in 1932. The bills displayed on trams and buses, in factories, in public lavatories, and in the police headquarters and St. John Ambulance headquarters were headed "Lectures on Social Hygiene." In 1933, however, it was considered that even the term "venereal diseases" could appear in public notices. The popularity of the lectures was apparent from the beginning, the lecture halls being crowded. Each lecture, with lantern slide demonstration and discussion, lasted about two hours. I preferred my own set of lantern slides to an obviously acted film. The discussion which followed always proved valuable. Questions had to be stopped after some sixty minutes, otherwise they would have gone on for most of the night. Those asked were surprisingly intelligent, as the following examples show.

Can a person get venereal disease from a lavatory seat? Can one get venereal disease from domestic animals? Does a woman necessarily know when she has venereal disease? Can a man get venereal disease from having sexual intercourse with a woman when her period is on? Does circumcision prevent venereal disease? What is the speaker's opinion on masturbation? Is it always certain that a man will contract venereal disease should he have connexion with a woman who is known to have it (no preventives being used)? What is the speaker's opinion on prostitution? Why do we not educate the public more than we do on the dangers of venereal disease? Why not instruct the civilian population on preventive measures? Should young people contemplating marriage have tests for venereal disease? Is there any danger of contracting venereal disease from blood transfusions? Can venereal disease of the testicle follow a kick on that part? What is meant by "whites"?

After one of the earlier public lectures I was accused of making it appear that venereal disease could be cured too easily. It was argued that I was encouraging promiscuity. My accusers, however, represented only a few of the extremely narrow-minded. Those accusations were made a few years ago and are now forgotten. I wonder what effect the newer chemotherapeutic methods of treatment will have on promiscuous sexual intercourse. Already the "new tablets" have been claimed to be antiveneal, contraceptive, aphrodisiac, and abortifacient (!).

In public lectures on venereal diseases special reference must be made to the non-venereal patient. Attendance at